

Project Report Format

1. INTRODUCTION

1.1 - PROJECT OVERVIEW:

Empowering The Future: A Literacy Rate Analysis For A Better Future

Tomorrow

To know development in a society, Literacy is another proper indicator of

economic development. For purpose of census, a person in age limit of

seven and above, who can both write and read with understanding in any

of the language is considered as a literate in India. Literacy plays a major

role in the economic development of a nation. Although India has raised

its current literacy rate of 74.04% (2021) from 12% at the time of

Independence in 1947, its still lag behind the world average literacy rate

of 84%. Compared with other nations, Republic of India has the largest

illiterate population.

India Literacy Rate (According to 2011 Census)

Overall 74.04%

Male 82.14%

Female 65.46%

1.2 - PURPOSE :

The main purpose of carrying out this project to analyse the best possible ways to immensely increase the literacy rate of the future generations.

2 . LITERATURE SURVEY

2.1 - EXISTING PROBLEM:

The existing problem in the project is the disparity in literacy rates among different segments of the Indian population and across states.

2.2 - REFERENCES :

India Literacy Rate (According to 2011 Census)

Overall 74.04%

Male 82.14%

Female 65.46

2.3 - PROBLEM STATEMENT DEFINITION :

Majority of states in India has shown major signs

of improvement in their overall illiteracy rate thus

contributing towards a literate nation

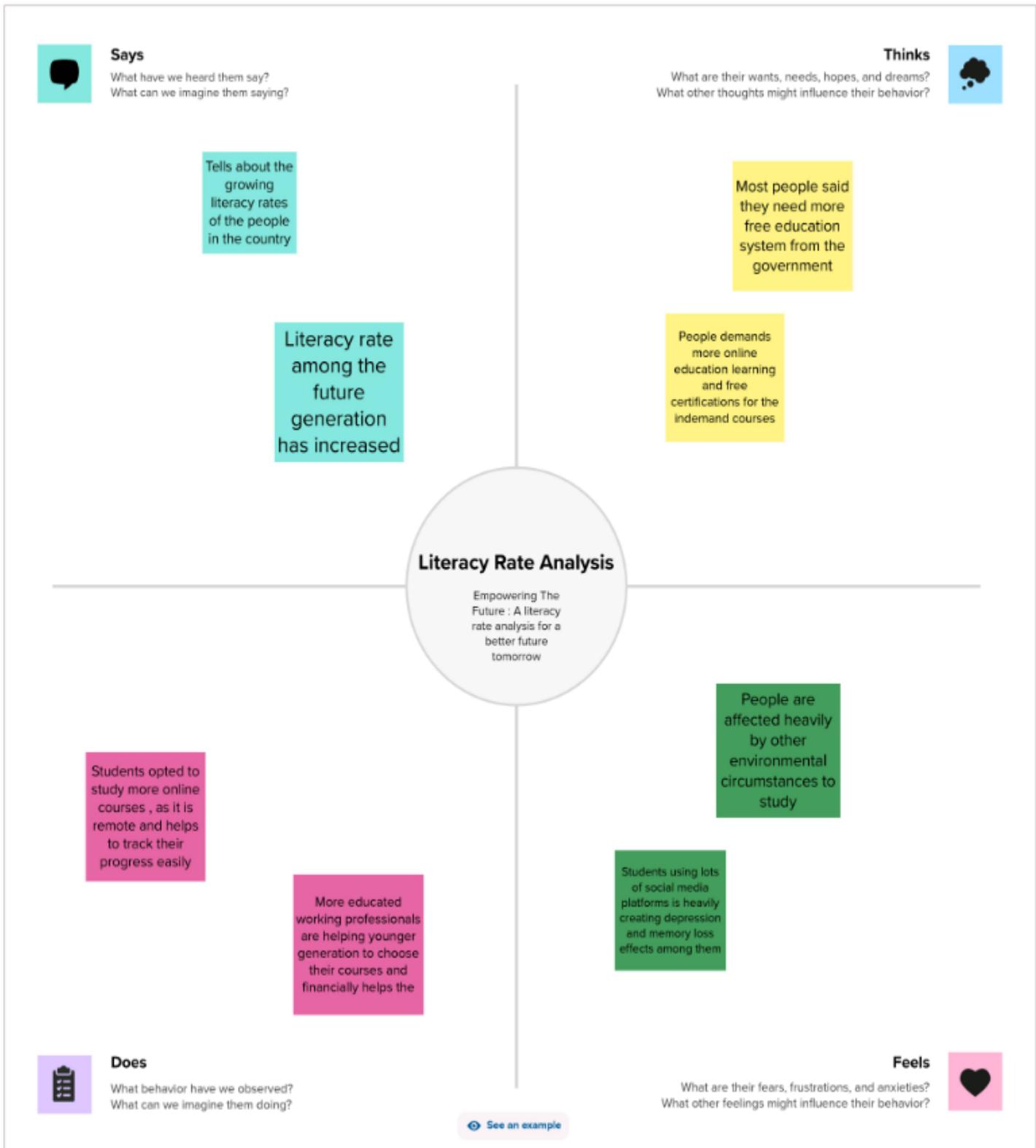
Here we are analysing literacy rate in India for 2021

This dataset contains a record Literacy rate each

states of India, here we are going to analyse State wise, Region wise and Overall Literacy rate among children , Women and Men in India in India.

3. IDEATION AND PROPOSED SOLUTION

3.1 - EMPATHY MAP CANVAS



3.2 - IDEATION AND BRAINSTORMING

1 Brainstorm

Write down any ideas that come to mind that address your problem statement.

TP
You can select a sticky note and the pencil tool to start drawing.

THARIN	SARAVANAM	KUDHARANAN	NAVREN RAJ
Youngsters should enroll themselves and consistently learn indemand courses	Mentor guidance to all students	Introduce more free coaching centers for competitive exams	Government should start teaching indemand skills
Increase free education policies	Increase government schemes for young educated peoples	Creating awareness about scholarships among students	Increase online mode of education

2 Group ideas

Take turns sharing your ideas while clustering similar or related notes as you go. Once all sticky notes have been grouped, give each cluster a sentence-like label. If a cluster is bigger than six sticky notes, try and see if you can break it up into smaller sub-groups.

TP
Add descriptive tags to sticky notes to make it easier to find. Press the magnifying glass icon to search for specific notes as themes settle your focus.

3 Prioritize

Your team should all be on the same page about what's important moving forward. Place your ideas on this grid to determine which ideas are important and which are feasible.

TP
Participants can use their cameras to point at where sticky notes should go on the grid. The facilitator can confirm the spot by using the laser pointer holding the M key on the keyboard.

⌚ 20 minutes

Youngsters should enroll themselves and consistently learn indemand courses

4 - REQUIREMENT ANALYSIS

4.1 - Functional Requirements

The functional requirements for a project analyzing literacy rates in India should specify the features, capabilities, and functionalities of the project. Here are the functional requirements for your project:

Data Collection and Input:

The system should allow the user to input or import data related to literacy rates in India, including state-wise, gender-wise, and age group-wise data.

Data Cleaning and Validation:

The system should include data cleaning capabilities to handle missing or inconsistent data and validate the accuracy of the data.

Data Analysis:

Calculate and display descriptive statistics, such as mean, median, and standard deviation of literacy rates.

Generate visualizations, such as bar charts, line graphs, and maps, to represent literacy rates across different dimensions (e.g., states, regions, gender, and age groups).

Segmented Analysis:

Provide the ability to segment the data by gender, age group (children, women, men), and states for in-depth analysis.

Compare and contrast literacy rates among different segments.

Interpretation and Findings:

Generate a summary of key findings and trends.

Offer explanations and insights into disparities and variations in literacy rates.

Comparison with World Averages:

Include a feature to compare India's literacy rates with world averages and provide an analysis of the disparities.

Recommendations:

Provide a section for offering policy recommendations and interventions to address literacy disparities.

Historical Analysis:

Allow users to view and analyze historical trends in literacy rates over the years, if available.

4.2 - Non Functional Requirements

Non-functional requirements are essential for shaping the overall performance, usability, and reliability of your project. Here are some non-functional requirements for your project analyzing literacy rates in India:

Performance:

The system should be responsive and capable of handling large datasets and complex calculations efficiently.

Response times for data analysis and visualization should be within acceptable limits.

Scalability:

The system should be able to scale to accommodate increasing data volumes as historical data and updates are included.

Availability:

The system should be available for use at all times, with minimal downtime for maintenance or updates.

Reliability:

Data and analysis results should be accurate and reliable.

The system should have built-in error handling and recovery mechanisms.

Security:

User data and sensitive information should be secured through encryption and authentication mechanisms.

Access control should be implemented to protect the data from unauthorized access.

Usability:

The user interface should be intuitive and easy to navigate.

Users should be able to understand and use the system without extensive training.

Compatibility:

The system should be compatible with a range of web browsers, devices, and operating systems.

Data Integrity:

Data stored in the system should remain consistent and secure, and data integrity should be maintained.

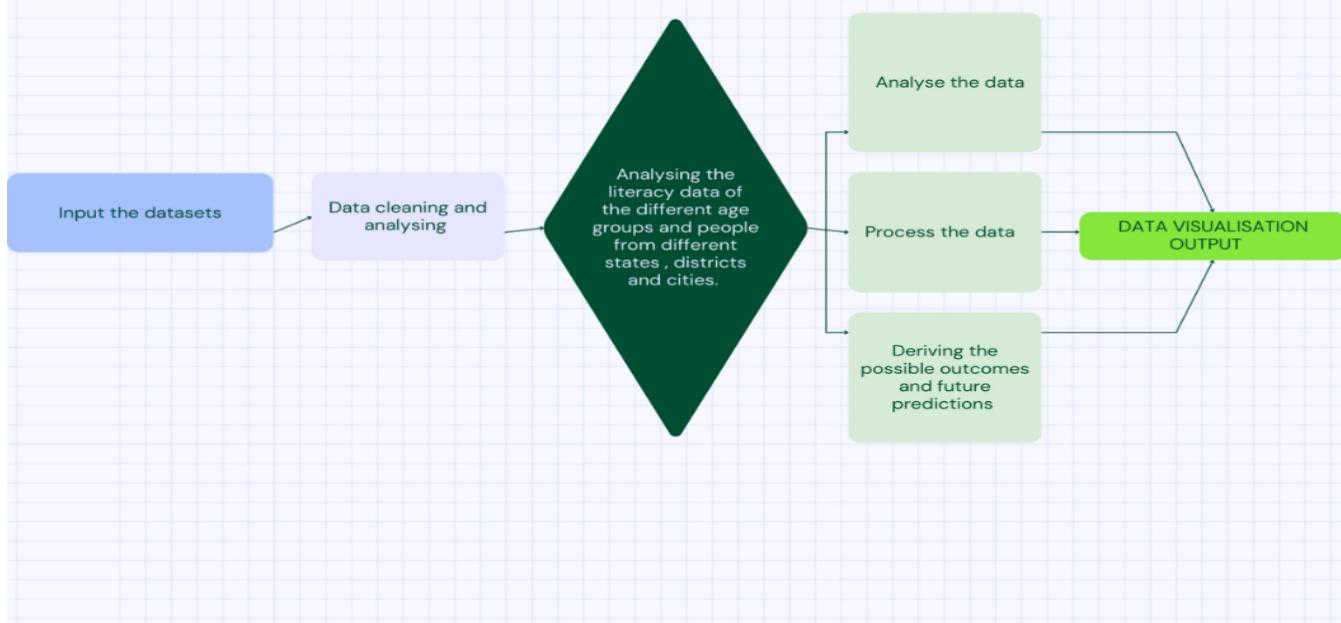
Data Privacy:

The project should adhere to data privacy regulations and protect the privacy of individuals' data used in the analysis.

5 - DATA FLOW DIAGRAM AND USER STORIES

5.1 - Data Flow Diagram and User Stories

DATA FLOW DIAGRAM



User Stories

5.2 - Solution Architecture

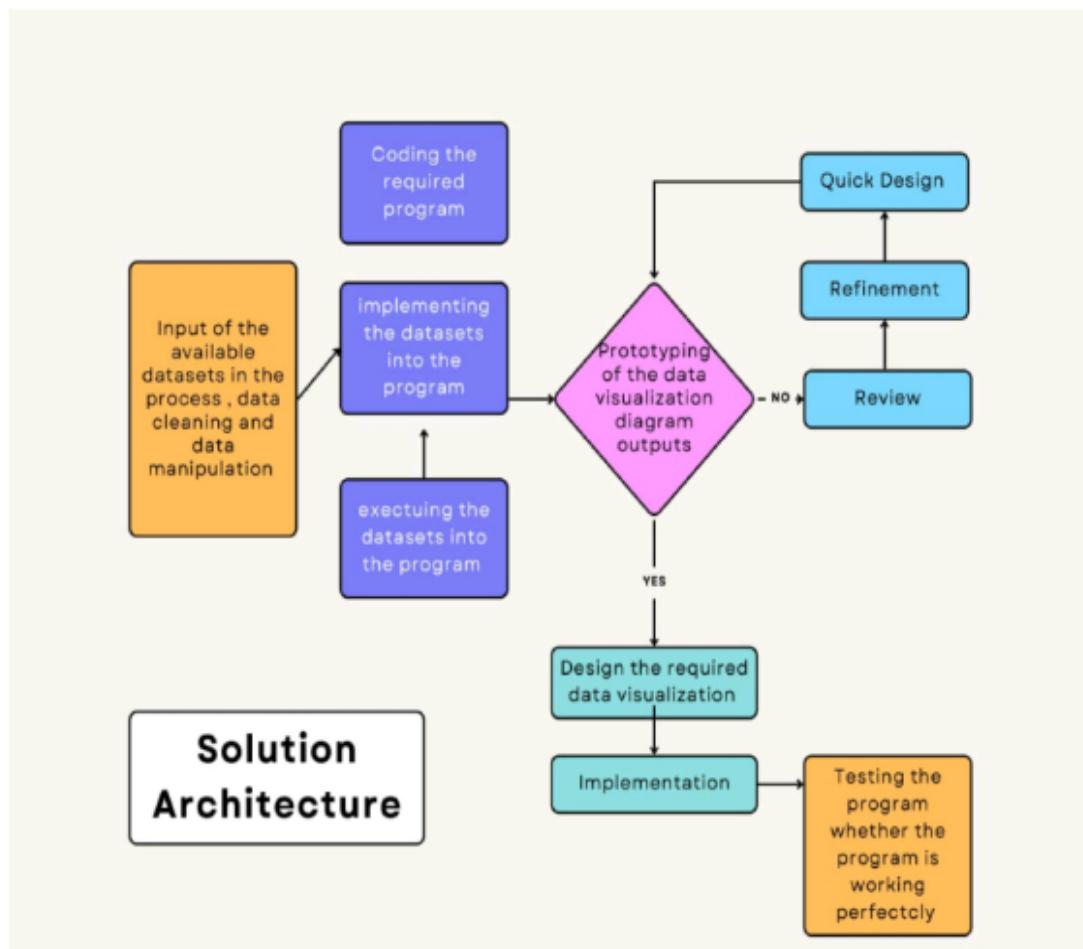
Project Design Phase-I Solution Architecture

Date	24 October 2023
Team ID	NM2023TMID00931
Project Name	Empowering the Future: A literacy rate analysis
Maximum Marks	4 Marks

Solution Architecture:

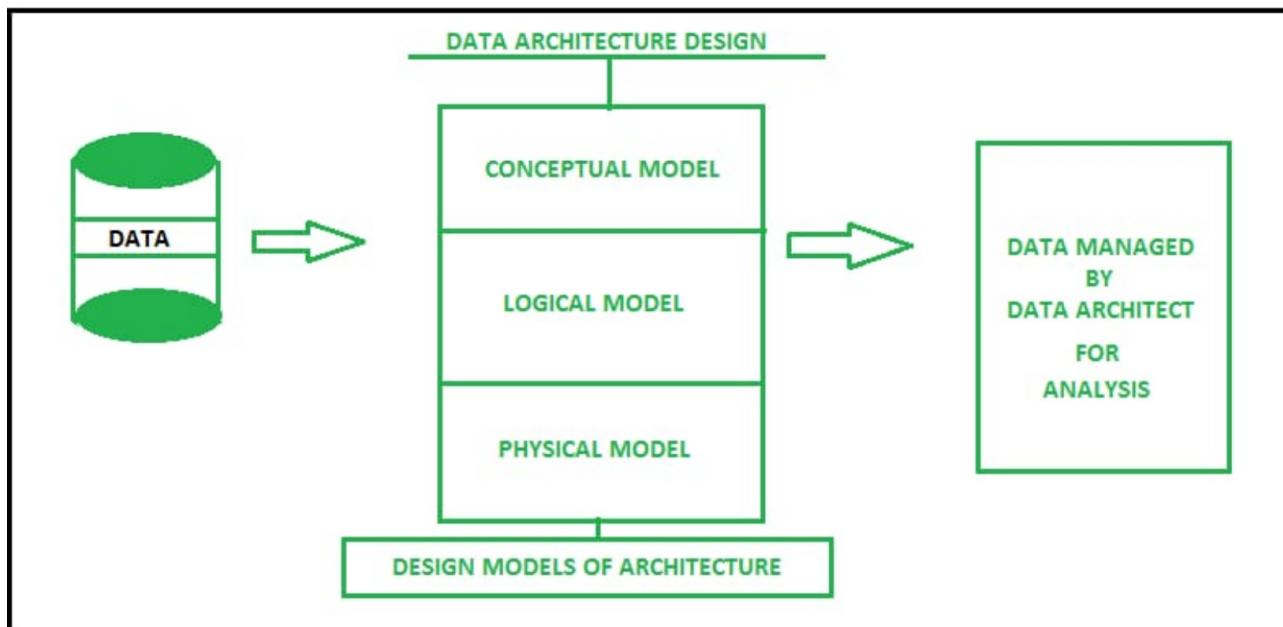
Solution architecture is a complex process – with many sub-processes – that bridges the gap between business problems and technology solutions.

Example - Solution Architecture Diagram:



6 - PROJECT PLANNING AND SCHEDULING

6.1 Technical Architecture



6.2 & 6.3 - Sprint Planning & Estimation , Sprint Delivery Schedule

Project Planning Phase
Project Planning Template (Product Backlog, Sprint Planning, Stories, Story points)

Date	24 October 2024
Team ID	NM2023TMID00931
Project Name	Empowering the Future: A literacy rate analysis
Maximum Marks	8 Marks

Product Backlog, Sprint Schedule, and Estimation (4 Marks)

Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Story Points	Priority	Team Members
Sprint-1	Registration	USN-1	As a user, I can register for the application and use this for future analysis	2	High	Member 1
Sprint-1		USN-2	As a user, I will receive many data visualisation diagrams of the datasets	1	High	Member 2
Sprint-2		USN-3	As a user, I can use this for references	2	Low	Member 3
Sprint-1		USN-4	As a user, I can analyse and help others	2	Medium	Member 4
	Login					
	Dashboard					

Project Tracker, Velocity & Burndown Chart: (4 Marks)

Sprint	Total Story Points	Duration	Sprint Start Date	Sprint End Date (Planned)	Story Points Completed (as on Planned End Date)	Sprint Release Date (Actual)
Sprint-1	20	6 Days	24 sept 2022	29 sept 2022	20	29 Oct 2022
Sprint-2	20	6 Days	31 sept 2022	09 sept 2022	18	09 sept 2022
Sprint-3	20	6 Days	07 oct 2022	12 oct 2022	20	12 oct 2022
Sprint-4	20	6 Days	14 oct 2022	19 oct 2022	19	19 oct 2022

Velocity:

Imagine we have a 10-day sprint duration, and the velocity of the team is 20 (points per sprint). Let's calculate the team's average velocity (AV) per iteration unit (story points per day)

$$AV = \frac{\text{sprint duration}}{\text{velocity}} = \frac{20}{10} = 2$$

7 - Coding and solutioning

```
import pandas as pd

# Replace 'your_excel_file.xlsx' with the path to your Excel file
excel_file_path = 'your_excel_file.xlsx'

# Read the Excel file into a DataFrame
df = pd.read_excel(excel_file_path)

# Display the first 5 rows of the DataFrame
print("First 5 rows of the Excel data:")
print(df.head())

# Describe the data to get basic statistics
print("\nBasic statistics of the data:")
print(df.describe())

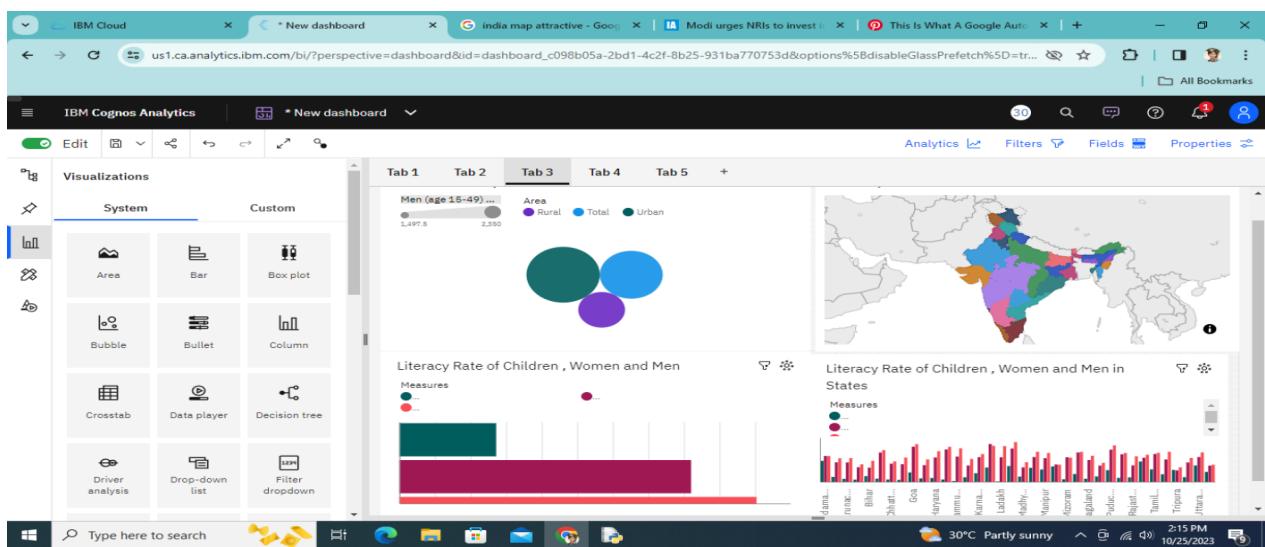
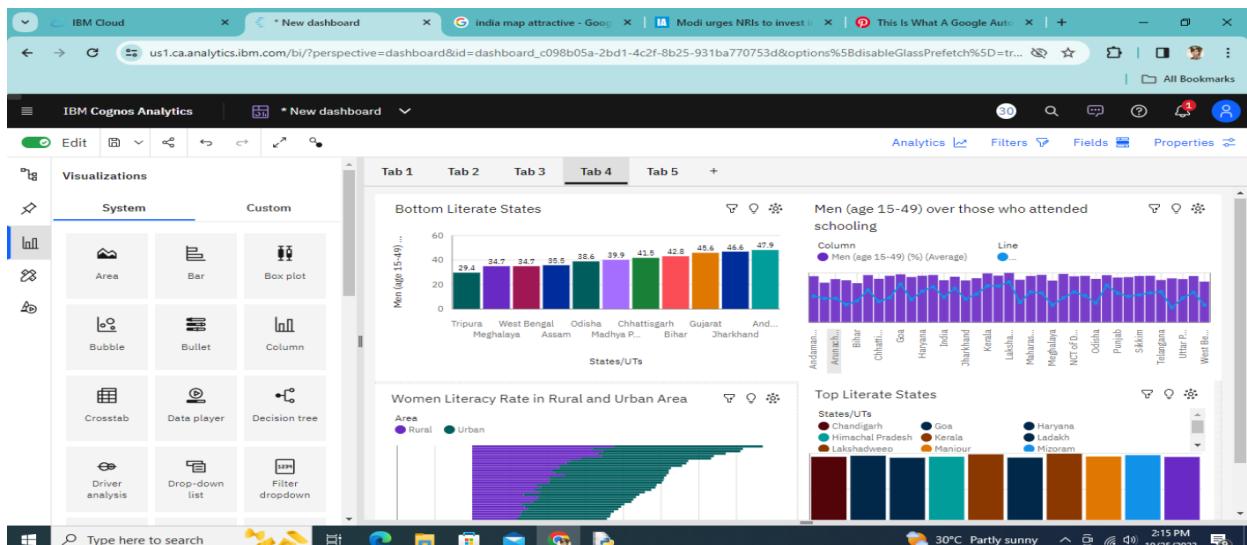
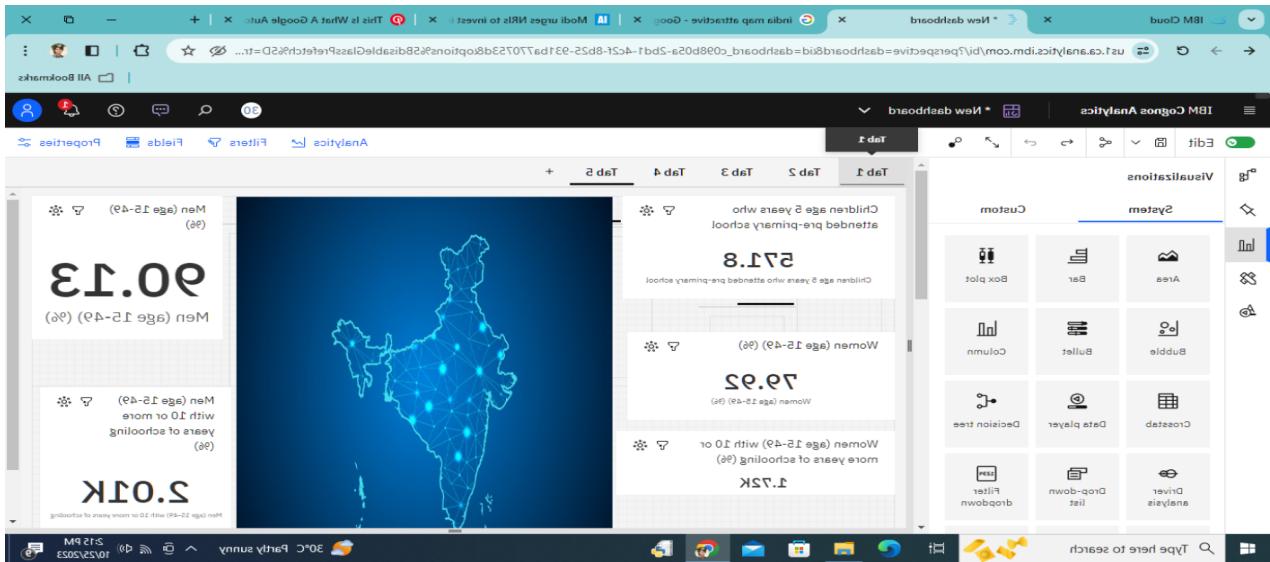
# Visualize the data using various plots
import matplotlib.pyplot as plt

# Example 1: Histogram of a specific column
column_name = 'ColumnName'
plt.hist(df[column_name], bins=20)
plt.title(f'Histogram of {column_name}')
plt.xlabel(column_name)
plt.ylabel('Frequency')
plt.show()

# Example 2: Scatter plot of two columns
x_column = 'XColumn'
y_column = 'YColumn'
plt.scatter(df[x_column], df[y_column])
plt.title(f'Scatter Plot: {x_column} vs {y_column}')
plt.xlabel(x_column)
plt.ylabel(y_column)
plt.show()

# Example 3: Box plot
df.boxplot(column=['ColumnName1', 'ColumnName2'])
plt.title('Box Plot of Multiple Columns')
plt.ylabel('Value')
plt.show()
```

8 & 9 -- Performance Testing and Output Results



Empowering The Future : A Literacy Rate Analysis For A Better Future Tomorrow

Literacy is the ability to read, write, speak and listen

Indian literacy rate is more than 75% of the total population

The increase in literacy rates will lead to a better future

Pre scene | Next scene | Scene 1 of 8 | 0:00.0 | 0:05.0

Report > Pages > Page3

Insertable objects

Men Literacy Rate in Rural and Urban Area Children Literacy Rate in Rural and Urban Area

No properties
Select an object to see its properties

Category	State/UT	Value
Men Literacy Rate	Jammu and Kashmir	52.5
	Andhra Pradesh	42.8
	Assam	39.4
	Bihar	47.9
	Chandigarh	59.4
	Chhattisgarh	42.8
	Dadra and Nagar Haveli and Daman and Diu	28.8
	Goa	64.5
	Gujarat	49.4
	Haryana	71.6
Children Literacy Rate	Himachal Pradesh	65.9
	Jammu and Kashmir	71.3
	Jharkhand	68.2
	Karnataka	51.1
	Kerala	77
	Lakshadweep	56.5
	Madhya Pradesh	62.2
	Maharashtra	50.4
	Meghalaya	39.9
	NCT of Delhi	80.9

IBM Cloud IBM Db2 on Cloud * New dashboard

IBM Cognos Analytics * New dashboard

Edit | IBM Plex | 16 | B | I | U | A | Analytics | Filters | Fields | Properties

Literacy Rate of Children, Women and Men in States

Measures

Values

States/UTs

State/UT	Children	Women	Men
Andhra Pradesh	42.8	52.5	47.9
Assam	39.4	35.8	48.2
Bihar	28.8	35.5	42.8
Chandigarh	59.4	64.5	55.8
Chhattisgarh	42.8	36.7	41.5
Dadra and Nagar Haveli and Daman and Diu	37	35.8	41.5
Goa	19	71.6	69.4
Gujarat	33.8	49.4	45.6
Haryana	65.9	71.3	62.2
Himachal Pradesh	51.1	68.2	65.9
Jharkhand	33.2	46.6	41.5
Karnataka	56.5	50	51.1
Kerala	77	67.8	72.7
Lakshadweep	50	32	30.4
Madhya Pradesh	62.2	50.4	59.9
Maharashtra	56.5	58.7	58.1
Meghalaya	39.9	31	34.7
NCT of Delhi	80.9	61	50.4
Mizoram	50	25	26.4
Nagaland	69.7	44.1	42.1
Odisha	56	33	38.6
Puducherry	74.2	56	55.4
Punjab	56	51.9	51.9
Rajasthan	55	33.4	49
Sikkim	55	28.1	28.1
Tamil Nadu	56.4	51.1	55
Telangana	61.2	45.5	45.5
Uttar Pradesh	48.6	39.3	39.3
Uttarakhand	50.4	32.1	32.1
West Bengal	32.9	20.5	20.5

10 - Advantages and Disadvantage

Advantages:

Informed Decision-Making: The project provides valuable data and insights that can inform decision-making for policymakers, educators, and researchers to develop effective literacy improvement strategies.

User-Centered Analysis: The project considers different user perspectives, such as policymakers, educators, and researchers, ensuring that the data and analysis are tailored to their specific needs.

Data-Driven Policies: The analysis can lead to evidence-based policies and interventions to address literacy disparities, ultimately contributing to educational and economic development.

Accessibility Awareness: The project promotes accessibility by considering individuals with disabilities, making data and insights available to a broader audience.

Historical Insights: Historical data analysis provides insights into trends and milestones in literacy rates , helping stakeholders understand the progress over time.

Disadvantages:

Data Quality: The accuracy and reliability of the data used in the analysis can be a significant challenge, potentially affecting the quality of the insights.

Complexity: Analyzing literacy rates in India is a complex task, and the project may face challenges in handling and interpreting large datasets.

Resource Intensive: Data collection, analysis, and visualization require resources, including skilled personnel, software, and hardware, which can be expensive.

Subject to Bias: Data and analysis can be subject to biases, depending on the sources and methodologies used, potentially impacting the validity of conclusions.

Privacy Concerns: Even with data protection measures, there might still be concerns about user privacy when handling personal information for analysis.

Political and Societal Factors: The project could be influenced by political and societal factors, potentially affecting the way data is collected and analyzed.

Changing Context: Literacy rates can change over time due to various factors, making it essential to regularly update and reanalyze the data to maintain relevance.

11 - Conclusion

This data analytics project is about the Literacy Rate analysis of children, women and men living in any of the rural and urban areas . This project paves way for empowering the future of the upcoming students. This project widely helps government make decisions on the educational department and creating awareness among the youth of future generations about the fields of study available and the importance of education in life . This project helps in various ways for development projects accross the Indian states and union territories

12 - Future Scope

The future advancement in this project is developing the accuracy of the model to more extent. More data will be used to generate more accurate values . Data will be updated continuously to get the information in modern time period . More diverse data will be uploaded and organised perfectly to effectively perform and predict the future analysis

13 : Appendix

13. 1 -- Video demo link

[https://drive.google.com/file/d/
1gdDp4eUGydS4bWmMv1EfylMTXfULkc5/view?usp=drive_link](https://drive.google.com/file/d/1gdDp4eUGydS4bWmMv1EfylMTXfULkc5/view?usp=drive_link)

13.2 GitHub Repository link

[https://github.com/tharun9522/
tharunteam.git](https://github.com/tharun9522/tharunteam.git)

