PROJECT

Book

TOPIC :-

UNEMPLOYMENT RATE IN INDIA DURING COVID-19

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INTRODUCTION

OVERVIEW :-

The project Unemployment in India During covid-19 done by me & my team members consists of a web page that will help us to know the percentage decrease in the employment rate all over India.

We were provided with a data set by the smartinternz that consists of a good analysis of unemployment rate.

The unemployment rate increased by nearly 14.8% points in just one month, rising to 23.5% in Apr 2020.

Using the data set we have performed some visualizations that consists of Dashboards & Stories.

Visualizations on :-

Employment Rate Across Each State Analysis
Unemployment Rate in Top 10 States
Top 10 Labour ~~paracti~~ participation Rate by Area
Estimated employed Rate Befor & After lockdown
Impact of lockdown on unemployment Rural & urban Area in 2019
Employment Rate in Top 10 states.

The dashboard & the story will represent the data in a comprehensible way at a single place.

We have performed the web integration that consists of MySQL server Management, Tableau Public Server Account & Html, CSS or bootstrap.

This web integration helps us in getting a web page that consists of a good description of the visualizations.

Project objective

→ By the end of this project we are able to

- Connect Tableau with different data sources
- Know fundamental concepts & techniques used for Data visualization
- Have a broad understanding about data & different types of charts
- Have knowledge on development of Dashboards & story
- Able to integrate the developed visualizations with the web application

UNEMPLOYMENT RATE IN INDIA DURING COVID-19

INTRODUCTION

Unemployment is a serious problem which is being experienced by most countries throughout the globe. Unemployment is like a giraffe which is easier to make out than to describe. The crisis of unemployment has been in existance for a long time. Nevertheless, in the developed nations it was experienced in its severe form at the time of the great depression (1930's) while in the developing nations it was after the second world war (1945)

In India unemployment is considered a curse of development particularly the literate unemployed. In India, any person working about 8 hours a day for 273 days annually is considered as employed person but get meaningful work for a minimum of 2184 hrs in a year. The person, who does not get work for this duration, is known as

an employed person.

Problem Statement

The object of the project is how the lockdown affe
employment opportunity & how the unemployment
rate increases during covid-19.

Analyzing the dataset to get insight of

1. How covid-19 affects the employment
2. How far the unemployment rate will go.

The Broken link of Education employment & development:

The country produces 80 lakh graduates every year of them the no. of proffessional graduates is only eight lakh wateuer the manpower mix only 2% of employees in Industries have recived formal education.

whit the rapid commercialization privatization of education, the quality of the few engineers being produced is rapidly declining. It has been produced noted by various employer's associations.

Agriculture seems ~~the~~ to be the occupation of 44% of people, but the share of the agriculture sector in national income is only 14%. this means that even today there is a large amount of hidden unemployment in agriculture today, a situation has been created in the rural area where people spend their days in vain. No new employment related to agri-commodity production is available in rural areas.

RESEARCH Methodology

While collecting the information for this paper current paper information available online has taken as a basis. As information about this not available in old books, it is necessary rely on publicly available informations.

The available information has been analysed according to data provided by the enti for monitoring the Indian economy the unemployment rate in urban areas of the co was 8.16 % in January 2022, while the rat rural areas was 5.84 %. In December 20 the unemployment rate in the country wa 7.91 percent. the unemployment rate in december of 2021 was 9.30 % in urban a & 7.28 % in rural area, Telangana (0 has the lowest unemployment rate, while (23.4%) has the highest, Gujrat has the of 1.2%.

CMIE has said in its report that there wa a total of 55 million unemployment people in month of December

Reason Behind such a situation in India

1. Corona Outbreak

The country's unemployment rate was limited to 5 to 6 % for the next three years beginning in 2017. And it was decreasing But, after the corona outbreak, the national lockdown started in march 2020. Economic activities & transactions were restricted & employment was directly affected salary has been reduced in some areas.

2. Inadequate rural job opportunities

The social problem has been bothering India for many decades, there are not enough employment opportunities in rural areas as compared to cities. village based cottage industry, small-scale industry & agriculture related industries have declined in recent times

Pre-Requisites

For completing the project these are some of the pre requisites ~~are~~ needed

A system with minimum 4 GB RAM & 256 GB Hard disk

Good Internet connection.

Google Drive / Any of the database server with Management studio

- MySQL : https://www.youtube.com/watch?v=2c2fu0gzHmY
- Tableau Desktop : https://www.youtube.com/watch?v=b3pWYynHQ08
- Tableau Public Account : https://public.tableau.com/app/discover

Html, CSS & bootstrap

Prior-knowledge:-

To complete this project, one must understand the below concepts and able to work with the tools

- Data visualization : https://www.youtube.com/watch?v=5gpnzvMsTZs
- Uni-variate, Bi-variate & Multi-variate Anaysis: https://www.youtube.com/watch?v=JGr8C4RIMps
- Chart type : https://www.youtube.com/watch?v=csXmVBw8cdo
- Tableau : https://www.youtube.com/watch?v=aHaOtvR00So

Project objective:

By the end of the project, you will:

→ able to connect Tableau with different data sources
→ know fundamentals concepts and techniques used for Data visualization
→ Gain a broad understanding about data & different types of charts
→ Able to integrate the developed dashboard & story with the web application.

LITERATURE SURVEY

Social media, especially Twitter, has long been used for investigating economic issues.
Authors in (32) searched for tweets with hashtags for different keywords on jobs & gathered tweets sent by popular user in the united state. Sentiment analysis showed that most of the tweets had negative sentiments.
In (33) a sentiment-based model was designed with 0.6787 accuracy for tweets, news articles & movie reviews and concluded that the sentiments scores were correlated with economic indexes such as the exchages rate. Although social media has long been used for studying economic issues & related concerns, very few studies have considered using social media to understand the unemployment rate

One of the first works that use twitter to estimate the unemployment rate. One of the first works that used twitter to estimate the employment rate is presented in (14).
In this paper, 19.3 billion tweets were gathered from July 2011 to November 2013 on unemployment in the united state.

EXISTING PROBLEM

These paper have investigated the effect of the COVID-19 pandemic on the economy. However, they do not consider studying & estimating the unemployment rate using social Media.

The main contribution of this study is to fill the existing gaps in using social media data to understand analyze, and estimated the unemployment rate during the pandemic using a combination of Methods.

This combination has significantly improved the classical method for estimating the ~~&~~ unemployment rate.

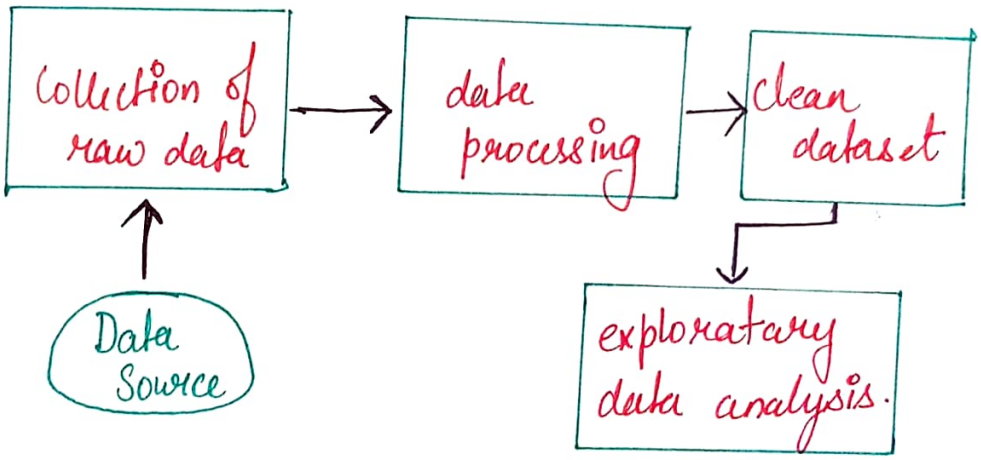
In (36) data from twitter & newspaper articles were used to study economic uncertainty in the united kingdom & the united states during the COVID-19 pandemic.

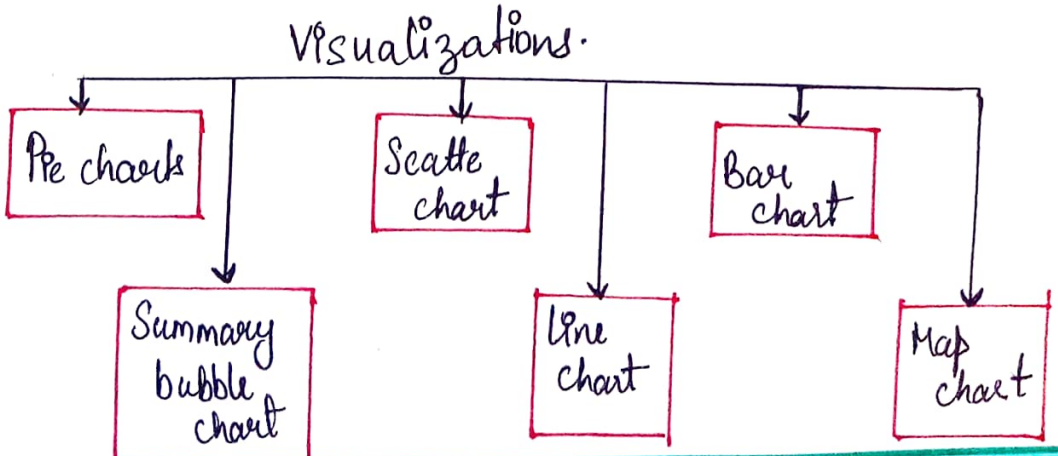
Numerical ~~resis~~ results show that with the COVID-19 pandemic a huge uncertainty jump was found in economic related Indicatedors. Such as business growth GDP growth, and stock market volatility.

PROPOSED SOLUTION

An Approach is reffered as a systematic path to reach a solution given below is the flowchart of the proposed approach for the problem

In this study, we show that certain key-words extracted from employment related tweets can be used to now cast the unemployment rate.





DATA COLLECTION

All the geotagged tweets posted from south Africa except for retweets, until Nov. 30th, 2021 for certain keywords are retrieved using full archived search of the twitter Academic Research account.

Data Preprocessing

The real unemployment data for south Africa is provided on a seasonal basis (4+4), and it is calculated in two different ways.

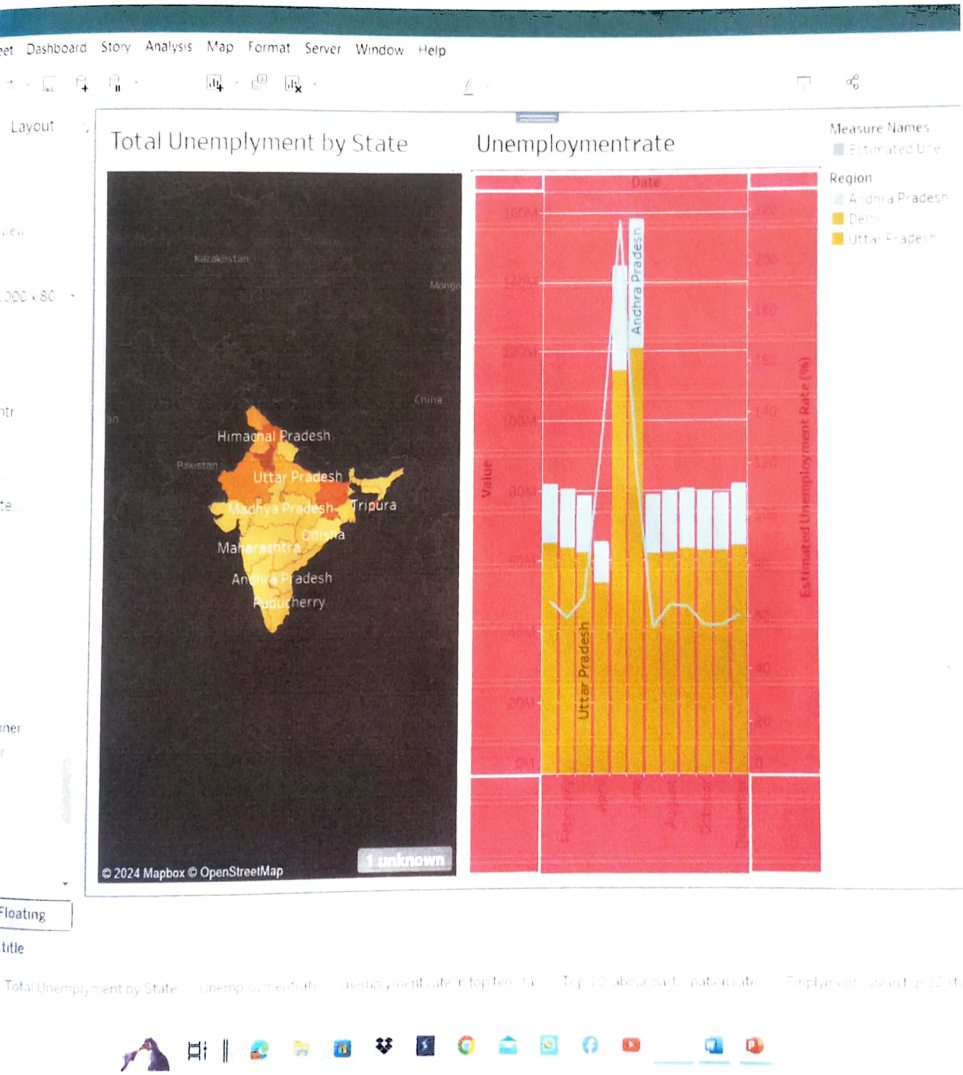
In the first method an individual is considered unemployed during an interview if (1) the individual is ready to work within a week of the interview. In the second method the third condition is relaxed (4+5).

Exploratory Data Analysis.

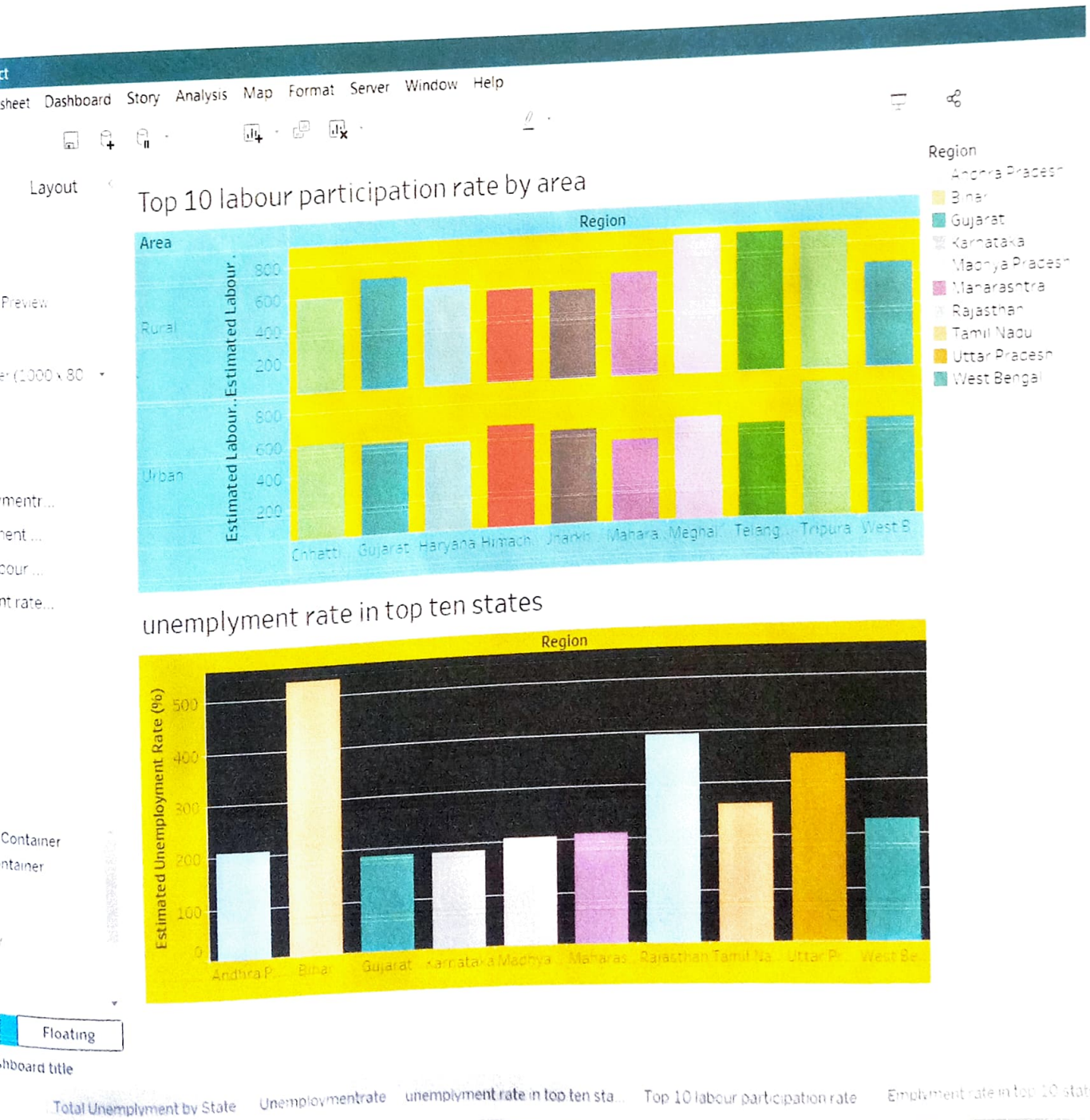
Analysis is done on data using various techniques like text analysis, diagnostic analysis, Exploratory data analysis various type of plots are

- Bar graph
- histogram
- Box plot
- scatter plot

DASHBOARD 1


Dashboard
Story
Analysis
Map
Format
Server
Window
Help
Layout
Total Unemplyment by State
Unemploymentrate
Measure Names
Region
Himachal Pradesh
Uttar Pradesh
Madhya Pradesh
Tripura
Odisha
Maharashtra
Andhra Pradesh
Puducherry
Kazakhstan
China
Pakistan
© 2024 Mapbox © OpenStreetMap
unknown
Date
Value
Estimated Unemployment Rate (%)
Andhra Pradesh
Uttar Pradesh
Floating
title

DASHBOARD 2


sheet Dashboard Story Analysis Map Format Server Window Help
Layout
Top 10 labour participation rate by area
Region
Area
Rural
Urban
Estimated Labour.. Estimated Labour ..
800
600
400
200
Chhatti.. Gujarat Haryana Himach.. Jharkh.. Mahara.. Meghal.. Telang.. Tripura West B..
Region
Andhra Pradesh
Bihar
Gujarat
Karnataka
Madhya Pradesh
Maharashtra
Rajasthan
Tamil Nadu
Uttar Pradesh
West Bengal
unemplyment rate in top ten states
Region
Estimated Unemployment Rate (%)
500
400
300
200
100
0
Andhra P.. Bihar Gujarat Karnataka Madhya.. Maharas.. Rajasthan Tamil Na.. Uttar Pr.. West Be..
Container
Floating
Total Unemployment by State
Unemployment rate
unemplyment rate in top ten sta..
Top 10 labour participation rate
Employment rate in top 10 state

DASHBOARD 3


Dashboard
Story
Analysis
Map
Format
Server
Window
Help
Layout
Emplyment rate in top 10 states
Uttar Pradesh
Bihar
Tamil Nadu
Maharashtra
Madhya Pradesh
Rajasthan
Region
Andhra Pradesh
Assam
Chandigarh
Chhattisgarh
Delhi
Goa
Gujarat
Haryana
Himachal Pradesh
Jammu & Kashmir
Jharkhand
Karnataka
Kerala
Madhya Pradesh
Maharashtra
Meghalaya
Odisha
Puducherry
Punjab
Rajasthan
Sikkim
Tamil Nadu
Telangana
Tripura
Uttar Pradesh
Uttarakhand
West Bengal
Sheet 6
Region
Count of Unemployment
Floating
Unemployment by State
Unemployment rate
Unemployment rate in top ten sta
Top 10 labour participation rate
Emplyment rate in top 10 states
Shee

WEB INTEGRATION

Overall, the integration of HTML, Python, Flask and Tableau enables us to create sophisticated web applications that combine dynamic content, data processing and interactive visualizations to deliver compelling user experiences.

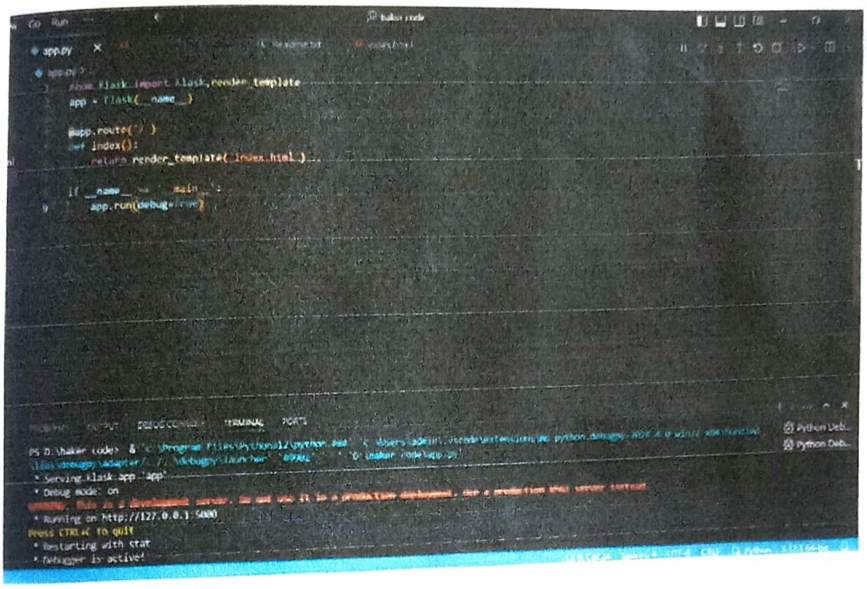
Integration Workflow:

Development with Flask and Python: You start by building the backend of your web application using Flask and Python. This involves defines routes, handling HTTP requests, and performing any necessary data processing or business logic. You can contain placeholders or dynamic content that will be filled in with data from your Python backend.

Visualization Using tableau: Using Tableau, we have create interactive visualizations and dashboards from our data. We can customize the appearance.

Embedding Tableau Visualizations: Tableau provides a API that allows us to embed Tableau visualizations into web pages. Within our HTML templates we include flask code visualizations and control their interactions with the user.

Frontend Interactivity: With the integration complete, users can interact with our web application through the frontend interface. They can view dynamic content.

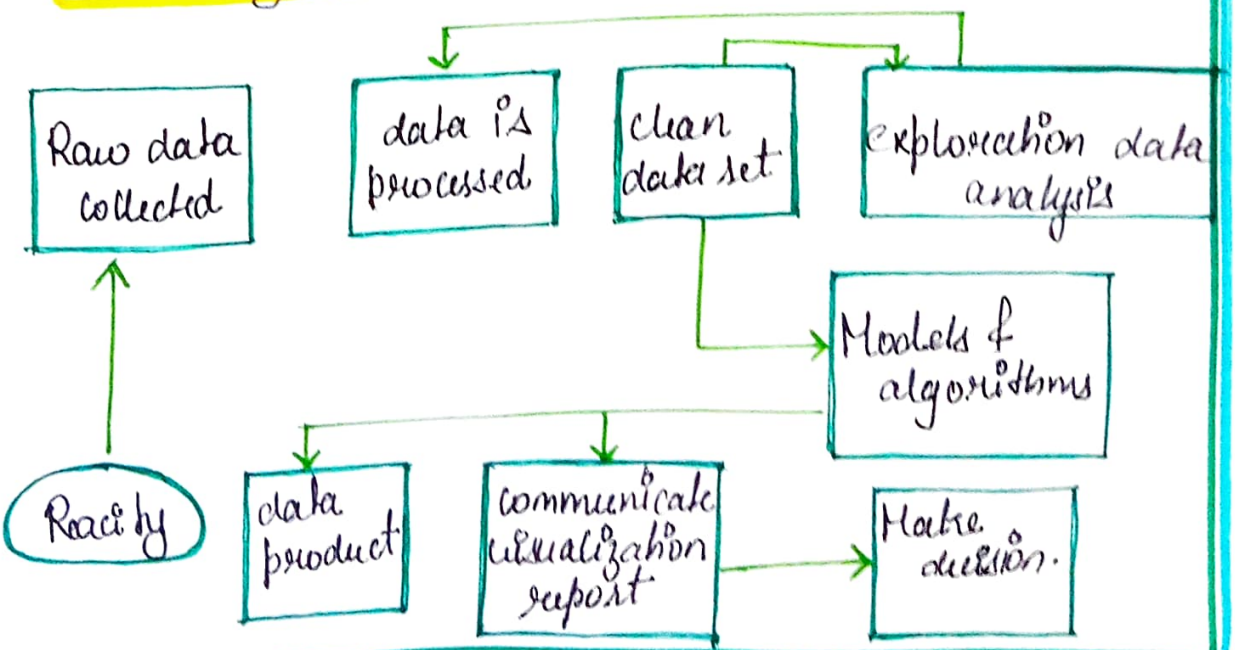

app.py
from flask import Flask,render_template
app = Flask(__name__)
@app.route('/')
def index():
return render_template('index.html')
if __name__ == '__main__':
app.run(debug=True)
PROBLEMS
OUTPUT
DEBUG CONSOLE
TERMINAL
PORTS
PS D:\baker code> & 'C:\Program Files\Python312\python.exe'
* Serving Flask app 'app'
* Debug mode: on
* Running on http://127.0.0.1:5000
Press CTRL+C to quit
* Restarting with stat
* Debugger is active!


EXTENSIONS
INSTALLED
Pylance
Microsoft
Python
Microsoft
Python Debu...
Microsoft
RECOMMENDED
ESLint
Microsoft
Install
Docker
Microsoft
Install

THEORITICAL ANALYSIS

This is an exploratary data analysis in which firstly raw data is collected and the data is processed then we create a data module and we clean the data set with unwanted matter & created relationship to the tables data set & apply models & algorithms & then made visualization like bar graph, bubble, scatterplot, etc then the final data product will be obtained

Block diagram



HARDWARE / SOFTWARE DESIGNING

Recommended to use a window senable computer this recommendation is based on feedback from students who found many activities are easier to complete using windows

Hard drive SSD is prefered CPU intel is minimum & ram 16 are pruffred.

Some of the hardware not critical for success in our programs are like - External keyboard headphones second moniter for remote students

API : streamlit on external interface required functional Requirement python spider, Anadconda, Vscode . bootstyis upnade.

ADVANTAGES

Usually an unemployment allowance is 50% of a worker's daily average earnings.

Under the allowance, you are also eligible for Medical assistance for up to one year.

However, the unemployment allowance schemes in India is different for every state. where the state government decides the allowance value

→ Improvement in the agriculture system
→ Adequate arrangement of facilities of irrigation
→ Increasing the area of cultivable land
→ Setting up & develop the cottage & village Industries
→ Improving the means of transportat & communication
Making hiring & firing workers easier.
Increasing the flexibility of the labour force.

DISADVANTAGES

waste of man power resource

People who are an asset for the economy turn into a liability

There is a feeling of hopelessness & despair among the youth

People do not have enough money to support their family & decline in the health condition.

It negatively impacts the Indian economy by reduction productivity, hindering economic growth, increasing the fiscal burden on the government, limiting investment & consumption & exacerbating poverty & income inequality

The unemployment rate increased by nearly 14.8 % points in just one month. rising to 23.5% in Apr 2020.

CONCLUSION

In this paper, social media, particularly twitter is traced to estimate the unemployment rate of south Africa in real time since in South africa the unemployment rate is measured quarterly, this method can be used to find the missing information on the unemployment rate, as well. Moreover this method can provide the unemployment rate statistics in real time & without the difficulties faced using the traditional approach. finally, this information can be highly valued for analyzing labour market flow when facing disasters such as a pandemic.

The normalized sum of sentiment sources over time before & during the covid-19 pandemic has a strong negative correlation with the unemployment rate.

FUTURE SCOPE

The study is based on the total, rural, & urban unemployment rates that are measured in terms of monthly percentage at India level. However future researchers may collect the unemployment data state-wise & trace out the state that is afflicted heavily by lockdown. further, future researchers may also collect the data sector-wise or industries wise & trace out the sector or industry that is affected a lot by lockdown.

Unemployment rate the percentage of people in the labour force who are without jobs is projected to fall from 4.41 percent in 2024 to 3.68 percent in 2028, the India employment out look 2030 report by thinktank observer Research foundation (ORF) said.

EXECUTIVE SUMMARY

This internship report encapsulated a comprehensive learning journey in the field of data analytics, focusing on Tableau Desktop, a prominant business intelligence & performance management software suite. The internship program spanned 6 weeks, consisting of structured training session, hands-on project, knowledge session, & career development activities.

Learning objective

→ Gain proficiency in business intelligence concepts, including data integration, processing, presentation & ETL architecture.

→ Acquire practical skills in using Tableau for data visualisation, covering database, performing CRUD operations, & basic SQL operations.

→ Learn to build interactive dashboards & stories in tableau for effective data communication & analysis.

→ Gain proficiency in web development framework like flask & bootstrap for building Tableau-based web application.

ACTIVITY LOG FOR THE FIRST WEEK

Day & Date	Brief description of the daily activity	Learning Outcome	Person In-Charge Signature
Day – 1	Introduction to Business Intelligence • Data Integration • Data processing • Data presentation • ETL Architecture Introduction to data Analytics	• understand the fundamentals & significance of business intelligence & data analytics • Gain knowledge of data integration processing	
Day - 2	Introduction to Tableau • overview & features • connecting Tableau to data source • working with flat files	• Gain an overview of Tableau & its features • Learn to connect Tableau to various data source • Acquire skills in working with flat files.	
Day – 3	Data Extraction • Introduction to database • Creating Database & Table • CRUD operation on database tables	• Learn the process of creating database & tables within the database management system	
Day – 4	• Basic SQL operations	• Understand fundamentals of SQL, filtering, sorting & aggregating data using SQL.	
Day – 5	• Basic SQL operations	• Develop proficiency in performing data manipulation tasks such as inserting, updating & deleting records.	
Day –6			

WEEKLY REPORT

WEEK – 1 (From Dt..... to Dt.....)

Objective of the Activity Done: To provide Intensive Introduction to Business Intelligence, Tableau, SQL operation.

Detailed Report: Day 1: Introduction to Business Intelligence → covered various aspects of BI including data integration, processing & ETL architecture. → Explored all type of data analytics: descriptive, diagnostic, predictive & prescriptive along with real application. → Participants gain insights into the significance of BI & data analytics in decision-making processes

Day 2: Introduction to Tableau → Introduction participants to Tableau's features and capabilities → demonstrated how to connect Tableau to different data sources & work with flat files & spreadsheets.

Day-3 Data Extraction → provided an overview of databases & their role in data Management → conducted sessions on creating database & performing CRUD operations on database tables

Day 4 & 5: Basics of SQL operations → coverd fundamental concepts of SQL & its importance in database management → Taught Basic SQL operations including querying, filtering sorting & aggregating data.

ACTIVITY LOG FOR THE SECOND WEEK

2

Day & Date	Brief description of the daily activity	Learning outcome	Person in-charge signature
Day-1	Architecture of Tableau • Interface of Tableau • Tableau field types • Saving & publishing a data source	• Understanding Tableau's architechture & components • Familiarize with Tableau's interface field type & usage • Learn about data connection.	
Day-2	Charts :- • Histograms • Boxplot • Hotspots • Pie • Bar • Line • bubble	- Gain an understanding of Histogram, Box plots, Hotmaps charts & Bubble charts. - Learn principle & application of each chart	
Day-3	• Bullet • Scatter • Tree • Heatmaps • Text tables • Highlighted table	- Acquire skills in selecting appropriate chart types based on data characteristics - develop proficiency in selecting the most suitable chart type	
day-4	• Custom charts	- understand the concept & importance of custom charts in data visualization - Acquire skills in creating customizing charts effectively.	
Day-5	Working with Metadata & data Blending • connecting to data source • Tableau data types • connect to Excel cubes & PDFs.	- develop expertise in connecting Tableau to diverse data source such as Excel, cubes and PDFs for comprehensive analysis.	

WEEKLY REPORT

WEEK - 2 (from dt ..... to dt ...)

Objective of the Activity Done: Data visualizations & data manipulation.

Detailed Report Day 1: Architecture of Tableau

explored the architecture of tableau, including its components & interface elements discussed tableau field types, saving & publishing data source and connection methods

Day 2:- charts

Acquired skills in creating, appropriate chart type based on data characteristics & analysis goals.

Day 3:- Advanced chart types dived into advanced chart types such as bullet charts, scatter plots, tree maps, heat maps, text tables & highlighted tables

Day 4: custom charts; explored the concept of custom charts in data visualizations

Day 5: working with meta data & data blending understand tableau data type & their implications in data visualization & analysis.

ACTIVITY LOG FOR THIRD WEEK

3

Day & Date	Brief description of the daily activity	Learning outcome	Person Incharge Signature
Day-1	Joins and union Dealing with NULL values, cross-database joining, data blending	- Gain comprehensive understanding & practical skills in various type of joins including right left inner & outer joins.	
Day-2	Advance data Manipulation • pareto • Groups • sets (creating & editing sets) • Constant sets • Combined sets	- Masters advance data manipulation techniques including pareto marking & highlighting to enhance data exploration	
Day-3	• Bins • Hierarchies • Sorting & types • Editing axes & annotations	Learn how to utilize bins for grouping continuous data into discrete intervals	
Day-4	working with filters, organizing data • Filters • working with filters • filtering continuous data set	Master the addition & removal of filters to refine & focus data sets specific criteria	
Day-5	• Filtering in tableau • types of filters • filtering the order of operations.	Master tableau's filtering tools for precise data manipulation.	

WEEKLY REPORT

WEEK-6 (from dt ---- to dt ---)

Objective of the Activity Done: Proficiency in advance tableau functionalities

Detailed Report: Day-1 Joins, unions & data blending

Acquired proficiency in utilizing various types of set such as constant sets, computed sets, & combined sets etc.

Day 2:- Advanced data manipulation Mastered advanced data manipulation techniques including previewing, marking & highlighting to enhance data exploration.

Day 3: Bins, Hierachies, sorting & formatting acquired proficiency in using the formatting pane to customize visual elements for enhanced visualization.

Day 4: working with filters & data organization learned to effectively filter continuous dates, dimensions & measures to extract relevant insight from data set

Day 5: Advanced filtering in tableau.

ACTIVITY LOG FOR FOURTH WEEK

Day & Date	Brief description of the daily activity	Learning outcome	Person In-charge Signature
Day-1	• Calculated fields in tableau	explore the usability of quick tables calculations for on the fly data.	
Day-2	• Quick tables calculations	Apply quick table calculations dynamically to compute values	
Day-3	• LoD expressions in tableau	Utilize tableaus quick table calculations for instant data analysis	
Day-4	• working on co-ordinate points • plotting longitude & latitude	Master mapping skills including co-ordinate point manipulation.	
Day-5	• working on bg image • Map visualization custom territories.	learn how to incorporate bg images and images in tableau for enhanced visualization.	

WEEKLY REPORT

WEEK-4 (from dt ... to dt ...)

objective of the Activity Done: Advance tableau functionalities focusing on various calculations

Detailed Report: Day 1: calculated fields, Quick table calculation etc. Gained an understanding of level of detail (LOD) expressions for advanced analysis and precise control over aggregature in tableau

Day 2:- Quick table calculations.

Applied LOD expressions dynamically to compute values based on displayed data structure.

Day 3: LOD expression in tableau

Delved deeper into the use of LOD expressions for advanced analytics & precise control over aggregations in tableau

Day 4: Mapping, calculations and expression

Developing proficiency in advanced calculation and expressions in tableau to enhance data analysis capabilities

Day 5: Advanced mapping techniques explored techniques for plotting points on images & generating co-ordinate for customized map visualization.

ACTIVITY LOG FOR THE FIFTH WEEK

Day & date	Brief description of the daily activity	learning outcome	person in charge Signature
Day 1	• Creating parameters • Parameter in Calculations • using parameters with filters	Master the creation of parameters in tableau to enhance dynamic analysis & capabilities	
Day-2	• k means cluster analysis • Trend & variance lines • Visual analytics in tableau	Work in - means cluster analysis to identify pattern & grouping within datasets	
Day-3	• Building & formatting a dashboard using size objects views practise formating creative dashboard	Understand the principles of story telling and how to create compelling conclusion	
Day-4	• creating multiple dashboards	Gain proficiency in creating multiple dashboards within tableau for data presentation.	
Day-5	• Creating stories • Including the intro of story points • Adding catchy visual	Learn to create and update story points to dynamically present insight	

ACTIVITY LOG FOR THE SEVENTH WEEK

Day & date	Brief description of the daily activity	Learning outcome	Person In-charge Signature
Day-1	Defining problem understanding • Specify the business problem • Literature survey • Social Impact	To visualize & analyse business experts because Industry specific insight	
Day-2	Data collection from database • collect the dataset • storing data in database	downloading the database • understanding data • column discription	
Day-3	Data extraction from database • perform SQL operations • connect database with tableau	• storing data in database and performing SQL operation. • connecting between database & tableau	
Day-4	Data preparation • Prepare data for visualization	• Include cleaning the data to remove irrelevant data.	
Day-5	Data visualization. • No. of unique visualization	creating graphical representation of data • common types of visualization that can be used to analyse the performance	

ACTIVITY LOG FOR EIGHTH WEEK

Date & day	Brief description of the daily activity	Learning outcome	Person In-charge Signature
Day-1	Database • Responsive • Design of dashboard (1, 2, 3)	BI displays information & data in an organized easy to read format views different sheets in tableau	
Day-2	Story No. of scenes in story	• Presenting data & analysis in a tabular format • The are listed here shown in our project	
Day-3	Performance testing • Amount of data sent and to DB application of data fields web integration	• Amount of data reduced to db depends on the size of the dataset & capacity of db to store & retrieve data • Publishing helps to track and monitor key and communicate results & progress	
Day-4	• Dashboard & story embedded with UI with flask		
Day-4	Project demonstration & documentation • Record explaination video for project	To be done on GitHub by creating a project repository and pushing uploading files and time	