MEENAKSHI SUNDARARAJAN ENGINEERING COLLEGE
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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

TOPIC: Path To Prosperity: A Comprehensive Analysis Of Financial Independence Based On Data Taken From Reddit

TEAM ID: NM2023TMID07521

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Project submitted by:

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ABSTRACT

"Path To Prosperity: A Comprehensive Analysis Of Financial Independence Based On Data Taken From Reddit" is a forward-thinking project that leverages the power of data analytics, with a primary focus on achieving financial independence. This initiative employs advanced data analysis tools and techniques to collect, cleanse, and standardize diverse financial data from a variety of sources. The project's overarching goal is to provide in-depth data analytics and reporting through a user-friendly interface that emphasizes mobile accessibility and stringent security measures. Moreover, it actively promotes collaboration, raises public awareness, and remains committed to continuous improvement. Through a meticulous examination of the top 10 countries concerning wages, investment income, and side gig income, "Path To Prosperity" facilitates insightful comparisons of different nations' economic landscapes. These comparisons offer valuable insights that can inform international business strategies and investment decisions. The inclusion of relationship status data provides an effective tool for couples and families to enhance their financial planning, ensuring greater financial stability and security. The project's ability to identify top-paying occupations serves as a valuable resource for job seekers seeking lucrative career paths. The diverse features of "Path To Prosperity" contribute to a deeper understanding of income inequality, effective financial planning, and promising investment opportunities. Additionally, the project sheds light on economic disparities that exist across various demographics, regions, and economic factors. In summary, "Path To Prosperity" empowers individuals with the knowledge and resources needed to pursue sustainable financial independence.

CONTENT

1. INTRODUCTION

1.1 Project Overview

"Path To Prosperity is a visionary project that harnesses the power of data analytics, with a particular focus on financial independence. It employs advanced data analysis tools and techniques to collect, clean, and standardize diverse financial data from various sources. The project's goal is to provide insightful data analytics and reporting, all within a user-friendly interface, emphasizing mobile accessibility and stringent security measures. It encourages collaboration, promotes public awareness, and is committed to continual improvement. 'Path To Prosperity' aims to deepen our understanding of financial resources and support the pursuit of sustainable financial independence."

1.2 Purpose

"The project 'Path To Prosperity: Data-Driven Financial Independence Analysis' employs data analytics and advanced analytics to fulfill several key objectives:
- Analyzing Financial Quality and Independence
- Integrating Diverse Financial Data Sources
- Standardizing Financial Data
- Providing Advanced Analytics
- Creating a User-Friendly Financial Platform
- Raising Public Financial Awareness
- Fostering Collaboration
- Ensuring Financial Data Security and Privacy

"Path To Prosperity" uses data analytics and advanced analysis techniques to empower individuals with financial knowledge and support their journey towards financial independence.

2. LITERATURE SURVEY

2.1 Existing problem

"In the literature survey conducted for the 'Path To Prosperity' project, several existing challenges have come to light:
- Limited data integration from diverse financial sources.
- Difficulties in standardizing and maintaining data consistency across financial datasets.
- A lack of predictive modeling capabilities for identifying trends in financial data.
- Insufficient attention to user-friendliness and accessibility in financial data presentation.
- Limited collaboration and information sharing among financial experts and stakeholders.
- Inadequate mobile accessibility for users who require on-the-go access to financial information.

- Concerns regarding data security and privacy in handling sensitive financial data.
- Limited emphasis on public awareness and education regarding financial independence strategies.
- Gaps in regulatory compliance within the financial data management.
- The potential presence of outdated information within the financial datasets.

Addressing these challenges is imperative for the success of the 'Path To Prosperity' project, ensuring that it delivers valuable and current financial insights to a broad spectrum of users and stakeholders in their quest for financial independence."

2.2 References

1. Cognos Analytics Documentation. IBM. [https://www.ibm.com/]
2. "Financial Independence, Retire Early (FIRE): A Framework for Understanding FIRE and Other Strategies" by David A. Dickey.
3. Bode, L., Vraga, E. K., & Smithson, T. (2017). "Social Media Engagement and Public Health Communication: Implications for Public Health Organizations Being Truly 'Social'." Public Health Reviews, 38(1), 13.

2.3 Problem Statement Definition

The project aims to analyze data sourced from Reddit, focusing on various economic parameters such as wages, investment income, side gig income, relationship status, top paying occupations, and geographical distributions to unravel significant insights beneficial for international business, investment strategies, financial planning, and career choices. By leveraging the top 10 countries in terms of wages, investment income, and side gig income, this analysis seeks to contrast and compare the economic landscapes of different nations, offering insights essential for international business decisions. Furthermore, the inclusion of relationship status data aims to support couples and families in more effective financial planning. Additionally, the identification of top paying occupations intends to guide job seekers in choosing rewarding career paths. Overall, the study aims to provide valuable insights into income inequality, financial planning strategies, investment prospects, and economic disparities across various demographics, regions, and economic factors.
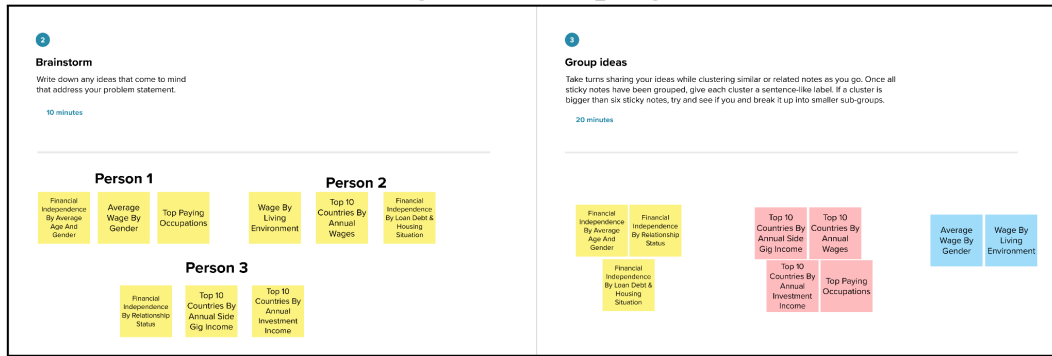
3. IDEATION & PROPOSED SOLUTION

3.1 Empathy Map Canvas

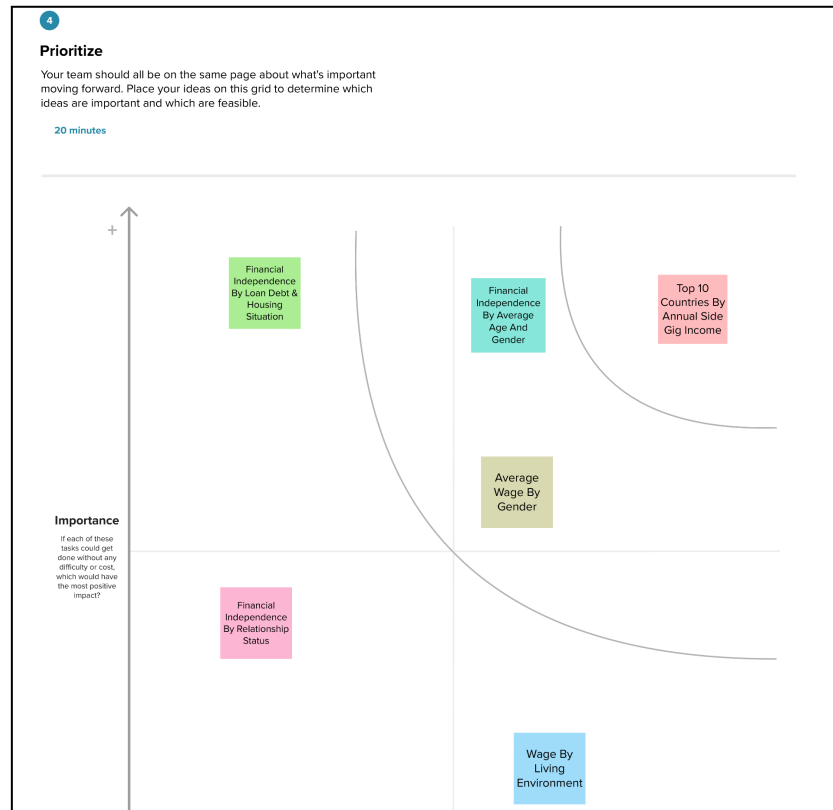An empathy map is a simple, easy-to-digest visual that captures knowledge about a user's behaviors and attitudes. It is a useful tool to help teams better understand their users. Creating an effective solution requires understanding the true problem and the person who is experiencing it. The exercise of creating the map helps participants consider things from the user's perspective along with his or her goals and challenges.

3.2 Ideation & Brainstorming

Brainstorming provides a free and open environment that encourages everyone within a team to participate in the creative thinking process that leads to problem solving. Prioritizing volume over value, out-of-the-box ideas are welcome and built upon, and all participants are encouraged to collaborate, helping each other develop a rich amount of creative solutions.

Step-1: Team Gathering, Collaboration and Select the Problem Statement

Step-2: Brainstorm, Idea Listing and Grouping

Step-3: Idea Prioritization

4. REQUIREMENT ANALYSIS

4.1 Functional requirement

The functional requirements for "Path To Prosperity: A Comprehensive Analysis Of Financial Independence Based On Data Taken From Reddit" outline the specific features and capabilities the project's platform should possess. These requirements include:

FRNo	Functional Requirement Epic	Sub Requirement (Story/Sub-Task)
FR-1	Data Collection	● Incorporate recent and reliable literacy data sources, possibly from national census reports, international agencies like UNESCO, or other credible sources.

		• Organize data based on demographics (age, gender, geographic regions) for a comprehensive financial independence analysis.
FR-2	Data Cleaning	• Remove inconsistencies, missing values, and outliers from the collected data. • Standardize data formats to maintain consistency across datasets for a more reliable analysis.
FR-3	Data Integration	Combine data from different sources or periods when necessary to provide a comprehensive view for financial independence analysis.
FR-4	Data Analysis	• Calculate income across various segments like age, gender, and geographic regions. • Examine trends over time to recognize patterns and changes. • Compare economic changes between different areas or countries.
FR-5	Visualization	• Create clear and informative visualizations, such as charts, graphs, and maps, to present your findings effectively. • Use tools like Excel, data visualization libraries (e.g., D3.js), or geographic information systems (GIS) software for mapping.
FR-6	Statistical Analysis	• Use statistical methods to identify correlations between economic changes and various factors • Conduct regression analysis to predict future economic changes based on historical data.
FR-7	User Interface	• Develop a user-friendly interface for stakeholders to interact with and explore the economic change data. • Provide filters and options for customizing the analysis based on user preferences.
FR-8	Reporting and Documentation	• Generate detailed reports summarizing the analysis, methodologies, and key findings. • Document data sources and methodologies used for transparency and reproducibility.
FR-9	Accessibility and Security	Ensure that the analysis results and data are accessible to authorized users while maintaining data security and privacy.
FR-10	Data Updates	Implement a system to periodically update the analysis with new data as it becomes available, ensuring that the analysis remains current.

4.2 Non-Functional requirements

The non-functional requirements for "Path To Prosperity: A Comprehensive Analysis Of Financial Independence Based On Data Taken From Reddit" outline the

performance, reliability, usability, security, and compliance standards that the platform should meet. Key points include:

FRNo.	Non-Functional Requirement	Description
NFR-1	Performance	• Response Time: The system should provide quick responses to user queries and data analysis tasks. • Scalability: The system should be able to handle increased data volume and user load without significant performance degradation.
NFR-2	Reliability	• Availability: The system should be available for users consistently with minimal downtime. • Fault Tolerance: The system should continue functioning in the presence of errors or data inconsistencies.
NFR-3	Security	• Data Security: Ensure that data is protected from unauthorized access, and sensitive data is encrypted. • User Authentication: Implement strong user authentication and authorization mechanisms to control access to the system.
NFR-4	Data Quality	• Data Accuracy: Ensure that the data used for analysis is accurate and up-to-date. • Data Integrity: Maintain data integrity to prevent corruption or unauthorized changes.
NFR-5	Scalability	The system should be designed to handle growing amounts of data without significant degradation in performance.
NFR-6	Usability	• User-Friendly Interface: The user interface should be intuitive, making it easy for users to interact with and analyze data. • Accessibility: The system should be accessible to individuals with disabilities, following accessibility standards.

5. PROJECT DESIGN

5.1 Data Flow Diagrams & User Stories

A Data Flow Diagram (DFD) is a traditional visual representation of the information flows within a system. A neat and clear DFD can depict the right amount of the system requirement graphically. It shows how data enters and leaves the system, what changes the information, and where data is stored.
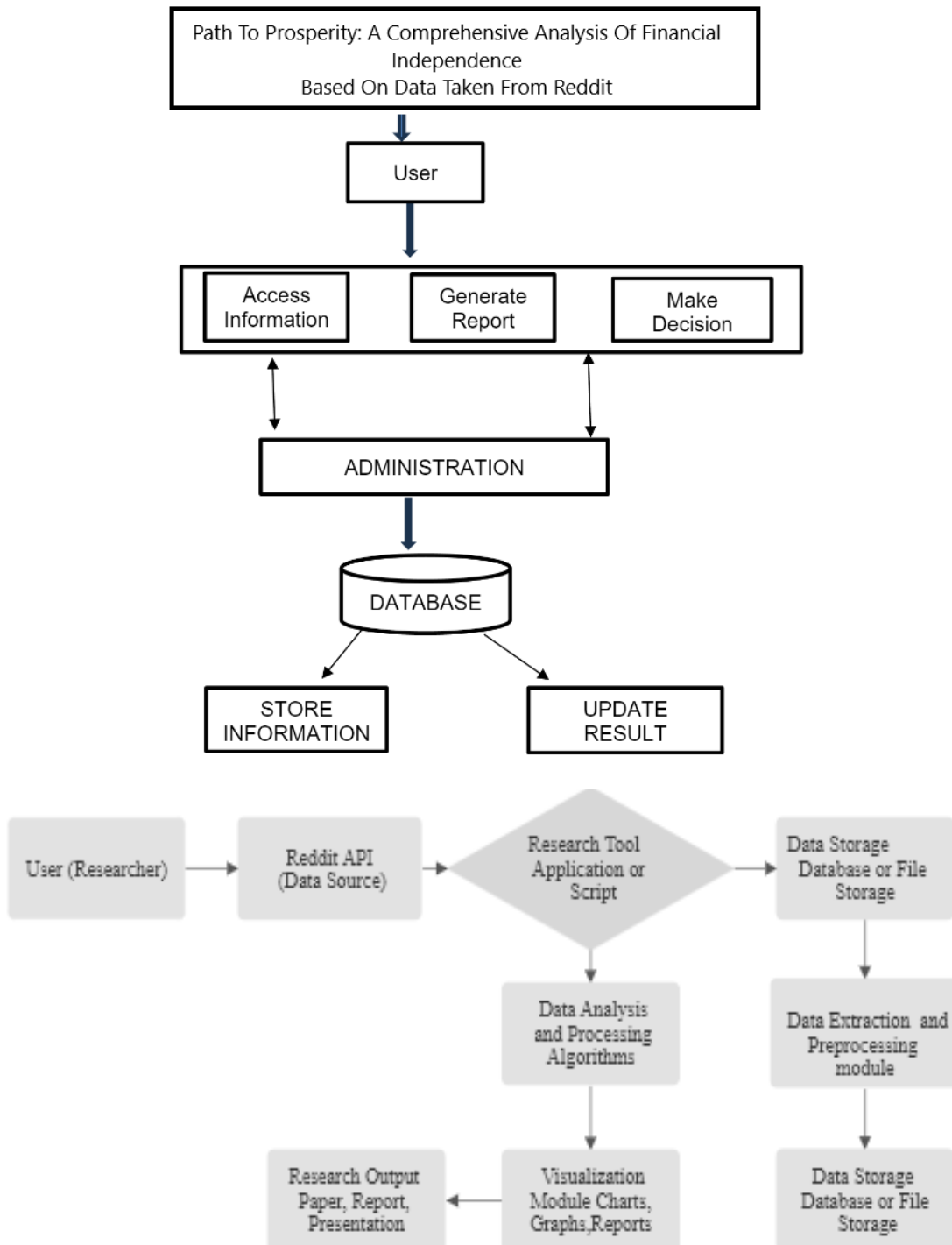
Flow diagram:
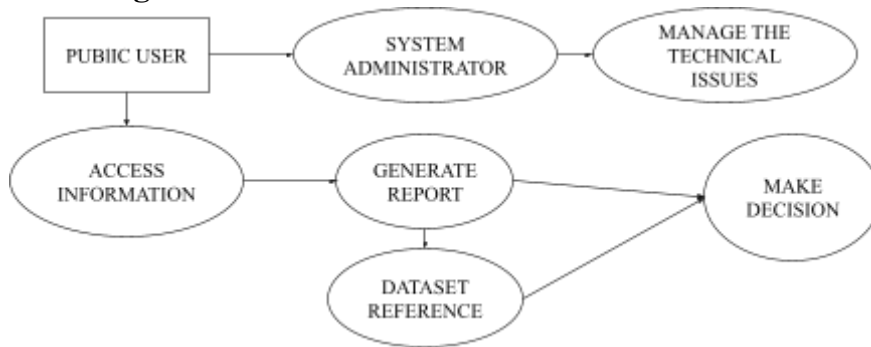
User Stories:

User Type	Functional Requirement (Epic)	User Story Number	User Story / Task	Acceptance criteria	Priority
PUBLIC	Evaluate financial well-being information for their circumstances and region.	USN-1	General users can access the platform to assess their financial situation. They have the capability to view real-time financial data, including indicators of their progress towards financial independence.	I can access my account / dashboard	High
		USN-2	General users have the ability to customize their settings to receive instant alerts and notifications concerning financial well-being issues, like economic instability or safety concerns.		High
		USN-3	They can access historical financial data to monitor changes and trends in their financial situation over time.		Medium
	Dashboard				Low
System Administrator			System administrators are responsible for managing technical infrastructure, including servers, databases, and software updates. They ensure that the system is running smoothly and efficiently.	Provides infrastructure management	Hish

5.2 Solution Architecture

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

- Find the best tech solution to solve existing business problems.
- Describe the structure, characteristics, behavior, and other aspects of the software to project stakeholders.
- Define features, development phases, and solution requirements.
- Provide specifications according to which the solution is defined, managed,and delivered.

```
┌─────────────────────────────────────────┐
│  Path To Prosperity: A Comprehensive     │
│  Analysis Of Financial Independence      │
│  Based On Data Taken From Reddit         │
└─────────────────────────────────────────┘
                    │
                    ▼
              ┌──────────┐
              │   User   │
              └──────────┘
                    │
                    ▼
┌──────────────┬──────────────┬──────────────┐
│   Access     │   Generate   │    Make      │
│ Information  │   Report     │   Decision   │
└──────────────┴──────────────┴──────────────┘
                    │
                    ▼
         ┌────────────────────────┐
         │     ADMINISTRATION     │
         └────────────────────────┘
                    │
                    ▼
               ╭──────────╮
               │ DATABASE │
               ╰──────────╯
                  ╱     ╲
                 ▼       ▼
        ┌──────────┐  ┌──────────┐
        │  STORE   │  │  UPDATE  │
        │INFORMATION│ │  RESULT  │
        └──────────┘  └──────────┘
```

User (Researcher) →	Reddit API (Data Source) →	Research Tool Application or Script	→ Data Storage Database or File Storage
		↓	↓
		Data Analysis and Processing Algorithms	Data Extraction and Preprocessing module
		↓	↓
Research Output Paper, Report, Presentation ←		Visualization Module Charts, Graphs,Reports	Data Storage Database or File Storage

6. PROJECT PLANNING & SCHEDULING

6.1 Technical Architecture

The Deliverable shall include the architectural diagram as below and the information as per the table.
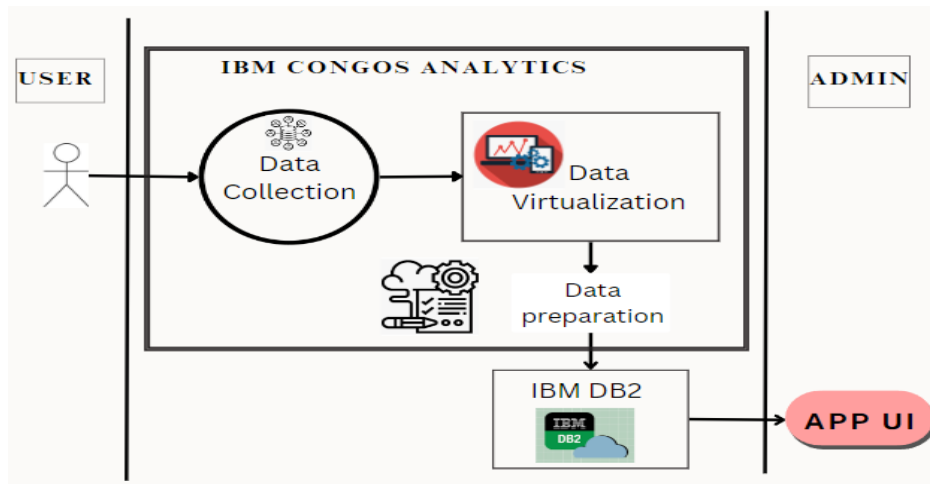
Components & Technologies:

S.No	Component	Description	Technology
1.	User Interface	How the user interacts with the application e.g. Web UI, Mobile App, Chatbot etc.	HTML, CSS, JavaScript / Angular Js / React Js etc.
2.	Application Logic-1	Logic for a process in the application	Python
3.	Application Logic-2	Logic for a process in the application	IBM Cognos Analytics
4.	Application Logic-3	Logic for a process in the application	IBM Cognos Analytics
5.	Database	Data Type, Configurations etc.	Excel
6.	Cloud Database	Database Service on Cloud	IBM DB2, IBM Cloudant etc.
7.	File Storage	File storage requirements	IBM Block Storage or Others or Local Filesystem
8.	External API-1	Purpose of External API used in the application	IBM Weather API, etc.
9.	ML Model	Purpose of Machine Learning Model	Object Recognition Model, etc.
10.	Infrastructure (Server / Cloud)	Application Deployment on Local System / Cloud Local Server Configuration Cloud Server Configuration	Local, Cloud Foundry, Kubernetes, etc.

6.2 Sprint Planning & Estimation

Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Story Points	Priority	Team Members
Sprint-1	Registration	USN-1	Data Collection & Extraction From Database	3	Medium	M2
Sprint-1			Data Preparation	7	Medium	M2
Sprint-2		USN-2	Data Visualization and story creation	10	High	TL
Sprint-3		USN-3	UI creation and web integration	10	High	M1
Sprint-4		USN-4	Performance testing	6	Medium	M2
	Dashboard		Report and dashboard creation	4	Low	TL
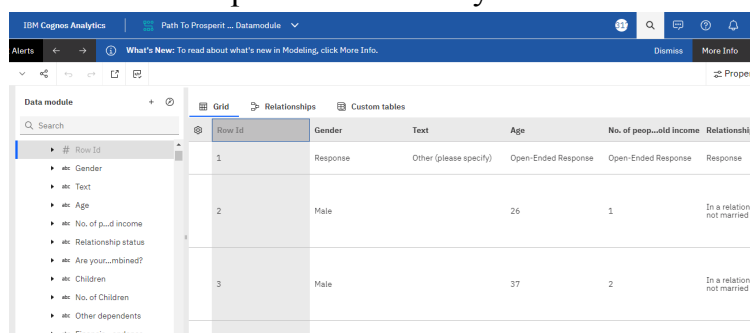
6.3 Sprint Delivery Schedule

Sprint	Total Story Points	Duration	Sprint Start Date	Sprint End Date (Planned)	Story Points Completed (End Date)	Sprint Release Date (Actual)
Sprint-1	10	1 Day	16 Oct 2023	16 Oct 2023	16 Oct 2023	16 Oct 2023
Sprint-2	10	1 Day	17 Oct 2023	17 Oct 2023	17 Oct 2023	17 Oct 2023
Sprint-3	10	1 Day	18 Oct 2023	18 Oct 2023	18 Oct 2023	18 Oct 2023
Sprint-4	10	1 Day	19 Oct 2023	19 Oct 2023	19 Oct 2023	19 Oct 2023

7. CODING & SOLUTIONING

7.1 Feature 1

IBM Cognos (dashboard, story, report) - Utilizing IBM Cognos, the project enables the creation of visually appealing dashboards, interactive stories, and detailed reports for comprehensive student performance analysis.

7.2 Feature 2

Python Flask Application - The project incorporates a Python Flask application to provide a user friendly and responsive interface for accessing and interacting with the financial independence data, enhancing the overall user experience.

```
1    from flask import Flask, render_template
2    app = Flask(__name__)
3
4    @app.route("/")
5    def index():
6        return render_template("index.html")
7
8
9    if __name__ =="__main__":
10        app.run()
```

7.3 Feature 3

Webpage - A webpage for financial independence data analysis provides an interactive and user-friendly interface for analyzing and exploring financial independence. It allows the stakeholders to access and analyze data to gain insights, track progress, and make informed decisions.
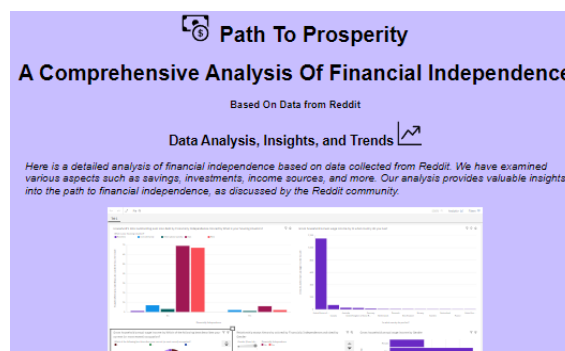
7.4 Feature 4

Dashboard - A dashboard for financial independence data analysis provides a visual representation of key metrics and insights derived from the overall gross income of different countries. It allows the stakeholders to monitor and assess economic progress, identify areas of improvement, and make data driven decisions.

7.5 Feature 5

Story - The story highlights the impact of leveraging data to improve economic outcomes and create a profitable environment for the country's growth.
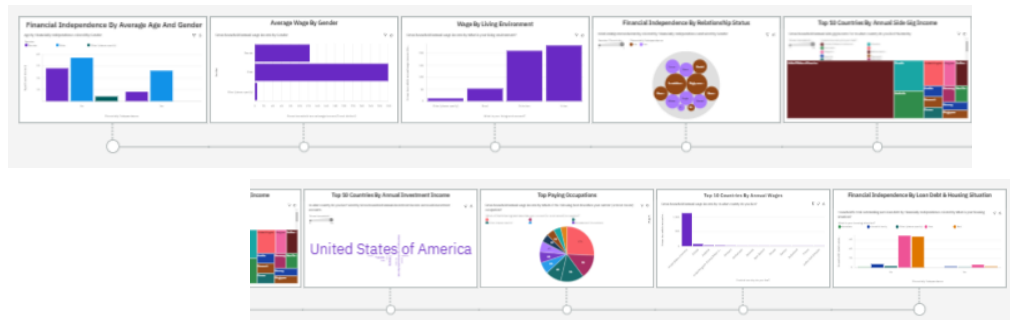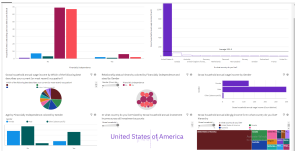
7.6 Feature 6

Report - This report highlights key findings, trends, and insights derived from the analysis of financial independence data, enabling stakeholders to make informed decisions and take targeted actions to improve economic outcomes.The report begins with an executive summary, presenting a concise overview of the main findings and recommendations.

SUMMARY OF THE FEATURES:

1. By looking at the top 10 countries in terms of wages, investment income, and side gig income, you can compare and contrast different nations' economic landscapes, offering insights for international business and investment decisions.
2. Relationship status data can help couples and families plan their finances more effectively.
3. Top paying occupations can be identified, aiding job seekers in choosing lucrative career paths.
4. These features can provide valuable insights into income inequality, financial planning, investment opportunities, and economic disparities across different demographics, regions, and economic factors.
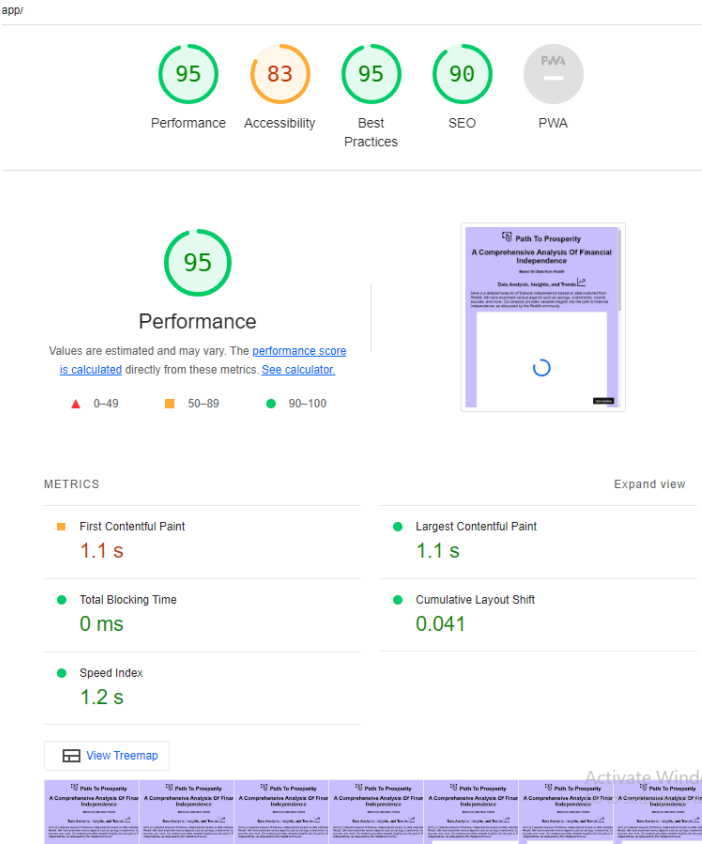
8. PERFORMANCE TESTING

SNo	Parameter	Screenshot / Values
1.	Dashboard design	8 visualizations

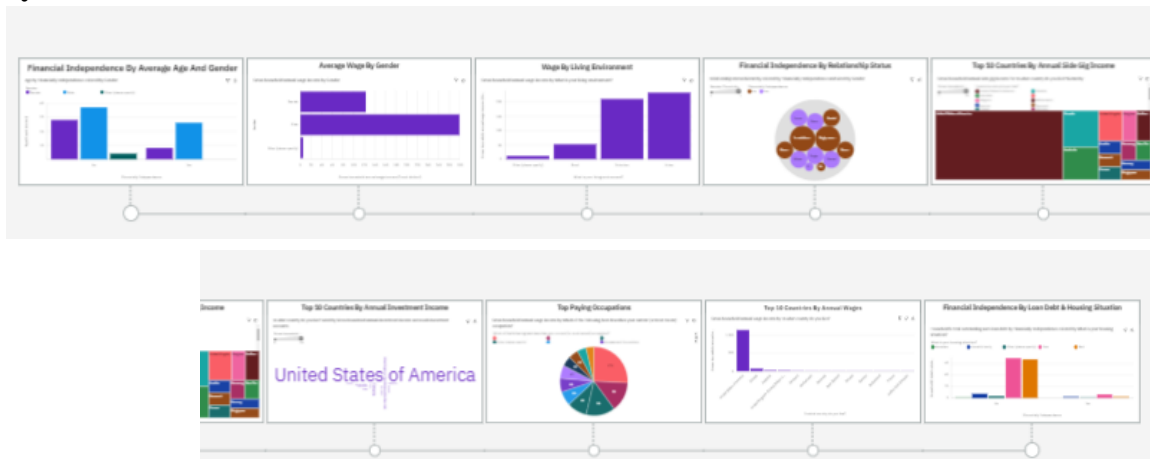|		
2.	Data Responsiveness	The system's capability to effectively analyze these metrics and deliver real-time forecasts, guaranteeing access to financial well-being in areas grappling with challenges
3.	Amount Data to Rendered (DB2 Metrics)	Addressing the global crisis by ensuring the availability of safety and well-being in regions facing concerns related to financial independence
4.	Utilization of Data Filters	Utilized to refine the dataset and concentrate the analysis, such as assessing financial independence-related factors
5	Effective User Story	No of Scene Added -9
6.	Descriptive Reports	A report with 4 visualizations

8.1 Performance Metrics

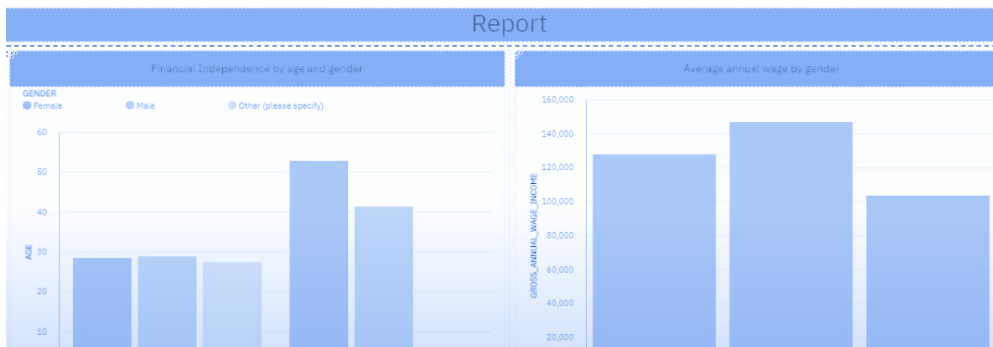## Performance Testing:
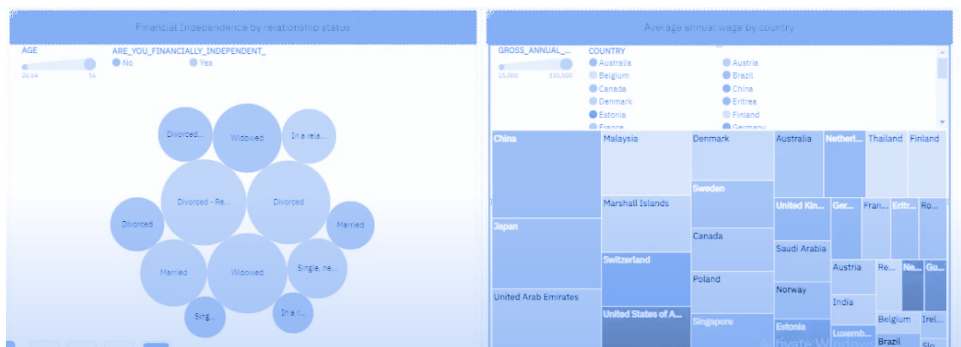
9. RESULTS
9.1 Output Screenshots
Dashboard:

Story:

Report:

Web integration:

10. ADVANTAGES & DISADVANTAGES

10.1 Advantages

The project "Path To Prosperity: A Comprehensive Analysis Of Financial Independence Based On Data Taken From Reddit" offers a range of advantages:

- Comprehensive water quality assessment with predictive capabilities.
- User-friendly interface accessible to experts and the public.
- Data integration for a complete view of water quality.
- Facilitation of collaboration and knowledge sharing.
- Promotion of public awareness and regulatory compliance.
- Robust data security and continuous improvements.
- Resource efficiency and environmental sustainability.
- Data-driven decision-making for policymakers and researchers.
- Customization and scalability for future growth.
- Real-time monitoring and international collaboration.

These advantages contribute to better financial management and the ability to build a more sustainable financial future for individuals seeking financial independence based on data and insights from Reddit.

10.2 Disadvantages

The project "Path To Prosperity: A Comprehensive Analysis Of Financial Independence Based On Data Taken From Reddit" comes with several potential disadvantages and challenges:

- Handling complex and diverse data sources.
- Data availability limitations in remote or less-studied areas.
- Technical barriers for some users with limited skills.
- Ongoing maintenance and software update costs.
- Stringent data privacy and security requirements.
- Regulatory compliance complexities.
- Resource-intensive computational and human requirements.
- High initial implementation costs.
- Sustaining user engagement and public awareness.
- Ensuring data consistency across various sources.
- Adaptation to changing environmental conditions.
- Potential public resistance to sharing data.
- Mobile application compatibility challenges.
- Scalability concerns as the project grows.
- Effective communication with diverse stakeholders.

Addressing these challenges is crucial for the project's success and its ability to provide in-depth financial independence insights based on data sourced from Reddit. By overcoming these obstacles, the project can better serve its users and contribute to their financial well-being

11. CONCLUSION

In conclusion, the "Path To Prosperity: A Comprehensive Analysis Of Financial Independence Based On Data Taken From Reddit" project holds promise as a solution to address challenges related to financial independence analysis and management. The project harnesses advanced data analytics, user-friendly interfaces, and collaboration tools to offer valuable insights into individuals' financial journeys. It provides benefits such as enhanced financial independence assessment and well-informed decision-making, contributing to personal financial sustainability.

Despite potential challenges like complex data analysis and privacy concerns, the project's objectives are achievable with careful planning and dedication. "Path To Prosperity" has the potential to serve as a valuable resource for a diverse range of stakeholders, serving as a catalyst for positive change in the realm of financial independence. This project signifies a promising path toward sustainable financial management and the achievement of personal financial goals.

12. FUTURE SCOPE

The future scope for "Path To Prosperity: A Comprehensive Analysis Of Financial Independence Based On Data Taken From Reddit" is expansive and promising. It includes:
- Incorporating advanced data sources, AI, and IoT for more comprehensive and real-time financial independence analysis.
- Implementing blockchain for enhanced data security and transparency.
- Facilitating global collaboration and data sharing among financial experts and individuals.
- Developing educational resources and influencing financial policies to promote better financial independence.
- Addressing issues related to climate change and overall financial health, potentially expanding the project's focus to include financial stability during economic crises and addressing financial inequity.
- Promoting sustainable financial practices and contributing to open data initiatives in the field of personal finance.

A platform that empowers stakeholders to gain deeper insights into and manage their financial independence in an ever more intricate and challenging financial landscape.

13. APPENDIX

13.1 Source code

- **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()
```

- **index.html**

```html
<!DOCTYPE html><html lang="en">
 <head>    <title>Path To Prosperity: A Comprehensive Analysis</title>
              <style>
body {                                          font-size: 20px;
    background-color: rgb(200, 190, 256);       font-style: italic;
    color: rgb(0, 0, 0);                        font-weight: 100;
    font-family: sans-serif;                    margin-left: 20px;
  }                                           }
  h1 {                                        iframe {
    text-align: center;                         width: 700px;
    font-size: 40px;                            height: 600px;
  }                                             border: 0;
  h2 {                                        }
    font-size: 25px;                          footer{
  }                                             padding: 20px;
  p {                                         }
  </style>
 </head>
 <body>
  <header>    <center>
    <h1>   Path To Prosperity       </h1>
    <h1>A Comprehensive Analysis Of Financial Independence</h1>
    <h3>Based On Data from Reddit</h3>      </center>
  </header>
  <section>    <center> <h2> Data Analysis, Insights, and Trends  </h2>  </center>
      <p> Here is a detailed analysis of financial independence based on data collected from
      Reddit. We have examined various aspects such as savings, investments, income sources,
      and more. Our analysis provides valuable insights into the path to financial independence, as
      discussed by the Reddit community. </p>    <center>
          <iframe        src="https://us3.ca.analytics.ibm.com/bi/?perspective=dashboard&amp;
      pathRef=.my_folders%2FNaan%2BMudhalvan%2FFinalProject%2FDashboard2&amp;
      closeWindowOnLastView=true&amp;ui_appbar=false&amp;ui_navbar=false&amp;
      shareMode=embedded&amp;action=view&amp;mode=dashboard&amp;
      subView=model0000018b6cd9013e_00000002"        width="320"        height="200"
      frameborder="0" gesture="media" allow="encrypted-media" allowfullscreen=""></iframe>
  </section>
  <section>
```

```
<center>      <h2> Storyboard </h2>      </center>
        <p> Our analysis includes a comprehensive storyboard that highlights key findings.
We discuss the strategies, challenges, and success stories shared by Reddit users in their
pursuit of financial independence. From saving tips to investment strategies, we cover it
all. </p>
 <center>
<iframe          src="https://us3.ca.analytics.ibm.com/bi/?perspective=story&amp;
pathRef=.my_folders%2FNaan%        2BMudhalvan%2FFinalProject%2FStory&amp;
closeWindowOnLastView=true&amp;   ui_appbar=false&amp   ;ui_navbar=false&amp;
shareMode=embedded&amp;action=view&amp;       sceneId=-2&amp;sceneTime=0"
width="320" height="200" frameborder="0" gesture="media" allow="encrypted-media"
allowfullscreen=""> </iframe>      </center>
 </section>

<footer>
      <center>
        <h4>TeamID: NM2023TMID07521<br> TEAM LEAD: Aishwarya G  <br>TEAM
            MEMBER 1:HemayaD<br>TEAM MEMBER 2: Neelaveni M A</h4>
      </center>
 </footer>
 </body>
</html>
```

13.2 GitHub & Project Demo Link

1. **GitHub:**
   https://github.com/AishwaryaGanesh02/Naan-Mudhalvan

2. **Demo link:**
   https://drive.google.com/file/d/1lbC4Z_1ASzAOZhK51DVFg0iizzMdWcsB/view?usp=drive_link

3. **Storyboard:**
   https://us3.ca.analytics.ibm.com/bi/?perspective=story&pathRef=.my_folders%2FNaan%2BMudhalvan%2FFinalProject%2FStory&action=view&sceneId=-1&sceneTime=0

4. **Dashboard:**
   https://us3.ca.analytics.ibm.com/bi/?perspective=dashboard&pathRef=.my_folders%2FNaan%2BMudhalvan%2FFinalProject%2FDashboard2&action=view&mode=dashboard&subView=model0000018b6cd9013e_00000002