ERTSE_48

SOIL STABILIZATION BY USING COIR FIBRE

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To make use of locally a variable soils, soil strength should be increased because every time it is not possible to find required or specified strength in locally available soils. Soil strength can be increased by adding stabilizing agents like lime, cement, flyash, fibre etc. Use of fiber in technology for rising soil properties is advantageous as a result of their low-cost, domestically accessible, perishable and eco-friendly. The coir fibre reinforcement causes significant improvement in bearing capacity and shear strength and alternative engineering properties of soil. The experimental study is conducted on domestically accessible soil reinforcement with coconut fibre. Soil sample is ready at it's most dry density appreciate it's optimum wetness content (OMC). The proportion of fibre by dry weight of soil is taken as 0.25%, 0.5%. The index properties of soil tests is conducted and shear strength of soil is compared before and after adding of coir fibre to soil.

Keywords: *Soil Stabilization, Coir fibre, OMC, Shear Strength.*

ERTSE_23

TRANSLUCENT CONCRETE: A REVIEW

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Concrete, a proportionate mixture of Cement, aggregates include fine and coarse with sufficient amount of water. Saving different energies used by us is most necessary these days which in turn saves the nature. Translucent or Transparent concrete is an innovative and novel architectural material with light transmission properties using optical fibers and glass rods inscribed in different patterns that provides an aesthetic view. This can be used in partition walls, reception desk and other important places that attract the mankind. This new kind of building material integrates the concept of green energy saving overcoming the image of concrete as a dull and pale material. The thickness of optical fiber where light transmits may be varied from 2 μm and 2 mm which is almost equal to diameter of human hair is used in the concrete for a volume of is 4%-5%. Also, strength characteristics play a major role in estimating the durability of the concrete structure. This paper reviews the properties of optical fibers, studies on different strengths and comparison with conventional concrete.

Keywords*: Transparent Concrete, Optical fibers, Light transmission, Glass rods, Green energy, Durability.*

ERTSE_29

A LABORATORY INVESTIGATION ON FLYASH BASED BACTERIAL CONCRETE

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Concrete is the only construction material which satisfies the properties of strength and durability. Concrete, which is brittle, by the nature has a tendency of developing cracks with the passage of time. The development of cracks induces problems on the reinforcement with the intrusion of salts, chlorides and water through these cracks. So in order to counteract this problem, the concept of Bacterial Concrete can be used by which concrete heals itself, the micro cracks developed at the early stage. This type of concrete can also be called as a Self-Healing Concrete. From the various studies, it is observed that 10% replacement of flyash with the cement in concrete production gives the better results. In this project work, Bacteria is prepared using Bacillus Subtillus, the culture which is laboratory developed in the institution using the raw bacteria. Along with the Bacterial Concrete, Flyash of 10% is added as a replacement of cement and the concrete is produced. 5%, 10% and 15% of water is replaced with the developed bacteria and added to the flyash concrete. Laboratory tests viz., Compressive Strength Test and Split Tensile Test are carried out and the results are compared.

Keywords: *Bacillus subtillus, Flyash Concrete Bacterial Concrete, Bacteria Culture, Cracks.*

3.3.3

3.3.3 Number of books and chapters in edited volumes/books published and papers published in national/ international conference proceedings per teacher during year

Sl. No.	Name of the teacher	Title of the book/chapters published	Title of the paper	Title of the proceedings of the conference	Name of the conference	National / International	Year of publication	ISBN/ISSN number of the proceeding	Affiliating Institute at the time of publication	Name of the publisher
1	K.Vamshi Sharath	An insight into Chemical Classification of Drugs				National	2020 - 2021	978-81-938138-9-8	Nalla Narasimha Reddy Education Society's Group of Institutions	Taurus Publishers
2	B.Parijatha	A Practical Book of Pharmaceutical Inorganic Chemistry				National	2020 - 2021	978-93-908336-6-5	Nalla Narasimha Reddy Education Society's Group of Institutions	Scripown Publishers

NARENDER BOGGULA is an Associate Professor at School of Pharmacy, Anurag University, Venkatapur, Ghatkesar, Hyderabad, Telangana. He is a dynamic, hard working professional person in the Pharmaceutical Chemistry department. He is pursuing Ph.D in Mewar University, Rajasthan. He completed his M.Pharmacy (Pharmaceutical Chemistry) from Krupanidhi College of Pharmacy, Bengaluru, Karnataka, affiliated to Rajv Gandhi University of Health Sciences, Bengaluru, B.Pharmacy from Care College of Pharmacy, Warangal, Telangana, affiliated to Kakatiya University, Warangal and D.Pharmacy from Jangaon Institute of Pharmaceutical Sciences, Jangaon, Telangana, affiliated to Kakatiya University, Warangal. He has seven years of experience in research and academics and one year of Industrial Experience. He has 95 publications in various Journal of International and National repute. He has attended 60 National and International conferences/seminars/workshops and presented his research work. He has contributed 8 books in his expertise area. He is also an editorial board member and reviewer of some prestigious journals. He has guided many projects to UG students. He has a life member of Association of Pharmacy

Dr. KUNDURU VIVEK KUMAR is an Associate Professor at School of Pharmacy, Anurag University, Venkatapur, Ghatkesar, Hyderabad, Telangana. He is having 7 years experience in teaching. He did Pharm.D (PB) in Vaagdevi College of Pharmacy, Warangal, Telangana and B.Pharmacy in Trinity College of Pharmacy, Peddapalli, Telangana. He published 12 papers in various national and international journals. He has attended 20 National and International conferences/seminars. He guided many projects to Pharm.D students. He has a life member of Association of Pharmacy Teachers in India (APTI).

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An Insight Into
Chemical Classification of Drugs

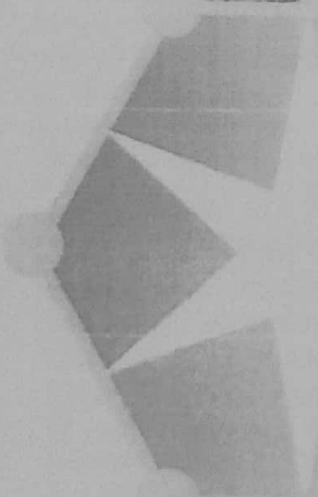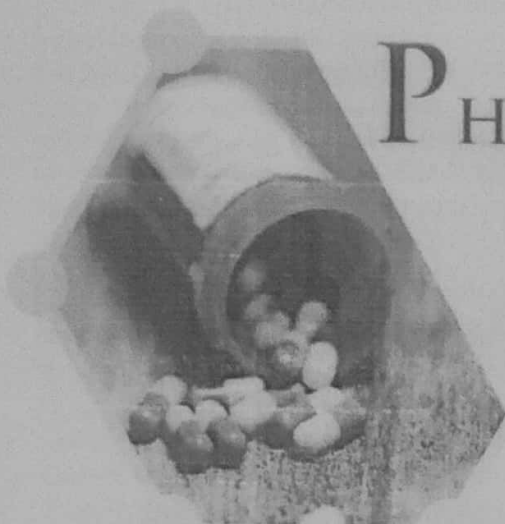Narender Boggula
Dr. Kunduru Vivek Kumar
Kaveti Vamshi Sharathnath

Taurus Publishers

A Practical Book of

Pharmaceutical

Inorganic

Chemistry

Narender Boggula

Dr. Ganesh Akula

Parijatha Bandigari

About the Authors

NARENDER BOGGULA is an Associate Professor at School of Pharmacy, Anurag University, Venkatapur, Ghatkesar, Hyderabad, Telangana. He is a dynamic, hardworking professional person in the Pharmaceutical Chemistry department. He has to his credit eight years of experience in Research and Academics and one year of Industrial Experience. He has 100 publications in various Journal of International and National repute. He has attended 60 National and international conferences/seminars/workshops and presented his research and development work. He has contributed 10 books in his expertise area. He has 1 Indian Patent. He is also an editorial board member and reviewer of some prestigious journals. He has successfully completed various NPTEL courses. He has guided many projects to UG students. He is a life member of Association of Pharmaceutical Teachers of India (APTI). Mr. Narender Boggula has an excellent track record in academics and actively engaged in teaching, research, administration and service to his profession.

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₹ 410 US$ 10

Strategies In synthesis of N-Heterocyclic compounds

K Shashikala

E Laxminarayana

P Bhaskar

Chapter 4	A FACILE SYNTHESIS OF 2-CYCLOPROPYL-3-PYRAZOLO - 1,8-NAPHTHYRIDINE DERIVATIVES

SHASHIKALA KETHIREDDY[1], BHASKER PITTALA[2] & LAXMINARAYANA EPPAKAYALA[3*]

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ABSTRACT

An efficient method was developed to synthesize 2-Cyclopropyl-3-pyrazolo- 1,8-naphthyridine derivatives through winder bromide reaction. The compounds synthesized were characterized by IR, NMR and Mass spectral analysis.

INTRODUCTION

Pyrazole is an unsaturated five membered heterocyclic compound with molecular formula C3H4N2. This aromatic ring comprises 3 carbon atoms and 2 nitrogen hetero atoms at adjacent positions. The first natural pyrazole was isolated from watermelon seeds. Pyrazole framework plays an essential role in medicines as well as in dyes (Alessandro B, et al.,2006; John M F, et al.,2006; Michael G C, et al.,2006; Thomas D P, et al.,2006; Manuela V, et al.,2006; Abid M & Azam A, et al.,2006). It has been proven to be a fertile source of medicinal agents such as antibacterial, antifungal, antiviral, anti-inflammatory, antitubercular, antiandrogenic, antiamoebic, estrogen receptor ligand, etc. (Amr G, et al., 2006; Garge H G & Chandraprakash, et al., 1971; Singh A, et al., 2000; Klimova E I., et al., 1999; Padmavathi V, et al., 1999) Some of these compounds have also exhibited antidiabetic, analgesic, anesthetic and antiparasitic properties. The presence of pyrazole moiety in pharmacologically potential compounds such as difenamizole (an analgesic), celecoxib (an anti-inflammatory), amino phenazone (a pyrazalone with analgesic, anti-inflammatory, and antipyretic properties), pyrazofurin (antiviral), fezolamide (the antidepressant agent), CDPPB (antipsychotic), phenylbutazone (antipyretic and anti-inflammatory mainly used in Reiter's disease, osteoarthritis, rheumatoid arthritis, and spondylitis), rimonabant (anti-obesity drug).

WRITINGS ON FEMINISM

FROM MARGIN TO CENTRE
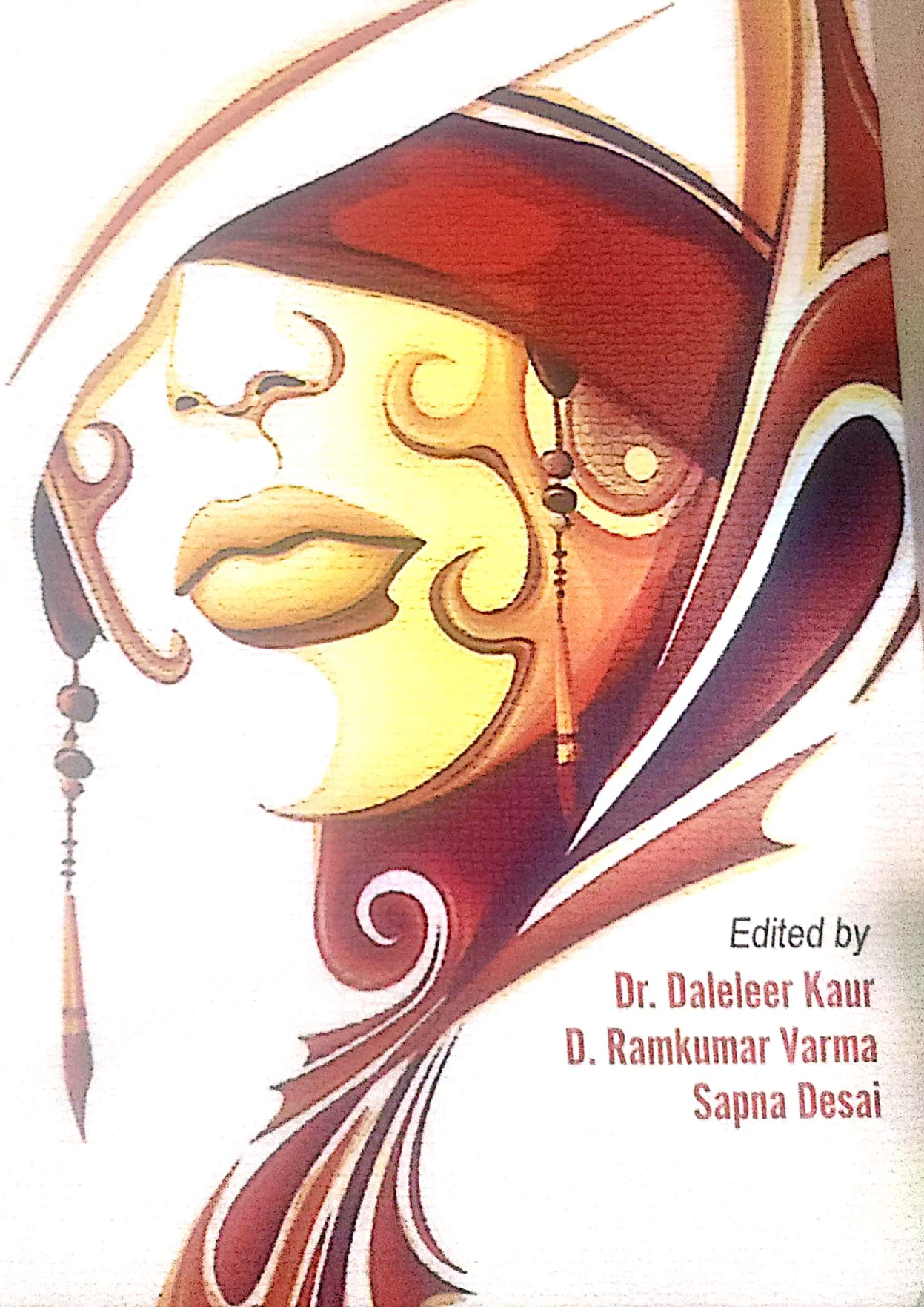
Edited by
Dr. Daleleer Kaur
D. Ramkumar Varma
Sapna Desai

Narrating Self in Kamala Das Life and Selected Writings

Dr. Sirisha Iruvuri

The women writers express their self, most conveniently in the form of self-narration or autobiography. The autobiographies of women project emotional state of an ordinary homemaker to a woman in quest of common status on par with man. Autobiographies of women around the world pass on a common message of courage and determination to show their strength and suffering in the male-dominating world. Autobiography as a distinct mode of literary expression is considered the literature of self-expression.

Autobiography is the narration of a person's inner life. This element talks about self-examination from the side of writer. Through self-narration ones feelings which are hidden in their heart and mind comes out to the outer world easily which helps the writer to free from their inner suppressed feelings. According to Gerhard Stilz, "autobiography is an elliptic venture where an author attempts to describe and locate one focus (his own self) by coming to terms with the other (the world experienced)"(Stilz: 164).

Prof. Meena Sodhi has advocated women's capacity of critical resistance in her critical work, 'Indian writing in English- The autobiographical mode, "However, we find whole women autobiographers who consider women's culture, as a 'sub-culture', men's culture being the main culture, with the women confirming mainly to it. A woman is taught to be selfless, submissive and is only a daughter, a wife or a mother". (Sodhi, 84)

According to Andre Maurois, "Autobiography is a prolonged speech for the defense and is of two types; one is where the writing is as interesting as novels and as true as the finest life. It has truth tone and a fidelity and impartiality in portraiture of a very high quality

Framework of Language, Literature and Communication

Tracing Harmony and Culture through English

EDITORS

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Contents

International e-Conference

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Department of Chemistry

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March 01 & 02, 2022

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This is to certify that _Dr. Bhaskar, Associate Professor_ of _Nalla Narasimha Reddy Education Society's Group of Institutions-integrated campus, autonomous college_ has presented a paper on "One Pot Multicomponent Synthesis of Pyrrole Containing Imidazoles using TBAPDS as a Catalyst" in "International Conference on Chemistry for Health, Hygiene and Environment (ICCHHE-2022)" organised by Department of Chemistry, Navyuga Kanya Mahavidyalaya on 01 & 02 March, 2022. Best wishes for your future endeavours.

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Faculty of English

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Perspectives on LSRW Practices' held between 11 – 12 Feb, 2022.

R. S. Reddy

Convenor

HOD

J. Praveen

Principal

Environmentally Benign Synthesis of 2,3,7-Substituted 1,8-Naphthyridines Devoid of Catalyst

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Abstract

A series of 1,8-Naphthyridines were synthesized from the starting material, 2-aminonicotinaldehyde (or 2-amino-pyridine-3-carboxaldehyde), using reusable eco-friendly PEG: 400 solvent via Friedlander annulation. These compounds were synthesized in catalyst free conditions with shorter reaction times. The compounds obtained were in good yields and characterized by spectral analyses like IR, ^{1}H-NMR and Mass.

Keywords: 2-aminonicotinaldehyde;PEG: 400; Friedlander annulation; Green synthesis; Naphthyridines.

1. Introduction

Nitrogen-containing heterocyclic molecules, especially, naphthyridines play an essential role in medicinal chemistry. They possess extensive biological activities[1,2] which must be studied for creating new pharmaceutically important compounds. The development of preparative methods for producing 1,8 Naphthyridine derivatives has sparked a lot of attention. Despite the large number of antimicrobial chemotherapeutics available, recent existence of multidrug resistance indicates an urgent need for developing new potentially active antimicrobial entities.

Among all the biological activities of1,8-naphthyridine derivatives, anti-inflammatory[3], anti-HIV[4], antimalarial[5], antimycobacterial[6], anticancer[7],antibacterial[8], antiplatelet[9] and antiprotozoal[10] are the few remarkable therapeutic activities. In particular, drugs containing 1,8Naphthyridine such as doxorubicin, ellipticine and etoposide act as anticancer drugs by targeting Mammalian topoisomerase II. The discovery of antibacterial drugs containing 1,8 naphthyridines started with first phase drug such as Nalidixic acid followed by Gemifloxacin, Tosufloxacin, Trovafloxacin mesylate, Enoxacin, Alatrofloxacin mesylate and Voreloxin, exist in the market.[11,12,13]Also, partially reduced 1,8-naphthyridines can operate as arginine mimics in a variety of natural products (e.g.eucophylline).[14]

After thorough review on synthesis of quinolones that emphasized oppor[...]ove heterocyclic synthesis by adopting alternative solvents (such as water), catal[...]ns, and smooth processing[15], we worked on green synthesis of 1,8-naphthyridine de[...]nd the new derivatives were reported.

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To make use of locally a variable soils, soil strength should be increased because every time it is not possible to find required or specified strength in locally available soils. Soil strength can be increased by adding stabilizing agents like lime, cement, flyash, fibre etc. Use of fiber in technology for rising soil properties is advantageous as a result of their low-cost, domestically accessible, perishable and eco-friendly. The coir fibre reinforcement causes significant improvement in bearing capacity and shear strength and alternative engineering properties of soil. The experimental study is conducted on domestically accessible soil reinforcement with coconut fibre. Soil sample is ready at it's most dry density appreciate it's optimum wetness content (OMC). The proportion of fibre by dry weight of soil is taken as 0.25%, 0.5%. The index properties of soil tests is conducted and shear strength of soil is compared before and after adding of coir fibre to soil.

Keywords: *Soil Stabilization, Coir fibre, OMC, Shear Strength.*

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To make use of locally a variable soils, soil strength should be increased because every time it is not possible to find required or specified strength in locally available soils. Soil strength can be increased by adding stabilizing agents like lime, cement, flyash, fibre etc. Use of fiber in technology for rising soil properties is advantageous as a result of their low-cost, domestically accessible, perishable and eco-friendly. The coir fibre reinforcement causes significant improvement in bearing capacity and shear strength and alternative engineering properties of soil. The experimental study is conducted on domestically accessible soil reinforcement with coconut fibre. Soil sample is ready at it's most dry density appreciate it's optimum wetness content (OMC). The proportion of fibre by dry weight of soil is taken as 0.25%, 0.5%. The index properties of soil tests is conducted and shear strength of soil is compared before and after adding of coir fibre to soil.

Keywords: *Soil Stabilization, Coir fibre, OMC, Shear Strength.*

FogBus Framework Based Covid Cases Prediction

Dr Srinivasa Babu Kasturi[1], Dr K. Rameshwariah[2], A. Naveen[3]

[1,2]Professor, [3]Assistant Professor

[1,2,3]Department of Computer Science & Engineering,

Nalla Narasimha Reddy Education Society's Group of Institutions

Abstract: *The outbreak of COVID-19 Coronavirus, namely SARS-CoV-2, has created a calamitous situation throughout the world. The cumulative incidence of COVID-19 is rapidly increasing day by day. Machine Learning (ML) and Cloud Computing can be deployed very effectively to track the disease, predict growth of the epidemic and design strategies and policies to manage its spread. This study applies an improved mathematical model to analyze and predict the growth of the epidemic. An ML-based improved model has been applied to predict the potential threat of COVID-19 in countries worldwide. We show that using iterative weighting for fitting Generalized Inverse Weibull distribution; a better fit can be obtained to develop a prediction framework. This can be deployed on a cloud computing platform for more accurate and real-time prediction of the growth behavior of the epidemic. A data driven approach with higher accuracy as here can be very useful for a proactive response from the government and citizens.*

Keywords: *Cloud computing, FogBus framework, Machine Learning, tanhshrink, Weibull distribution.*

1. INTRODUCTION

The novel Coronavirus disease (COVID-19) was first reported on 31 December 2019 in the Wuhan, Hubei Province, China. It started spreading rapidly across the world. The cumulative incidence of the causitive virus (SARS-CoV-2) is rapidly increasing and has affected 196countries and territories with USA, Spain, Italy, U.K. and France being the most affected. World Health Organization (WHO) has declared the coronavirus outbreak a pandemic, while the virus continues to spread. As on 4 May 2020, a total of 3,581,884 confirmed positive cases have been reported leading to 248,558 deaths. The major difference between the pandemic caused by CoV-2 and related viruses, like Severe Acute Respiratory Syndrome (SARS) and Middle East Respiratory Syndrome (MERS), is the ability of CoV-2 to spread rapidly through human contact and leave nearly 20% infected subjects as symptom-less carriers. Moreover, various studies reported that the disease caused by CoV-2 is more dangerous for people with weak immune system. The elderly people and patients with life threatening diseases like cancer, diabetes, neurological conditions, coronary heart disease and

HIV/AIDS are more vulnerable to severe effects of COVID-19. In the absence of any curative drug, the only solution is to slow down the spread by exercising "social distancing" to block the chain of spread of the virus. This behavior of CoV-2 requires developing robust mathematical basis for tracking its spread and automation of the tracking tools for on line dynamic decision making.

There is a need for innovative solutions to develop, manage and analyse big data on the growing network of infected subjects, patient details, their community movements, and integrate with clinical trials and, pharmaceutical, genomic and public health data. Multiple sources of data including, text messages, online communications, social media and web articles can be very helpful in analyzing the growth of infection with community behaviour. Wrapping this data with Machine Learning (ML) and Artificial Intelligence (AI), researchers can forecast where and when, the disease is likely to spread, and notify those regions to match the required arrangements. Travel history of infected subjects can be tracked automatically, to study epidemiological correlations with the spread of the disease. Some community transmission based effects have been studied in other works. Infrastructure for the storage and analytics of such huge data for further processing needs to be developed in an efficient and cost-effective manner. This needs to be organized through utilization of cloud computing and AI solutions. Alibaba developed cloud and AI solutions to help China, fight against coronavirus, predict the peak, size and duration of the outbreak, which is claimed to have been implemented with 98% accuracy in real world tests in various regions of China. Different types of pneumonia can be resolved using ML-based CT Image Analytics Solution, which can be helpful to monitor the patients with COVID-19. Details can be seen in. The development of vaccine for COVID-19 can also be accelerated by analyzing the genome sequences and molecular docking, deploying various ML and AI techniques.

2. LITERATURE SURVEY

A literature survey or a literature review in a project report is that section which shows the various analyses and research made in the field of your interest and the results already published, taking into account the various parameters of the project and the extent of the project. It is the most important part of your report as it gives you a direction in the area of your research. It helps you set a goal for your analysis - thus giving you your problem statement. Literature survey is something when you look at a literature (publications) in a

surface level, or an Ariel view. It incorporates the study of place people and productions are setting of research. It is phase where the analyst tries to know about what is all the literature related with one range of interest. Also, the relevant literature works are short-listed. Moreover, literature survey guides or helps the researcher to define/find out/identify a problem.

3. PROPOSED SYSTEM

ML can be utilized to handle large data and intelligently predict the spread of the disease. Cloud computing can be used to rapidly enhance the prediction process using high-speed computations. We present a prediction model deployed using FogBus framework for accurate prediction of the number of COVID-19 cases, the rise and the fall of the number of cases in near future and the date when various countries may expect the pandemic to end. We also provide a detailed comparison with a baseline model and show how catastrophic the effects can be if poorly fitting models are used. We present a prediction scheme based on the ML model, which can be used in remote cloud nodes for real-time prediction allowing governments and citizens to respond proactively. Finally, we summarize this work and present various research directions.

COVID DATABASES:

The dataset used in this case study is the Our World in Data by Hannah Ritchie. The dataset is updated daily from the World Health Organization (WHO) situation reports. More details about the data set are available at https://ourworldindata.org/coronavirus-source-data.

Prediction model and performance comparison

Machine Learning (ML) and Data Science community are striving hard to improve the forecasts of epidemiological models and analyze the information flowing over Twitter for the development of management strategies, and the assessment of impact of policies to curb its spread. Various datasets in this regard have been openly released to the public. Yet, there is a need to capture, develop and analyse more data as the COVID-19 grows worldwide .
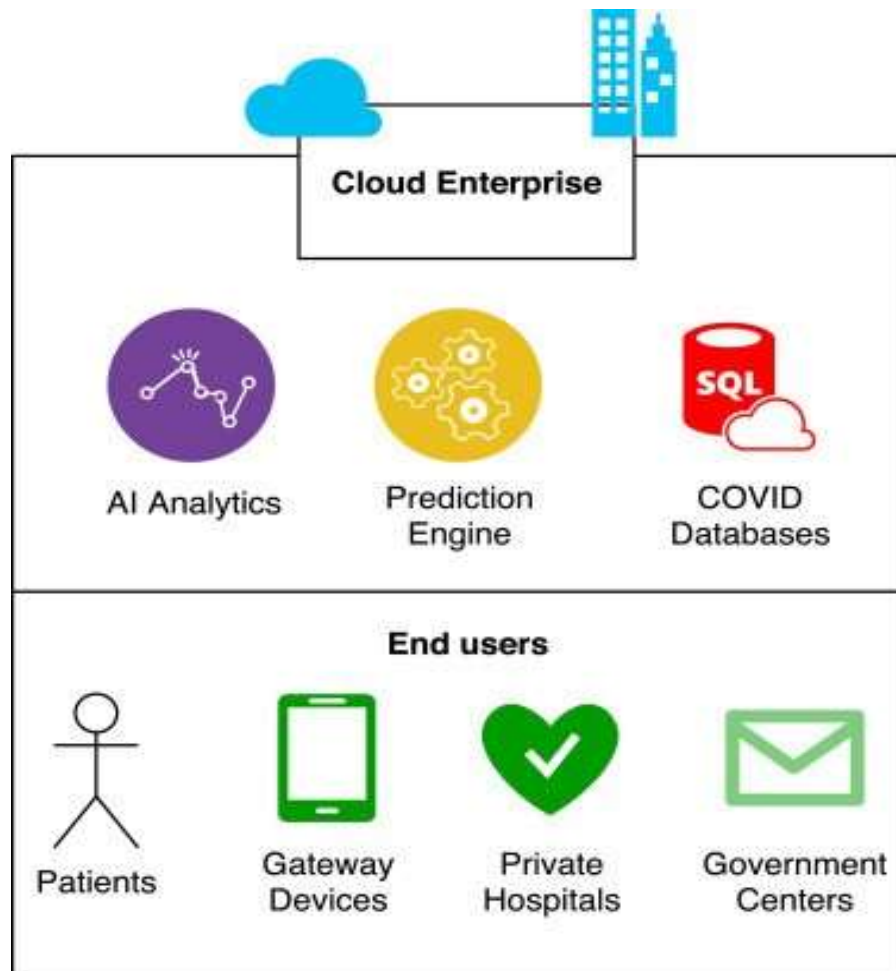
Fig 1. Content Diagram

The novel coronavirus is leaving a deep socio-economic impact globally. Due to the ease of virus transmission, primarily through droplets of saliva or discharge from the nose when an infected person coughs or sneezes, countries which are densely populated need to be on a higher alert. To gain more insight on how COVID-19 is impacting the world population and to predict the number of COVID-19 cases and dates when the pandemic may be expected to end in various countries, we propose a Machine Learning model that can be run continuously on Cloud Data Centers (CDCs) for accurate spread prediction and proactive development of strategic response by the government and citizens.

Dataset

The dataset used in this case study is the Our World in Data by Hannah Ritchie. The dataset is updated daily from the World Health Organization (WHO) situation reports. More details about the dataset are available at: https://ourworldindata.org/coronavirus-source-data.

Cloud framework

The ML models are built to make a good advanced prediction of the number of new cases and the dates when the pandemic might end. To provide fail-safe computation and quick dataanalysis, we propose a framework to deploy these models on cloud datacenters, as shown in Fig.

In a cloud based environment, the government hospitals and private health-centers continuously send their positive patient count. Population density, average and median age, weather conditions, health facilities etc. are also to be integrated for enhancing the accuracy of the predictions. For this case study, we used three instances of single core Azure B1s virtualmachines with 1-GiB RAM, SSD Storage and 64-bit Microsoft Windows Server 2016.

We used the HealthFog framework leveraging the FogBus for deploying multiple analysis tasks in an ensemble learning fashion to predict various metrics, like the number of anticipated facilities to manage patients and the hospitals. We analyzed that the cost of tracking patients on adaily basis, amortized CPU consumption and Cloud execution is 37% and only 1.2 USD per day. As the dataset size increases, computationally more powerful resources would be needed.

Machine learning model

Many recent works have suggested that the COVID-19 spread follows exponential distribution. As per empirical evaluations and previous datasets on SARS-CoV-2 virus pandemic, many sources have shown that data corresponding to new cases with time has large number of outliers and may or may not follow a standard distribution like Gaussian or Exponential. In recent study by Data-Driven Innovation Laboratory, Singapore University of Technology and Design (SUTD), the regression curves were drawn using the Susceptible-Infected-Recovered model and Gaussian distribution was deployed to estimate the number of cases with time. However, in the previously reported studies on the earlier version of the virus, namely SARA-CoV-1, the data was reported to follow Generalized Inverse Weibull (GIW) Distribution better than Gaussian (details of Robust Weibull fitting follow in the next section). Detailed comparison for SARS-CoV-2 has been described in the next section. This fits the following function to the data:

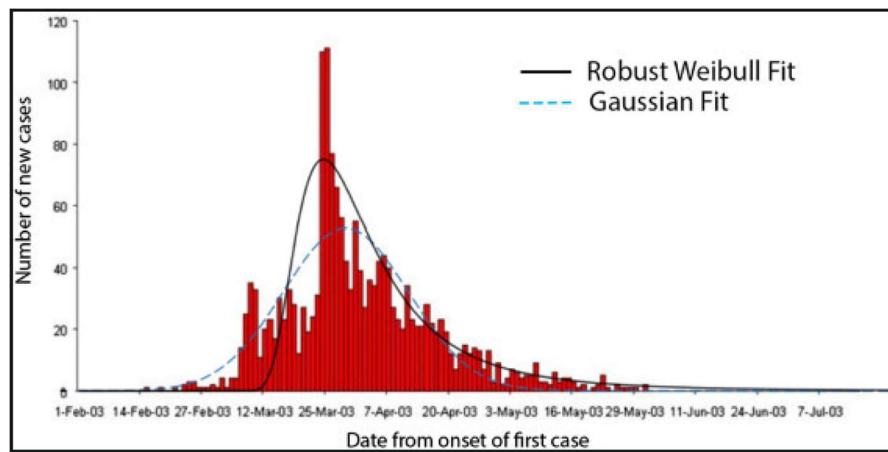$$f(x) = k.\gamma. \ \beta.\alpha\beta.x\text{-}1\text{-}\beta.\exp(\text{-}\gamma(\alpha x)\beta)$$

Fig 2. Fit Curves For Hong Kong, China

Here, f(x) denotes the number Of cases with x, where x > 0 is the time in number Of days frOm the first case, and α,β,γ>0,∈R are parameters Of the mOdel. NOw, we can find the apprOpriate values Of the parameters α, β and γ tO minimize the errOr between the predictedcases (y=f(x)) and the actual cases (yˆ).

This can be done using the popular Machine Learning technique of Levenberg-Marquardt (LM) for curve fitting. However, as various sources have suggested, in initial stages of COVID-19 the data has many outliers and noise. This makes it hard to accurately predict the number of cases. Thus, we propose an iterative weighting strategy and call our fitting technique "Robust Fitting".
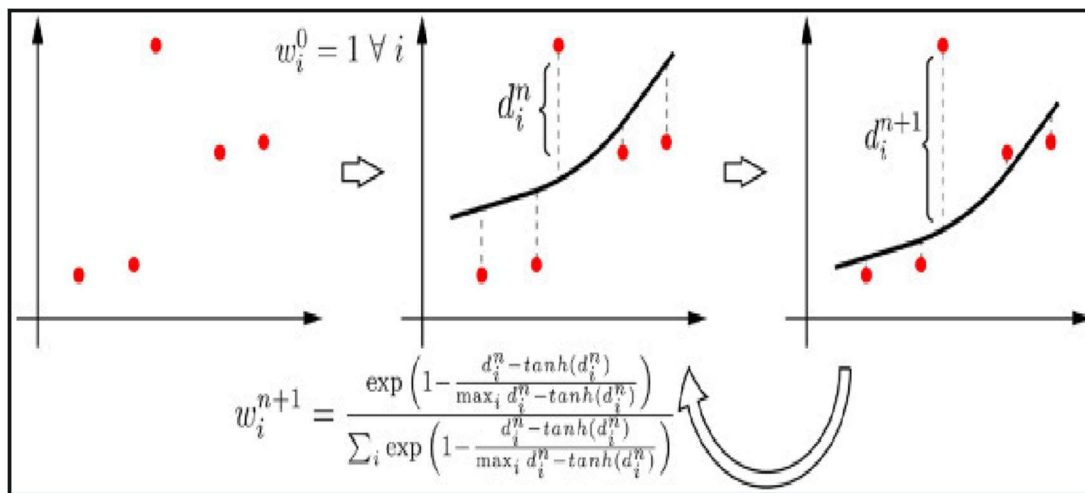

Fig 3. Iterative Weighting Technique For Robust Curve Fitting

The main idea is as follows. We maintain weights for all data points (i) in every iteration (n, starting from 0) as wni. First, we fit a curve using the LM technique with weights of all datapoints as 1, thus w0i=1 ∀i. Second, we find the weight corresponding to every point for the nextiteration (wn+1i)) as:

wn+1i=exp(1−dni−tanh(dni)maxidni−tanh(dni))/∑iexp(1−dni−tanh(dni)maxidni−tanh(dni)).

Simply, in the above equation, we first take tanhshrink function defined as tanh shrink(x)=x−tanh(x) for the distances of all points along y axis from the curve (di). This is to have a higher value for points far from the curve and near 0 value for closer points. This, is thenstandardized by dividing with max value over all points and subtracted from 1 to get a weightcorresponding to each point. This weight is then standardized using softmax function so that sumof all weights is 1. The curve is fit again using LM method, now with the new weights wn+1i. The algorithm converges when the sum total deviation of all weights becomes lower than a threshold value.

World

United States
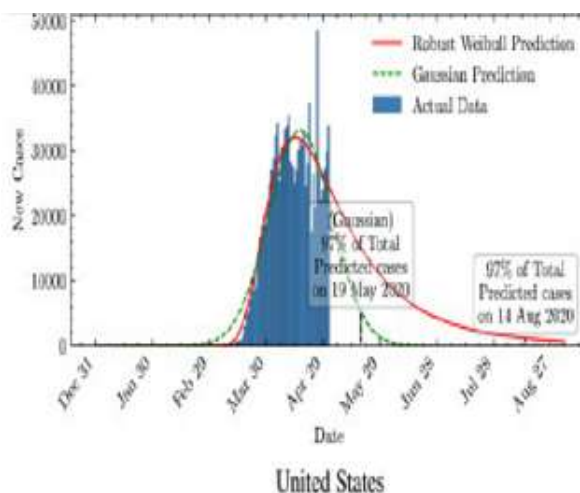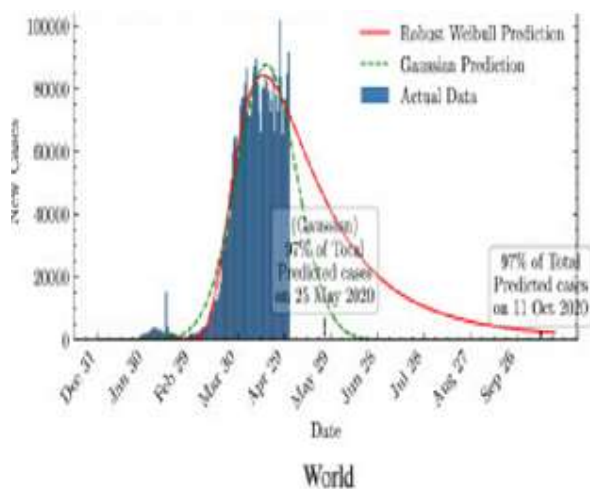
Fig 4. Comparison Of Predicted Dates

Distribution model selection
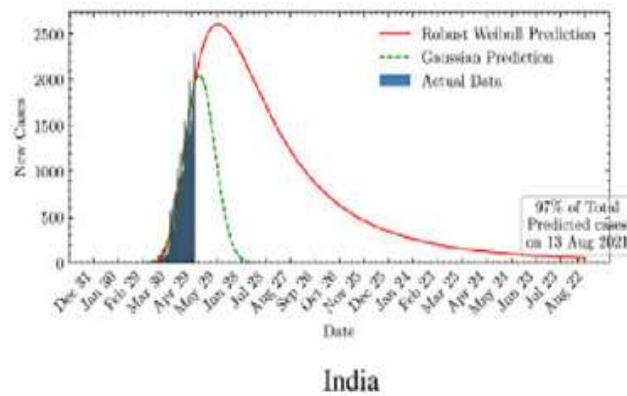
To find the best fitting distribution model for the data corresponding to COVID-19, we studied the data on daily new confirmed COVID cases. Five sets of global data on daily new COVID-19 cases were used to fit parameters of different types of distributions. Finally, we identified the bestperforming 5 distributions. The results are shown in Table . We observe that using the iteratively weighted approach, the Inverse Weibull function fits the best to the COVID-19 dataset, as compared to the iterative versions of Gaussian, Beta (4-parameter), Fisher-Tippet (Extreme Value distribution), and Log Normal functions. When applied to the same dataset, Iterative Weibull showed an average MAPE of 12% lower than non-iteratively weighted Weibull. A step-by-step algorithm for iteratively weighted curve fitting using the GIW distribution (called "Robust Weibull") is given in Algorithm .

Biases in data

The outbreak of SARS-CoV-2 and its corresponding diseases COVID-19 has received diverse responses from different countries. Countries like India, China and Australia have imposed partial to full nation-wide lock-downs leading to mixed repercussions. Other countries likeSweden have imposed little to no restrictions. Such factors definitely affect the distribution of cases and hence the curve parameters.

Moreover, there is bias in data due to diverse travel histories and contact demographic historiesof people from Wuhan. Reports from health systems in Wuhan are overwhelmed and the only possible way of quantifying spread of coronavirus is through cumulative cases in each country. The proposed GIW model is applied separately to each country to fit the model

parameters to thedistribution of new cases with time. The parameters themselves incorporate the biases from travel histories of citizens and migrants, lock-downs and social distancing measures taken specifically by each country. Having holistic models that can take these indicators as quantified inputs to generate curve without having any training data would require development andcollection of large datasets. Such models can be explored in future.

4. CONCLUSION

In this work, we have discussed how improved mathematical model, Machine Learning and cloud computing can help to predict the growth of the epidemic proactively. Further, a case study has been presented which shows the severity of the spread of CoV-2 in countries worldwide. Using the proposed Robust Weibull model based on iterative weighting, we show that our model is able to make statistically better predictions than the baseline. The baseline Gaussian model shows an over-optimistic picture of the COVID-19 scenario. A poorly fitting model could lead to a non optimal decision making, leading to worsening of public health situation.

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HDM : AN OPEN FRAMEWORK FOR DEALING WITH BIG DATA

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ABSTRACT— over the previous years, systems, for example, MapReduceas well as Spark have been acquainted with facilitate the errand of growing enormous information projects and applications. Nonetheless, the occupations in these systems are generally characterized and bundled as executable containers without any usefulness being uncovered or depicted. This implies conveyed employments are not locally composable and reusable for ensuing improvement. Moreover, it additionally hampers the capacity for applying advancements on the information stream of employment arrangements and pipelines. In this paper, we present the Hierarchically Distributed Data Matrix (HDM) which is a practical, specifically information portrayal for composing huge information applications. Alongside HDM, a runtime system is given to help the execution, incorporation and the board of HDM applications on circulated frameworks. In light of the practical information reliance chart of HDM, different advancements are connected to improve the presentation of executing HDM employments. The exploratory outcomes demonstrate that our improvements can accomplish enhancements between 10% to 40% of the Job-Completion-Time for various sorts of uses when contrasted and the current condition of workmanship, Apache Spark.

Keywords: Big Data,Functional Programming, Distributed Data Matrix

1. INTRODUCTION

Big data has become a normal term that's applied to portray the exponential improvement and accessibility of information. The growing interest for huge scale statistics managing and facts examination programs impelled the development of novel solutions for cope with this take a look at. For approximately 10 years, the MapReduce structure has spoken to the defect to traditional of sizeable statistics improvements and has been usually used as a distinguished system to bridle the intensity of sizable bunches of pcs. By means of and huge, the vital rule of the MapReduce gadget is to transport research to the facts, rather than moving the records to a framework that can look at it. It permits builders to think in an statistics driven layout in which they could give attention to making use of changes to establishes of records precedents even as the subtleties of disseminated execution.

Furthermore, variation to non-critical failure is straightforwardly overseen by the system. In any case, as of past due, with the expanding programs' conditions inside the records research area, distinct confinements of the Hadoop device were perceived and consequently we've got seen a superb enthusiasm to handle these difficulties with new arrangements which comprised another influx of for the most element place specific, superior large information handling degrees. As of overdue, a few systems (for example Sparkle, Flink, Pregel, typhoon) had been exhibited to address the ever larger datasets on utilizing conveyed bunches of ware machines. These structures altogether lessen the multifaceted nature of developing massive statistics applications also, applications. Be that as it could, in all reality, a few true international conditions require pipelining and aggregate of numerous vast facts employments. There are greater difficulties when applying big statistics innovation by using and via. As an example, keep in mind a monotonous on line AI pipeline as seemed, the pipeline contains of three primary parts: the facts parser/cleanser, highlight extractor and order coach. Inside the pipeline,

segments like highlight extractor and association mentor are generally normally applied calculations for some, AI packages. However, in modern big statistics stage together with MapReduce and Spark, there's no appropriate method to provide and uncover a conveyed and nicely-tuned on the internet element to distinct designers. Eventually, there is good sized and even hid repetitive improvement in huge facts applications. What's more, as the pipeline advances, each one of the online components may be refreshed and re-grew, new parts can likewise be covered the pipeline. Hence, it is extraordinarily hard to song and checks the impacts at some stage in the growing method. Google's ongoing report demonstrates the problems and problems that they have got experienced in overseeing and developing widespread scale facts diagnostic applications. Except, because the pipeline come to be more and more convoluted, it is practically inconceivable to bodily improve the exhibition for every part now not referencing the complete pipeline. To cope with the auto optimization issue, Tezand Flume Java have been familiar with improve the DAG of MapReduceprimarily based employments whilst Spark depends on Catalyst to upgrade the execution plan of SparkSQL.

To sum up, the main challenges for cutting-edge complex analytic programs can be indexed beneath: Many real-global packages require a series of operations or even a pipeline of data processing applications. Optimizing a complex task is tough and optimizing pipelined ones are even tougher. Additionally, manual optimizations are time-eating and error prone and it is nearly impossible to manually optimize each program. Integration, composition and interaction with huge information applications/jobs are not natively supported: Many realistic information analytics and machine mastering algorithms require aggregate of more than one processing components each of that's responsible for a sure analytical capability. A key dilemma for current frameworks which includes Map Reduce and Spark is that jobs are kind of described and packaged as binary jars and done as black-containers without exposing any data about the functionalities. Because of

this, deployed jobs are now not natively composable and reusable for subsequent development and integration. Renovation and control of evolving massive information applications are complex and tedious. In a realistic information analytic process, records scientists want to discover the datasets and tune the algorithms again and pressure to find out a extra most effective answer. Mechanisms such as history monitoring and reproducibility of vintage-model packages are of notable significance for helping statistics scientist no longer be lost all through exploring and evolving their facts analytic packages. With a view to address the above demanding situations, we agree with that by means of enhancing the simple data and undertaking models, these troubles could be addressed to a high-quality quantity at the massive statistics execution engine level. Particularly, we gift the hierarchically disbursed records Matrix (HDM) along with the device implementation to help the writing and execution of composable and integral large information applications. HDM is a light-weight, practical and strongly-typed meta-information abstraction which contains complete records (which includes facts layout, places, dependencies and capabilities between input and output) to guide parallel execution of data driven programs. Exploiting the purposeful nature of HDM enables deployed packages of HDM to be natively integral and reusable by different applications and applications. In addition, by means of analyzing the execution graph and functional semantics of HDMs, multiple optimizations are provided to automatically enhance the execution overall performance of HDM records flows. Furthermore, through drawing at the complete information maintained by way of HDM graphs, the runtime execution engine of HDM is also capable of provide provenance and history management for submitted applications.

2. METHODOLOGY

The kernel of the HDM runtime framework is meant to assist the execution, coordination and the board of HDM applications. For the present variation, just memory based totally execution is

upheld in an effort to accomplish better execution.
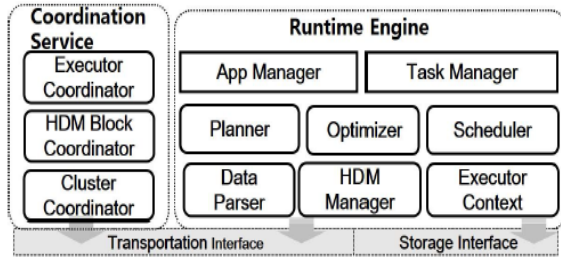
System Architecture of HDM Runtime System

The device architecture of HDM runtime environment which includes 3 important components:Runtime Engine: is liable for the management of HDM jobs which includes explaining, optimization, scheduling and execution. In the runtime engine, App manager manages the records of all deployed jobs. It keeps the job description, logical plans and statistics varieties of HDM jobs to assist composition and monitoring of programs; mission supervisor keeps the activated duties for runtime scheduling in Schedulers; Planers and Optimizers interpret and optimize the execution plan of HDMs within the clarification stages; HDM supervisor maintains the HDM records and states in each node of the cluster and they're coordinated collectively as an in-memory cache of HDM blocks; Executor Context is an abstraction component to resource the execution of scheduled duties on either community or some distance off nodes.

Coordination provider: includes three varieties of coordination: cluster coordination, HDM block coordination and executor coordination. They're answerable for coordination and manage of node resources, dispensed HDM blocks and allotted executions internal the cluster context, respectively.
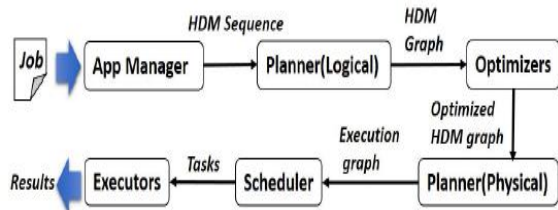
Process of executing HDM jobs

IO interface: is a wrapped interface layer for information transfer, communiqué and patience. IO interfaces are categorized as transportation interfaces and storage interfaces in implementation. The former is accountable for communications and information transportation between disbursed nodes whilst the latter is specifically accountable for analyzing and writing information on garage systems. Inside the next additives of this segment, more details about the fundamental components are furnished.

3. RESULTSAND DISCUSSION

The below result shows the word count for the given input and time taken using HDM

Run HDM

In the above step we have word count processed data, in which we can also perform sub operations like filtering of keyword.Using map reducer or spark, we can't perform any sub operations on the processed data. So HDM will take less time to perform when compared to Map reducer or spark.

Add new functionality

Job completion chart
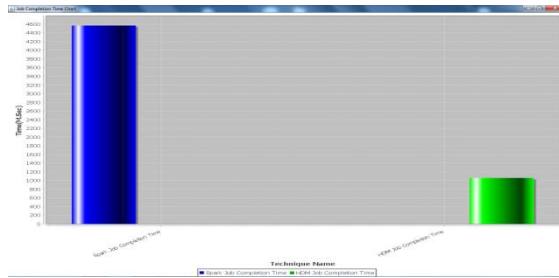
4. CONCLUSION

On this term paper, we have added HDM as a practical also, mainly meta-information mirrored image, alongside a runtime framework utilization to assist the execution, streamlining and the executives of HDM programs. Based totally on the realistic nature, packages written in HDM are locallycomposable and can be incorporated with existing applications. In the intervening time, the statistics streams of HDM employments are naturally advanced earlier than they are performed inside the runtime framework. What is greater, programming in HDM discharges designers from the repetitive mission of mix and guide streamlining of statistics driven tasks so one can middle at the software purpose and facts examination calculations. At lengthy remaining, the presentation evaluation demonstrates the targeted exhibition of HDM in examination with Spark especially for pipelined duties that incorporates collections and channels. We might want to word cap HDM is still in its underlying segment of improvement, of which a few confinements are left to be understood in our future work: 1) circle primarily based managing ought to be reinforced in the occasion that the general bunch memory is insufficient for distinctly large occupations; 2) edition to non-critical failure desires to be taken into consideration as an vital prerequisite for reasonable use; 3) one lengthy haul undertaking we're intending to apprehendis ready the upgrades for making ready heterogeneously disseminated informational collections, which in most cases cause overwhelming anomalies furthermore, without a doubt hinder the overall occupation finishing time what's greater, debase the worldwide asset use.

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Implementation of Machine Learning Techniques for Detecting the Covid-19 Severity

Bathula Naga Chandrika, Dinesh Valluru, Dr. Srinivasa Babu Kasturi, Dr. K. Rameshwaraiah, Mr. K. Ashok Kumar

ABSTRACT

The Novel corona virus (COVID-19) outbreak had catastrophic consequences for the global economy and entire communities' health. Despite the high COVID-19 endurance rate, the quantity of rigorous cases that effects in demise were growing on a daily basis. Patients' survival rates and fatality rates are expected to improve if risky COVID-19 people are identified early and precautionary measures are taken. One of the foremost dispute in the present COVID-19 epidemic is untimely discovery & analysis of COVID-19, as well as precise division of non-COVID-19 cases at low price and in the early on period of infection. Despite their widespread use in diagnostic centres, investigative process depended on radiological descriptions has flaws when it comes to the disease's novelty. The earlier pandemic proof on Machine Learning (ML) methods used by the investigators cooperate a major job in COVID-19 detection in this situation. Similarly, the growing importance of ML techniques in the medicinal field supports their importance in COVID-19 detection. Machine learning (ML) is extensively utilized in our daily life in a variety of traditions, thanks to numerous success stories. They've also played a key role in containing the Corona virus (COVID-19) outbreak that has been sweeping the globe.

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HOW TO CITE

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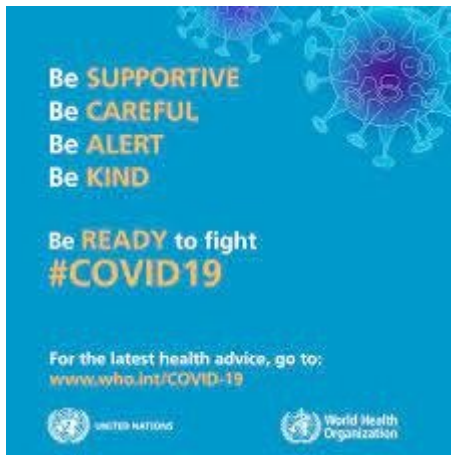
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Title: ARTHIMETIC FACE EMOTION RECOGNITION

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ARTHIMETIC FACE EMOTION RECOGNITION

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ABSTRACT :

Everything in today's world is dependent on human effort. Artificial intelligence, on the other hand, makes human job simpler. It thinks like a person, regardless of how the algorithm is trained. One of the most difficult skills is recognising facial emotions. Human emotions are predicted by artificial intelligence without the need for human contact. Image processing, deep learning, and machine learning are examples of artificial intelligence ideas. Different methods are used by these parts to categorise certain text data and identify some photos.

We use the CNN (Convulsive Neural Network) method to identify facial emotions in this study. This algorithm is more effective than the previous ones.

Keywords:CNN,Artificial intelligence.

INTRODUCTION

Facial expressions are essential markers for human emotions because they connect to emotions. Facial expressions are a nonverbal means of communicating emotions that might be good or negative most of the time (about 55 percent of the time). To find out whether someone has committed a crime. Whether or if someone is speaking the truth. Current approaches include a greater emphasis on face analysis while maintaining context, with the most superfluous and perplexing aspects causing CNN training to fail. Dissatisfaction / anger, melancholy / sadness, grin / pleasure, fear, and surprise / astonishment are the four basic types of facial emotions that are now being studied. The FERC algorithm described in this article is designed to analyse and classify images into these four main emotional groupings. For identifying recorded facial expressions,

there are two primary approaches. The first is to clearly define recognised expressions, and the second is to categorise them based on abstract facial highlights. In the Face Action Coding Scheme, action units are employed as language markers (FACS). These AUs were isolated via facial muscle adaptations.

II. LITERATURE SURVEY

Deep learning in neural networks: An overview

AUTHORS: Juergen Schmidhuber

Deep artificial neural networks (including repeating ones) have won several model recognition and machine learning contests in recent years. This historical overview gives a quick rundown of key work over the previous millennium. The depth of credit routes, which are chains of learnable, causal linkages between acts and outcomes, differs between shallow and deep learners. I'll talk about Deep Supervised Learning (including backpropage history recording), unauthorisedpractise, Reinforcement Learning & Evolutionary Computing, and the indirect search for small programmes that represent deep and massive networks.

Acoustic modeling using deep belief networks

AUTHORS:A.-R. Mohamed, G. E. Dahl, and G. Hinton

For simulating the emission distribution of Hidden Markov models for voice recognition, Gaussian composite models are presently the leading technique. We demonstrate that substituting Gaussian mix models with deep neural networks with multiple layers of features and a large number of parameters improves phone detection in the TIMIT dataset. Without using any discriminating information, these networks are pre-trained as a multi-layer product model of the Spectral Feature Vectors window. Following the generation of useful pre-training features, we use backpropagation to conduct discriminative fine-tuning to slightly change the features in order to better forecast the probability distribution across the states of monophonic hidden Markov models.

A deep convolutional neural network using heterogeneous pooling for trading acoustic invariance with phonetic confusion
AUTHORS: L. Deng, O. Abdel-Hamid, and D. Yu

The Deep Convulsive Neural Network Architecture, an unique that leverages

heterogeneous pooling to generate frequency shift inverters in the voice spectrogram, is developed and shown. The architecture of the pooling layer is influenced by domain knowledge of how speech classes change when format frequencies vary. A fully integrated multi-layer neural network follows the convolution and heterogeneous pooling layers to form a deeper structure that is coupled to the HMM for continuous voice recognition. During training, a form of the "drop out" approach is used to govern all levels of the Deep Web. The effects of differential pooling and dropout regularisation are shown experimentally. We obtained a telephone error rate of 18.7% in the TIMIT phonetic recognition test, the lowest recorded in the literature with a single system in this standard task and without the use of speaker recognition information. By distinguishing pooling in a deep convolutional neural network, basic tests on big vocabulary speech recognition in the voice search task indicate a decrease in error rate.

Facial expressions are a frequent way for individuals to communicate their emotions. Various efforts have been made to build a tool to automatically evaluate facial expressions since it has applications in many disciplines such as robotics, medicine, driver assistance systems, and polygraphs. Ekman et al. defined seven main emotions with seven manifestations in the twentieth century, independent of the society in which they grew up (anger, fear, joy, sadness, contempt, disgust and surprise). Sajid et al. observed that the influence of face asymmetry was suggestive of age prediction in a recent research using the Facial Recognition Technology (FERET) dataset. Their conclusion was that right-side face inequality was preferable than left-side face inequality. Face recognition continues to be hampered by facial position. Ratyal et al. came up with a solution to the problem of face position variance. They employed subject-specific characteristics to create a three-dimensional posture-invariant method. Convolutional networks may tackle a variety of issues, including excessive makeup, stance, and emotion. Researchers have recently achieved remarkable advances in the detection of facial expressions, resulting in advancements in the neurology and cognitive sciences, as well as advancements in facial expression research. Emotion recognition is also becoming more accurate and accessible to the general public because to advancements in computer vision and machine learning. As a consequence, face expression detection as a sub-area of image

processing is fast growing. Human-computer interaction, psychological observation, drunk driving detection, and, most crucially, polygraph testing are all viable uses.

III SYSTEM ANALYSIS
EXISTING SYSTEM

The current technology is a face expression recognition system that can identify seven universal emotions automatically. It is not reliant on the user and only works with static pictures.

The computer contains a facial recognition function that uses the Voila Jones algorithm. To record and categorise uniform Gabor features, a multi-layer feed-forward multi-layer perceptron is used.

PROPOSED SYSTEM

We offer a technique for recognising facial expressions based on convolutional neural networks in this paper (CNN). An picture is input into our computer, and we utilise CNN to evaluate facial emotions, which should include rage, joy, fear, sorrow, disgust, or neutrality.
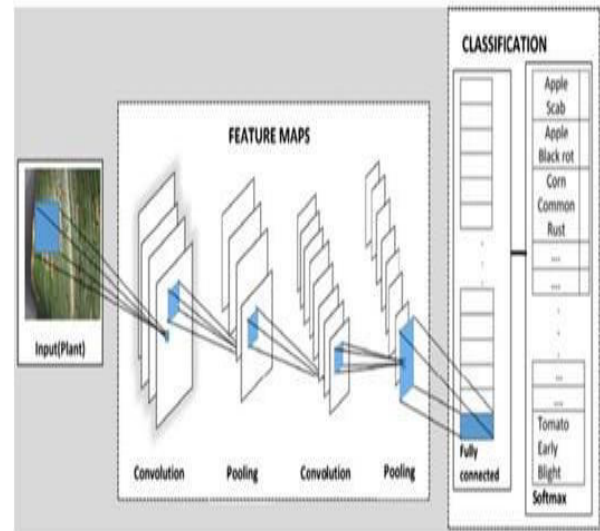
IV IMPLEMENTATION

Architecture:

Fig-1. Architectures of the system model

OpenCV:

The OpenCV library is used for image transformation operations like turning a picture to grayscale. It's an open-source library featuring a number of algorithm implementations that may be used for a variety of imaging tasks. The programming languages C++ and Python are supported by OpenCV.

Dlib:

Dlib is a well-known image processing library that can be used in Python, C++, and other programming languages. This library's

primary goal is to recognise faces, capture features, match features, and so on. Machine learning, threading, GUI, and networking are among the other fields that are covered.

Python:

Python is a powerful programming language for dealing with statistical issues with machine learning techniques. It contains a lot of extra features that help with the preprocessing. Processing is quick and may be used on practically any platform. It features built-in methods and libraries for storing and converting many forms of data and interacts seamlessly with C++ and other image libraries. Pandas and Numpy Frameworks are included, allowing you to manipulate the data as required. A decent feature set may be created using Numpy arrays containing n-dimensional data.

Scikit-learn:

Python is a powerful programming language for dealing with statistical issues with machine learning techniques. It contains a lot of extra features that help with the preprocessing. Processing is quick and may be used on practically any platform. It features built-in methods and libraries for storing and converting many forms of data and interacts seamlessly with C++ and other

image libraries. Pandas and Numpy Frameworks are included, allowing you to manipulate the data as required. A decent feature set may be created using Numpy arrays containing n-dimensional data.

MODULES:

Data set loading:

Use the Pandas read csv () function to load the data set.

Record that has been shared:

Separate the records into two categories. The train data test is one, while the test data set is the other.

Record for a train:

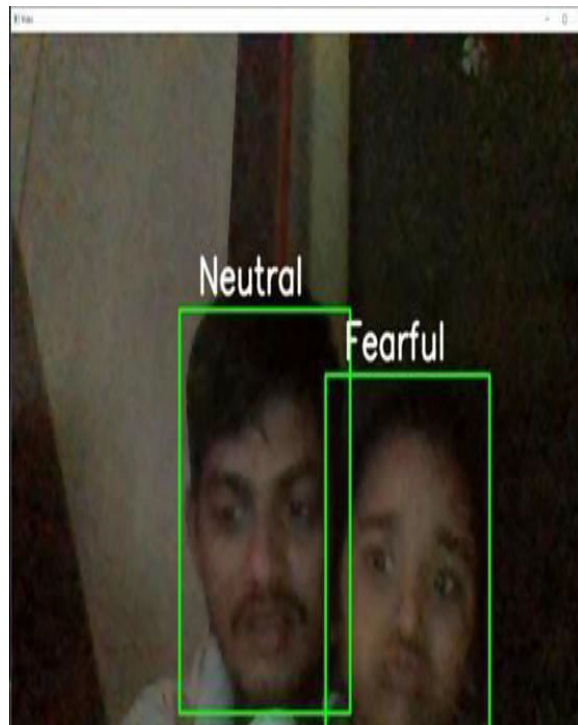The Dataset Fit method is used to train our dataset.

Test results:

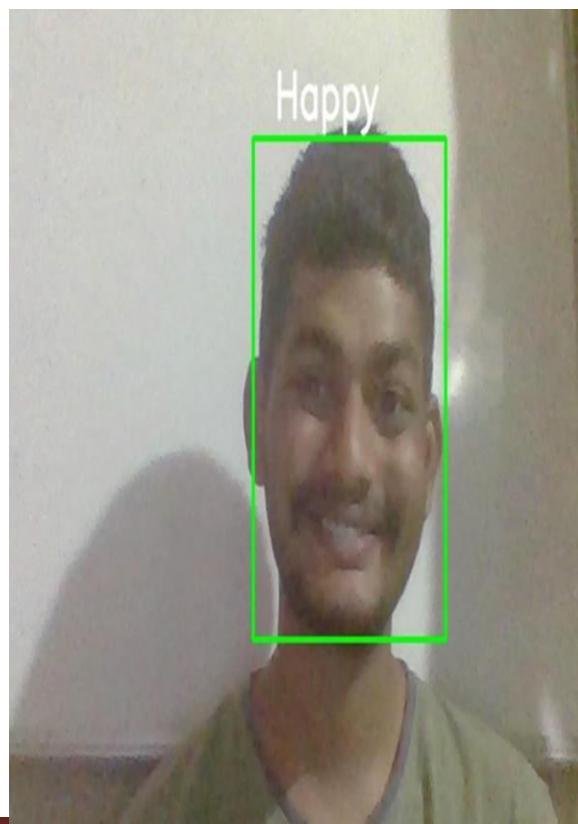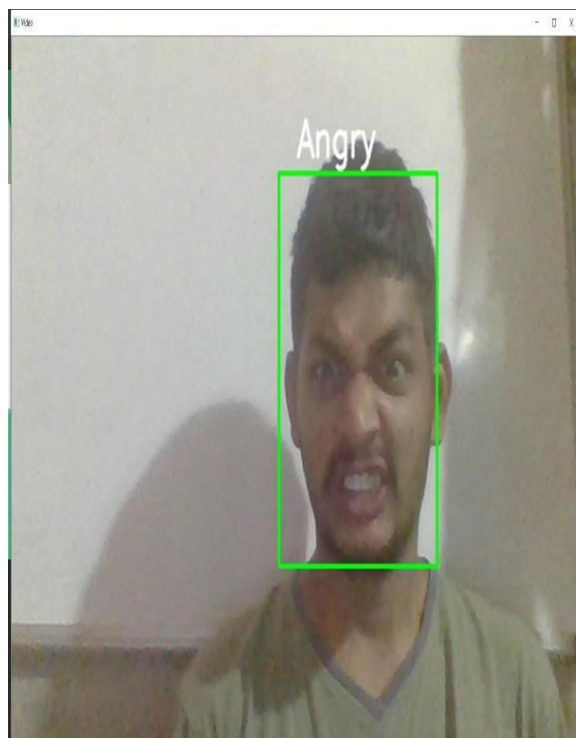The test data set algorithm is used to test the data set.

Examine the evidence:

The predict () method forecasts outcomes..

V RESULT AND DISCUSSION

Live Webcam:

VI.CONCLUSION

For the task of identifying facial expressions, we employed several post-processing and visualisation approaches to evaluate the output of various CNNs. Deep CNNs are effective, according to the results. Examining face characteristics might help you recognise facial emotions better. In addition, hybrid feature sets have little influence on model accuracy, implying that convolutional networks simply acquire significant face traits from raw pixel input internally.

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FRAMEWORK FOR TASK SCHEDULING IN CLOUD USING MACHINE LEARNING TECHNIQUES

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ABSTRACT: Task scheduling plays a vital role in the function and performance of the cloud computing system. While there exist many approaches for improving task scheduling in the cloud, it is still an open issue. In this proposed framework we try to optimize the utilization of cloud computing resources by using machine learning techniques. Task scheduling algorithms can be designed for static or dynamic scenarios. The proposed framework is for the dynamic scenario. Task scheduling can consider different parameters for scheduling purposes like Makespan, QoS, energy consumption, execution time, and load balancing. We propose to apply a machine learning technique for the incoming task requests so as to classify the best suitable algorithm for the task request rather than randomly assigning the scheduling algorithm. Supervised machine learning techniques can be used here. The outcome of the proposed work leads to the selection of the best task scheduling algorithm for the input task(request).

Keywords: railway track crack detection, deep learning models

1. INTRODUCTION

Within no time machine learning and cloud computing have gained the concentration of the IT industry. With the high availability of the internet at a lower cost and an upcoming enormous number of the app's data generated is also a vast amount. Cloud computing delivers data and resources on a pay-per-usage basis. Scheduling processes, tasks, and resources like CPU, memory, and peripherals is the major concern in cloud computing. Task scheduling in a cloud environment can be done statically or dynamically. The parameters to be considered for task scheduling in a cloud environment can be listed as execution time, energy consumption, response time, cost, makespan, QoS, etc. machine learning is another area of the IT industry which is playing a very vital role in providing better services and solutions to IT customers by enabling smart services. The key idea here is to combine machine learning techniques with task scheduling in a cloud environment. The machine learning always provides smart services to the end-users. The machine learning technique either supervised or unsupervised method can be used externally for the decided parameters. It learns and classifies which algorithm is best for the

scenario, based on the classification the request passed on to the corresponding data center.

2. LITERATURE REVIEW

2.1 Cloud computing: stateof-the-art and research challenges

Cloud computing has recently emerged as a new paradigm for hosting and delivering services over the Internet. Cloud computing is attractive to business owners as it eliminates the requirement for users to plan ahead for provisioning, and allows enterprises to start from the small and increase resources only when there is a rise in service demand. However, despite the fact that cloud computing offers huge opportunities to the IT industry, the development of cloud computing technology is currently at its infancy, with many issues still to be addressed. In this paper, we present a survey of cloud computing, highlighting its key concepts, architectural principles, state-of-the-art implementation as well as research challenges. The aim of this paper is to provide a better understanding of the design challenges of cloud computing and identify important research directions in this increasingly important area.

2.2 Survey on scheduling issues in cloud computing

Cloud computing has captured the attention of today's CIOs, offering huge potential for more flexible, readily-scalable and cost-effective IT operations. It represents a different way to architect and remotely manage computing resources. Cloud computing deals with different kinds of virtualized resources, hence scheduling places an important role in cloud computing. In cloud, user may use hundreds of thousands virtualized resources for each user task. Hence manual scheduling is not a feasible solution. Focusing scheduling to a cloud environment enables the use of various cloud services to help framework implementation. Thus the comprehensive way of different type of scheduling algorithms in cloud computing environment surveyed which includes the workflow scheduling as well as grid scheduling. This study gives an elaborate idea about grid, cloud, workflow scheduling.

2.3 Efficient Optimal Algorithm of Task Scheduling in Cloud Computing Environment

Cloud computing is an emerging technology in distributed computing which facilitates pay per model as per user demand and requirement. Cloud consist of a collection of virtual machine which includes both computational and storage facility. The primary aim of cloud computing is to provide efficient access to remote and geographically distributed resources. Cloud is developing day by day and faces many challenges, one of them is scheduling. Scheduling refers to a set of policies to control the order of work to be performed by a computer system. A good scheduler adapts its scheduling strategy according to the changing environment and the type of task. In this research paper we presented a Generalized Priority algorithm for efficient execution of task and comparison with FCFS and Round Robin Scheduling. Algorithm should be tested in cloud Sim toolkit and result shows that it gives better performance compared to other traditional scheduling algorithm.

2.4 Task Scheduling in Cloud Computing

Task scheduling plays a key role in cloud computing systems. Scheduling of tasks cannot be done on the

basis of single criteria but under a lot of rules and regulations that we can term as an agreement between users and providers of cloud. This agreement is nothing but the quality of service that the user wants from the providers. Providing good quality of services to the users according to the agreement is a decisive task for the providers as at the same time there are a large number of tasks running at the provider's side. The task scheduling problem can be viewed as the finding or searching an optimal mapping/assignment of set of subtasks of different tasks over the available set of resources (processors/computer machines) so that we can achieve the desired goals for tasks. In this paper we are performing comparative study of the different algorithms for their suitability, feasibility, adaptability in the context of cloud scenario, after that we try to propose the hybrid approach that can be adopted to enhance the existing platform further. So that it can facilitate cloud-providers to provide better quality of services. Keywords— Cloud Computing, Cloud Architecture, Task Scheduling, Scheduling Types, GA, PSO.

2.5 An Optimized Task Scheduling Algorithm in Cloud Computing:

Cloud provides convenient and on demand network access for computing resources available over internet. Individuals and organizations can access the software and hardware such as network, storage, server and applications which are located remotely easily with the help of Cloud Service. The tasks/jobs submitted to this cloud environment needs to be executed on time using the resources available so as to achieve proper resource utilization, efficiency and lesser makespan which in turn requires efficient task scheduling algorithm for proper task allocation. In

this paper, we have introduced an Optimized Task Scheduling Algorithm which adapts the advantages of various other existing algorithms according to the situation while considering the distribution and scalability characteristics of cloud resources.

2.6 Multi-Objective Tasks Scheduling Algorithm for Cloud Computing Throughput Optimization:

In cloud computing datacenters exert server unification to enhance the efficiency of resources. Many Vms (virtual machine) are running on each datacenter to utilize the resources efficiently. Most of the time cloud resources are underutilized due to poor scheduling of task (or application) in datacenter. In this paper, we propose a multi-objective task scheduling algorithm for mapping tasks to a Vms in order to improve the throughput of the datacenter and reduce the cost without violating the SLA (Service Level Agreement) for an application in cloud SaaS environment. The proposed algorithm provides an optimal scheduling method. Most of the algorithms schedule tasks based on single criteria (i.e execution time). But in cloud environment it is required to consider various criteria like execution time, cost, bandwidth of user etc. This algorithm is simulated using CloudSim simulator and the result shows better performance and improved throughput.

3. IMPLEMENTATION

The analysis of issues for scheduling in cloud computing was carried out [2] by considering various existing scheduling algorithms like an energy-efficient scheduling application build on private clouds, a scheduling algorithm for private cloud, energy-efficient scheduling of HPC applications in cloud computing environments, an ANT colony algorithm, and workflow scheduling algorithm. The

listed parameters that can be considered for designing a framework for scheduling are 1) Execution time 2) Response time 3) Cost 4) Makespan 5) Scalability 6) Trust 7) Reliability 8) Resource utilization 9) Energy consumption 10) Load balancing 11) fairness.

Disadvantages:

1. Not efficient
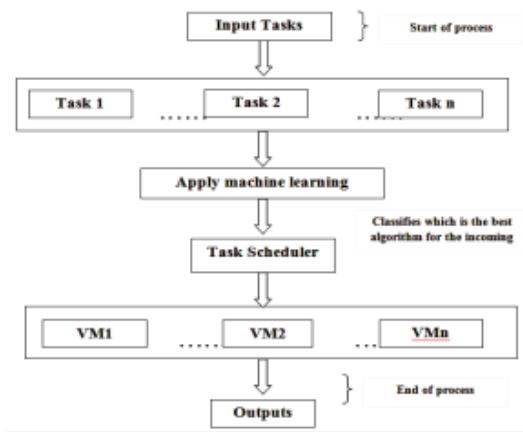2. Time consuming
3. Memory overhead

Fig.2 System architecture

In this proposed framework we try to optimize the utilization of cloud computing resources by using machine learning techniques. Task scheduling algorithms can be designed for static or dynamic scenarios. The proposed framework is for the dynamic scenario. Task scheduling can consider different parameters for scheduling purposes like Makespan, QoS, energy consumption, execution time, and load balancing. We propose to apply a machine learning technique for the incoming task requests so as to classify the best suitable algorithm for the task request rather than randomly assigning the scheduling algorithm.

Advantages:

1. The outcome of the proposed work leads to the selection of the best task scheduling algorithm for the input task(request).

In this paper author is using machine learning algorithms such as Logistic Regression and Decision Tree to predict task scheduling resources. All existing algorithms were using random task scheduling or FCFS (first come first server), SJF (shortest job first) and many other algorithms to schedule task in cloud environment but this random scheduling will not assign resources accurately.

To overcome from above problem author is training machine learning algorithms with QOS (quality of service) dataset which contains information about task execution time, make span time, energy and memory consumption. After training machine learning algorithms with above dataset then this trained model applied on new test request to predict resources for that test request and this machine learning algorithms will take all request dynamically and then predict resources. This predicted resources will describe whether task can be currently schedule or has to wait till existing task completed.

4. ALGORITHMS

LOGISTIC REGRESSION:

Logistic regression is one of the most popular Machine Learning algorithms, which comes under the Supervised Learning technique. It is used for predicting the categorical dependent variable using a given set of independent variables. Logistic regression predicts the output of a categorical dependent variable. Therefore the outcome must be a categorical or discrete value. It can be either Yes or No, 0 or 1, true or False, etc. but instead of giving the

exact value as 0 and 1, it gives the probabilistic values which lie between 0 and 1. Logistic Regression is much similar to the Linear Regression except that how they are used. Linear Regression is used for solving Regression problems, whereas Logistic regression is used for solving the classification problems. In Logistic regression, instead of fitting a regression line, we fit an "S" shaped logistic function, which predicts two maximum values (0 or 1). The curve from the logistic function indicates the likelihood of something such as whether the cells are cancerous or not, a mouse is obese or not based on its weight, etc. Logistic Regression is a significant machine learning algorithm because it has the ability to provide probabilities and classify new data using continuous and discrete datasets. Logistic Regression can be used to classify the observations using different types of data and can easily determine the most effective variables used for the classification.
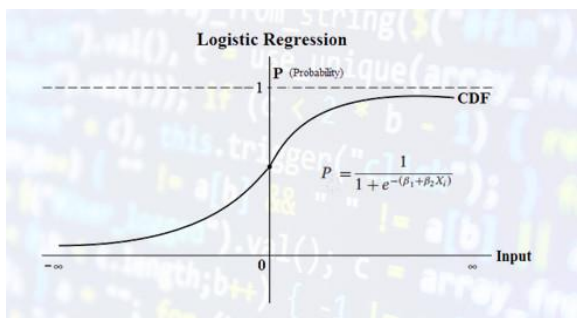
Fig.3: Logistic regression model

DECISION TREE:

Decision tree algorithm falls under the category of supervised learning. They can be used to solve both regression and classification problems. Decision tree uses the tree representation to solve the problem in which each leaf node corresponds to a class label and attributes are represented on the internal node of the tree. We can represent any boolean function on discrete attributes using the decision tree.

Below are some assumptions that we made while using decision tree:

- At the beginning, we consider the whole training set as the root.
- Feature values are preferred to be categorical. If the values are continuous then they are discretized prior to building the model.
- On the basis of attribute values records are distributed recursively.
- We use statistical methods for ordering attributes as root or the internal node.

In Decision Tree the major challenge is to identification of the attribute for the root node in each level. This process is known as attribute selection. We have two popular attribute selection measures:

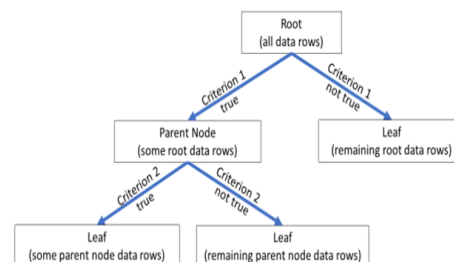1. Information Gain
2. Gini Index

Fig.4: Decision tree model

5. EXPERIMENTAL RESULTS

To trained machine learning algorithms we are using below dataset
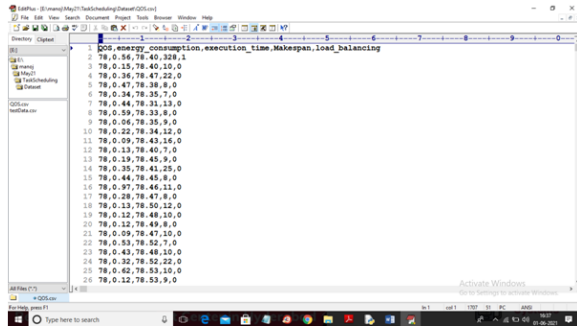
Fig.5: Train dataset

In above dataset in first row you can see dataset column names and remaining rows contains dataset values. In last column we have class label as 0 or 1 where 0 means task can be schedule and 1 means task cannot be schedule at current time. After training with above dataset will use below test data to predict task scheduling.
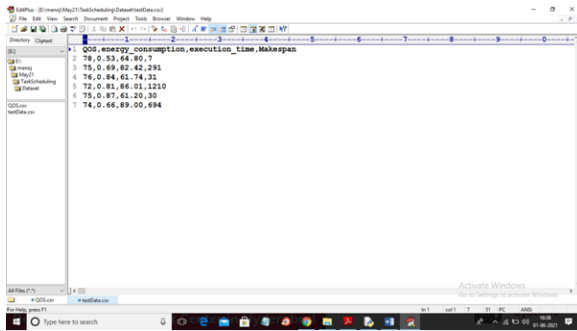

Fig.6: Test data

In above test data we can see there is no class label and machine learning will predict either 0 or 1 as output to indicate scheduling is possible or not.
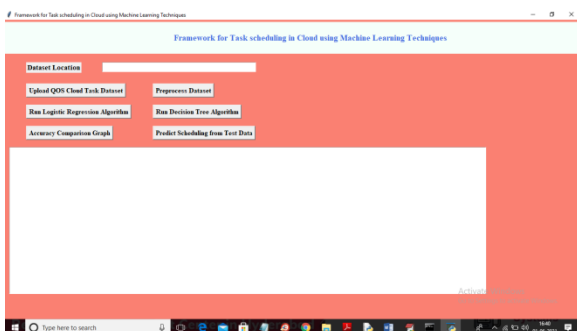
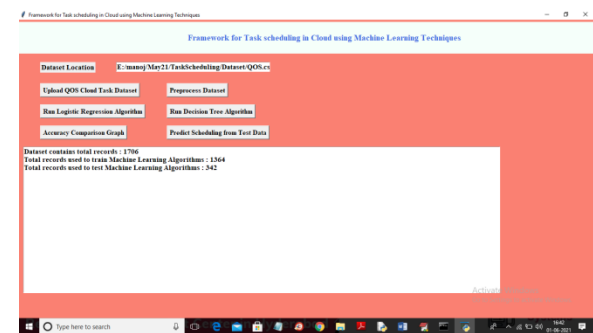Fig.7: Home screen
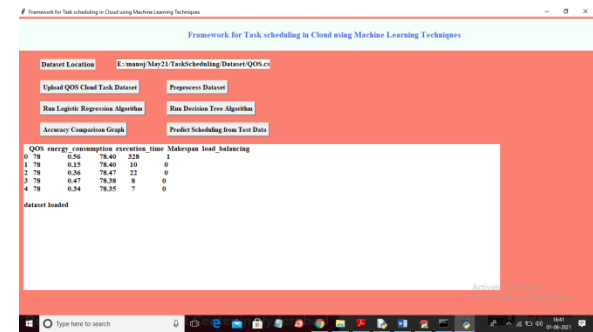
Fig.8: Dataset loaded
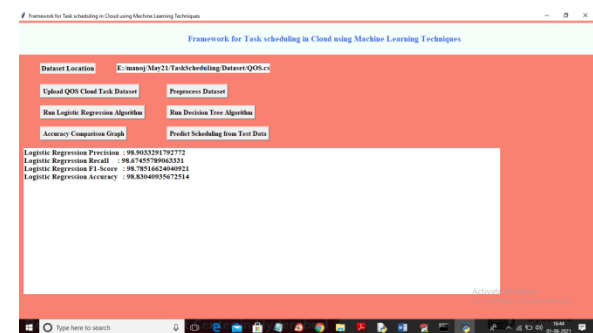

Fig.9: Dataset preprocess
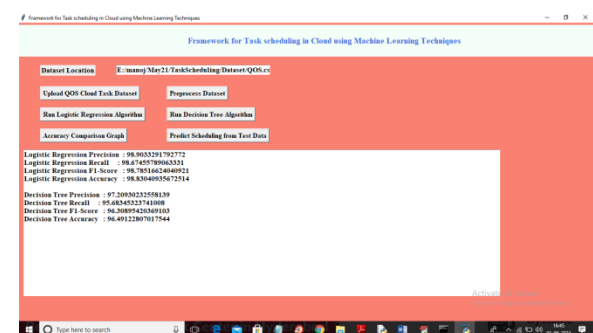

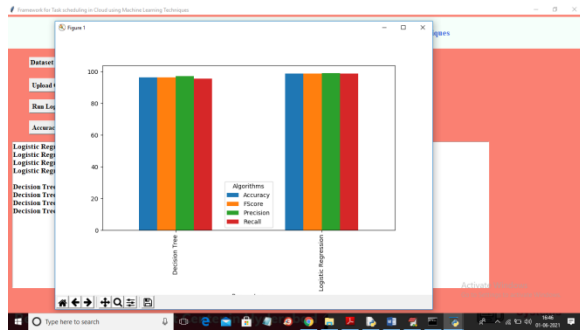Fig.10: logistic regression algorithm

Fig.11: Decision tree algorithm
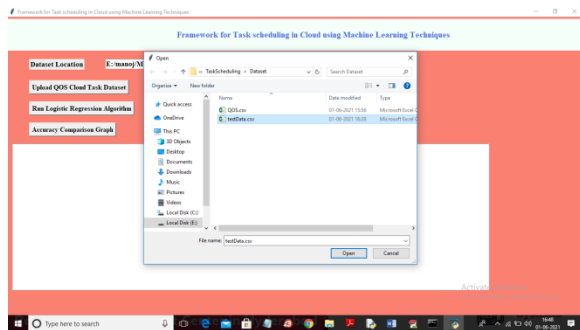

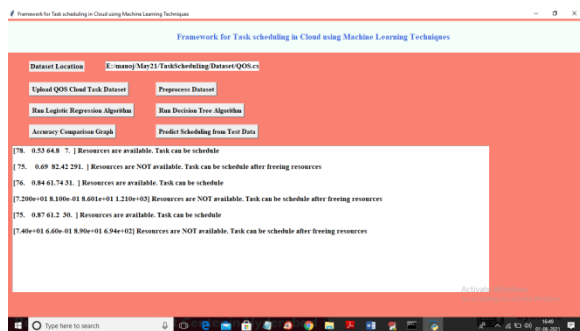Fig.12:Accuracy comparison graph

Fig.13: Test data uploading

Fig.14: Prediction result

6. CONCLUSION

The selection of appropriate scheduling algorithms for cloud computing is a critical issue. With the correct selection of algorithms, it helps to improve the efficiency of cloud resources. Here we have proposed a method that uses the Machine learning algorithm to classify and appropriate selection of the algorithm. The machine learning used at the application end of the cloud environment gave better results. The proposed method can yield better results compared to traditional random assignment of tasks. We can also compare the traditional method of task scheduling with our proposed method.

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