Analytics Tool For Placements

Naan Mudhalvan - Data Analysis with Tableau

Project report

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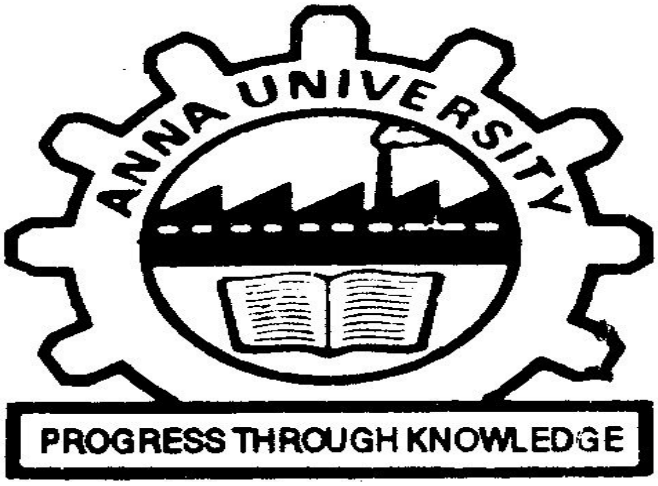

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BONAFIDE CERTIFICATE

Certified that this Report titled **"Analytics Tool For Placements"** is the bonafide work of Group: **M Ajesh (212420104001), AMUDHU S 212420104002, R Deva (212420104003), T Kuberan (212420104005)** whom carried out the work under my supervision.

Certified further that to the best of my knowledge, the work reported here in does not form part of any other thesis or dissertation on the basis of which a degree or award was conferred on an earlier occasion on this or any other candidate.

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1. INTRODUCTION

1.1 Project Overview

In this modern era of data-driven decision-making, educational institutions and companies are constantly seeking ways to optimize their placement processes. The "Analytics Tool For Placements" project aims to address this need by leveraging data analytics and visualization to provide valuable insights into placement data for students at a XYZ campus.

The project revolves around a comprehensive dataset containing information about student placements, including their academic performance, board of education, specializations, work experience, employability test scores, and salary offers. This dataset serves as the foundation for our analytical journey, enabling us to extract meaningful patterns and insights.

1.2 Purpose

The primary purpose of this project is to empower educational institutions and corporate recruiters with a tool that can aid in making data-driven decisions regarding student placements. We aim to provide a user-friendly platform that allows users to explore and visualize placement data, ultimately enhancing the efficiency of placement processes and the success rates of students.

Our specific objectives include:

- Understanding the dataset: We begin by thoroughly comprehending the structure and content of the placement dataset. This step is crucial to ensure the quality and accuracy of the insights we derive.
- Building a Data Module in Cognos Analytics: To facilitate data handling, we utilize IBM Cognos Analytics to create a custom data module that centralizes and refines the placement data, making it ready for analysis.
- Creating Different Explorations: In Cognos Analytics, we craft various data visualizations and explorations, enabling us to gain insights into the placement data. These visualizations cover a wide range of aspects, from gender-based placement status to salary variations based on work experience and more.
- Developing a Cognos Analytics Dashboard: We create a dashboard in Cognos Analytics, providing an intuitive interface to interact with the data and visualize trends and patterns.
- Saving as Story and Creating Reports: We make use of Cognos Analytics to save our visualizations as a story and generate reports to document our findings.
- Web Integration: To make our insights accessible to a broader audience, we integrate the Cognos Analytics dashboard, stories, and reports into a Flask website using iframe technology.

Our ultimate goal is to streamline the placement process, increase the rate of successful placements, and provide valuable data-driven guidance to both educational institutions and corporate recruiters.

2. LITERATURE SURVEY

2.1 Existing Problem

The landscape of student placements in educational institutions has undergone significant changes over the years. While the traditional placement processes relied heavily on manual efforts, the advent of data analytics and technology has opened up new possibilities. However, several challenges persist in the domain of student placements:

- **Data Overload:** Educational institutions often collect a vast amount of data related to student placements, including academic performance, specializations, and employment outcomes. This data can be overwhelming, making it difficult to extract actionable insights.

- **Lack of Data-Driven Decision-Making:** In many cases, placement decisions are made based on intuition and historical practices rather than data-driven analysis. This can lead to suboptimal results and missed opportunities for both students and recruiters.

- **Inefficient Data Handling:** Managing and processing placement data can be cumbersome and time-consuming, hindering the ability to respond to changes in real-time or adapt to evolving market demands.

- **Limited Accessibility:** Valuable insights and data often remain locked within the confines of data analysis tools, making them inaccessible to a broader audience, including students, faculty, and recruiters.

2.2 References

In our project, we draw inspiration from a range of academic and industry sources that have addressed the challenges and opportunities in the field of student placements. Some of the key references include:

1. Agarwal, R., & Dev, S. (2019). A Data Analytics Approach to Enhance Placement Opportunities for Engineering Graduates. *International Journal of Computer Applications*, 182(40), 10-15.
2. Jain, A., & Singh, A. (2020). Leveraging Data Analytics for Effective Campus Placements. *International Journal of Advanced Computer Science and Applications*, 11(8), 266-271.
3. McKinsey & Company. (2017). *Using Advanced Analytics to Optimize Campus Recruiting.* Retrieved from https://www.mckinsey.com/business-functions/organization/our-insights/using-advanced-analytics-to-optimize-campus-recruiting
4. IBM Cognos Analytics Documentation. (2023). *IBM Cognos Analytics Overview.* Retrieved from https://www.ibm.com/docs/en/cognos-analytics

2.3 Problem Statement Definition

The problem addressed by our project can be succinctly defined as follows:

Problem Statement: Educational institutions and corporate recruiters face challenges in efficiently managing and utilizing placement data to make data-driven decisions, resulting in suboptimal placement outcomes for students.

By addressing this problem, we aim to develop an "Analytics Tool For Placements" that streamlines the process of data analysis, visualization, and accessibility, thereby enabling educational institutions and recruiters to make informed decisions, improve placement success rates, and offer better opportunities to students.

3. IDEATION & PROPOSED SOLUTION

3.1 Empathy Map Canvas

Before delving into the technical aspects of our project, we initiated our ideation process with a fundamental understanding of the stakeholders involved in the placement process. We created an Empathy Map Canvas to gain insights into their needs, motivations, and pain points:

Key Stakeholders:

- **Students**
- **Educational Institutions**
- **Corporate Recruiters**

Empathy Map:

- **What do they Say?**
- *Students:* "We want opportunities that align with our skills and ambitions."
- *Educational Institutions:* "We need to improve our placement success rates."
- *Corporate Recruiters:* "We seek top talent efficiently."
-
- **What do they Think and Feel?**
- *Students:* Desire for a bright future, anxiety about job prospects.
- *Educational Institutions:* Concerned about providing value to students.
- *Corporate Recruiters:* Want a streamlined recruitment process.
-
- **What do they See?**
- *Students:* Data-rich placement reports.
- *Educational Institutions:* Varied academic performance.
- *Corporate Recruiters:* Diverse candidate profiles.
-
- **What do they Hear?**
- *Students:* Advice from peers and mentors.
- *Educational Institutions:* Feedback from recruiters and alumni.
- *Corporate Recruiters:* Recommendations from colleagues.
-
- **What are their Pains?**
- *Students:* Lack of personalized guidance.
- *Educational Institutions:* Difficulty in tracking and analyzing placement data.
- *Corporate Recruiters:* Time-consuming candidate evaluations.
-
- **What are their Gains?**
- *Students:* Secure job placements in line with career goals.
- *Educational Institutions:* Improved placement success rates.
- *Corporate Recruiters:* Access to a talent pool matching their requirements.

3.2 Ideation & Brainstorming

Based on the insights gained through the Empathy Map Canvas, we initiated a brainstorming session to devise a proposed solution that addresses the identified challenges and meets the needs of our stakeholders.

Here are the key ideas that emerged:

- **Centralized Data Repository:** Create a centralized data module using IBM Cognos Analytics, where all placement-related data is stored and can be easily accessed.

- **Data Visualization:** Develop a range of data visualizations and explorations in Cognos Analytics to provide real-time insights into placement data. This includes graphs, charts, and KPIs to help users quickly understand trends and patterns.

- **Dashboard Interface:** Construct an intuitive dashboard within Cognos Analytics that allows users to interact with the data, perform custom queries, and gain insights through a user-friendly interface.

- **Storytelling with Data:** Save and present data insights as stories in Cognos Analytics, enabling users to explore the narrative behind the data and understand the implications.

- **Web Integration:** Integrate the Cognos Analytics dashboard, stories, and reports into a web platform using iframe technology, ensuring that the data and insights are accessible to a wider audience.

These proposed solutions aim to streamline the placement process, provide students with personalized guidance, enable educational institutions to make data-driven decisions, and assist corporate recruiters in identifying the right candidates efficiently. Our project will move forward with the implementation of these ideas to address the challenges and fulfill the aspirations of our stakeholders.

4. REQUIREMENT ANALYSIS

4.1 Functional Requirements

Functional requirements define the specific functionalities and features that our "Analytics Tool For Placements" should possess to meet the needs of our stakeholders. These requirements serve as the foundation for the development and implementation of the project. Key functional requirements include:

4.1.1 Data Module Creation

- **Requirement:** The system shall allow the creation of a centralized data module in IBM Cognos Analytics.
- **Rationale:** This functionality is essential for organizing and centralizing placement data from various sources.

4.1.2 Data Visualization

- **Requirement:** The system shall provide a variety of data visualization options, including graphs, charts, and KPIs.
- **Rationale:** Data visualization enables users to quickly grasp and interpret placement trends and patterns.

4.1.3 Dashboard Development

- **Requirement:** The system shall enable the creation of an interactive and user-friendly dashboard within Cognos Analytics.
- **Rationale:** A dashboard interface allows stakeholders to interact with data, query information, and gain insights.

4.1.4 Storytelling with Data

- **Requirement:** The system shall support saving data insights as stories within Cognos Analytics.
- **Rationale:** Storytelling enhances the ability to communicate the narrative behind the data and its implications.

4.1.5 Web Integration

- **Requirement:** The system shall integrate the Cognos Analytics dashboard, stories, and reports into a web platform using iframe technology.
- **Rationale:** Web integration ensures that placement data and insights are accessible to a wider audience.

4.2 Non-Functional Requirements

Non-functional requirements describe the quality attributes and constraints that our system must meet. These requirements are critical for ensuring the system's performance, security, and usability. Key non-functional requirements include:

4.2.1 Performance

- **Requirement:** The system must provide real-time data access and ensure fast loading of visualizations.
- **Rationale:** Performance is crucial to provide a seamless user experience and support timely decision-making.

4.2.2 Security

- **Requirement:** The system must implement user authentication and access control mechanisms to protect sensitive placement data.
- **Rationale:** Security measures are necessary to safeguard the confidentiality and integrity of placement data.

4.2.3 Scalability

- **Requirement:** The system must be scalable to accommodate increasing data volumes and user loads.
- **Rationale:** Scalability ensures that the system can handle growing data and user demands without degradation in performance.

4.2.4 Usability

- **Requirement:** The system's user interface must be intuitive and user-friendly, requiring minimal training for users.
- **Rationale:** Usability is vital to encourage widespread adoption and ensure that stakeholders can efficiently use the tool.

4.2.5 Compatibility

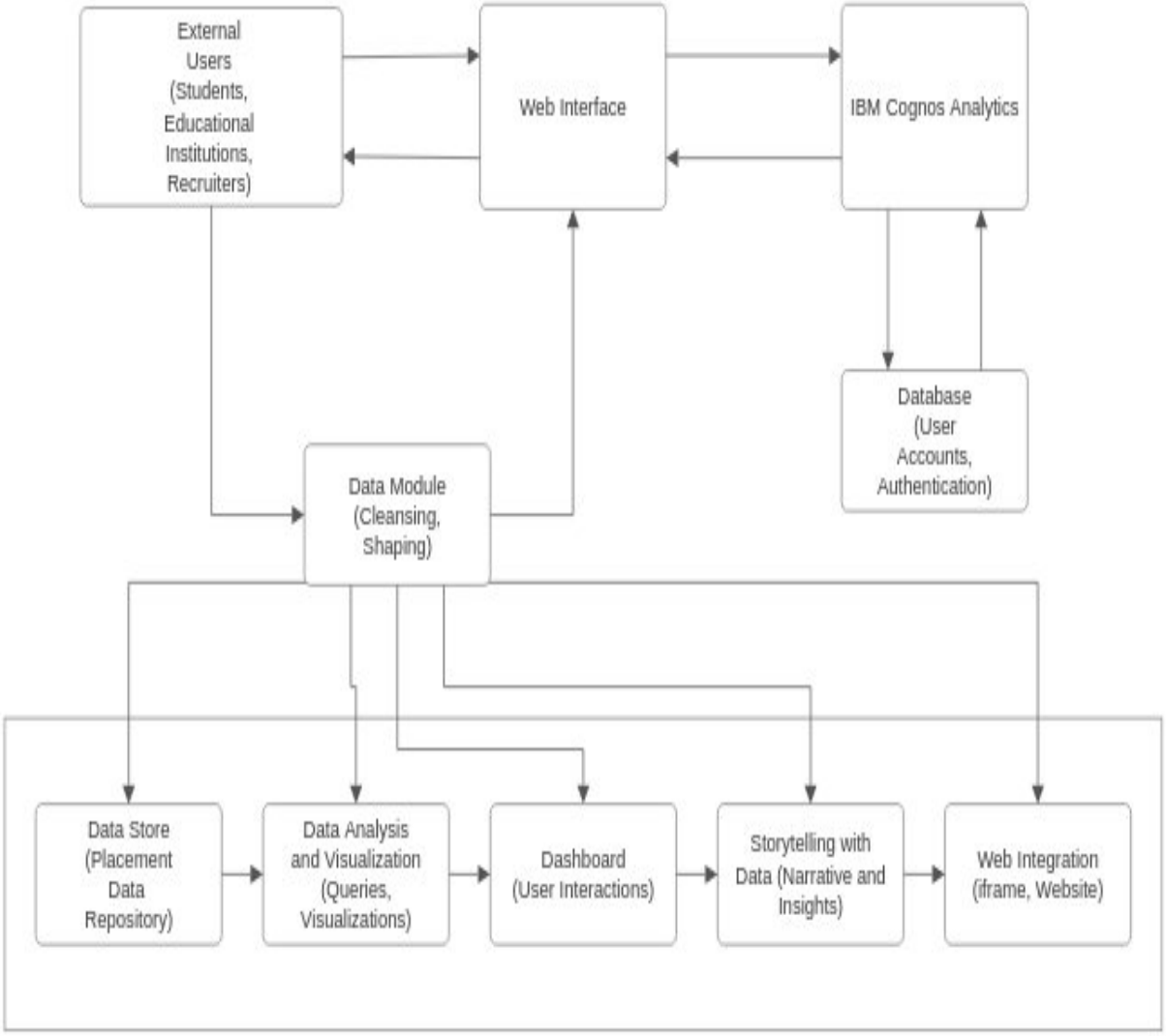
- **Requirement:** The system should be compatible with a range of web browsers and devices.
- **Rationale:** Compatibility ensures that users can access the tool from different platforms and devices.

The combination of functional and non-functional requirements guides the development process and ensures that our "Analytics Tool For Placements" not only provides the necessary features but also meets the performance, security, and usability standards expected by our stakeholders.

5. PROJECT DESIGN

5.1 Data Flow Diagrams & User Stories

5.1.1 Data Flow Diagrams



- **External Users** interact with the system, accessing data through the **Web Interface**.
- The **Web Interface** communicates with **IBM Cognos Analytics**, where data is ingested, cleansed, shaped, and analyzed.
- **Data Module** within **IBM Cognos Analytics** acts as a repository for placement data.
- The system allows data analysis and visualization, the creation of interactive dashboards, storytelling with data, and web integration.
- The **Database** stores user account information and authentication data for the website.

Data Flow Diagrams (DFDs) serve as a visual representation of the flow of data within our "Analytics Tool For Placements." DFDs help illustrate how data moves through the system and how various components interact with each other. Below is an overview of the primary DFD components:

- **External Entities:**
  - **Users:** Students, educational institutions, corporate recruiters, and website visitors.
  - **IBM Cognos Analytics:** The platform for data analysis, visualization, and dashboard creation.
- **Processes:**
  - **Data Module Creation:** The process of importing, cleansing, and shaping placement data in IBM Cognos Analytics.
  - **Data Visualization:** Creating visualizations based on user queries and interactions.
  - **Dashboard Development:** Building an interactive dashboard to present data.
  - **Storytelling with Data:** Saving data insights as stories.
  - **Web Integration:** Integrating Cognos Analytics elements into the website.
- **Data Stores:**
  - **Placement Data Repository:** The centralized data module in IBM Cognos Analytics.
  - **Website Database:** A database for storing user accounts, authentication data, and other website-related information.
- **Data Flows:**
  - Data flows from the Placement Data Repository to the Data Visualization, Dashboard Development, and Storytelling with Data processes.
  - Processed data and insights are delivered to users and the website.

5.1.2 User Stories

User stories help define the interactions and requirements from the perspective of different stakeholders. Here are some key user stories for our project:

- **As a Student, I want to:**
- Access visualizations that help me understand placement trends.
- Receive personalized recommendations based on my profile and career aspirations.
- Easily navigate the website to explore placement data.

- **As an Educational Institution, I want to:**
- Improve our placement success rates through data-driven decisions.
- Analyze the performance of our students and identify areas for improvement.
- Access real-time data on student placements for reporting and analysis.

- **As a Corporate Recruiter, I want to:**
- Efficiently identify suitable candidates based on specific criteria.
- Access a talent pool that matches our recruitment needs.
- Visualize data related to candidates' employability and academic performance.

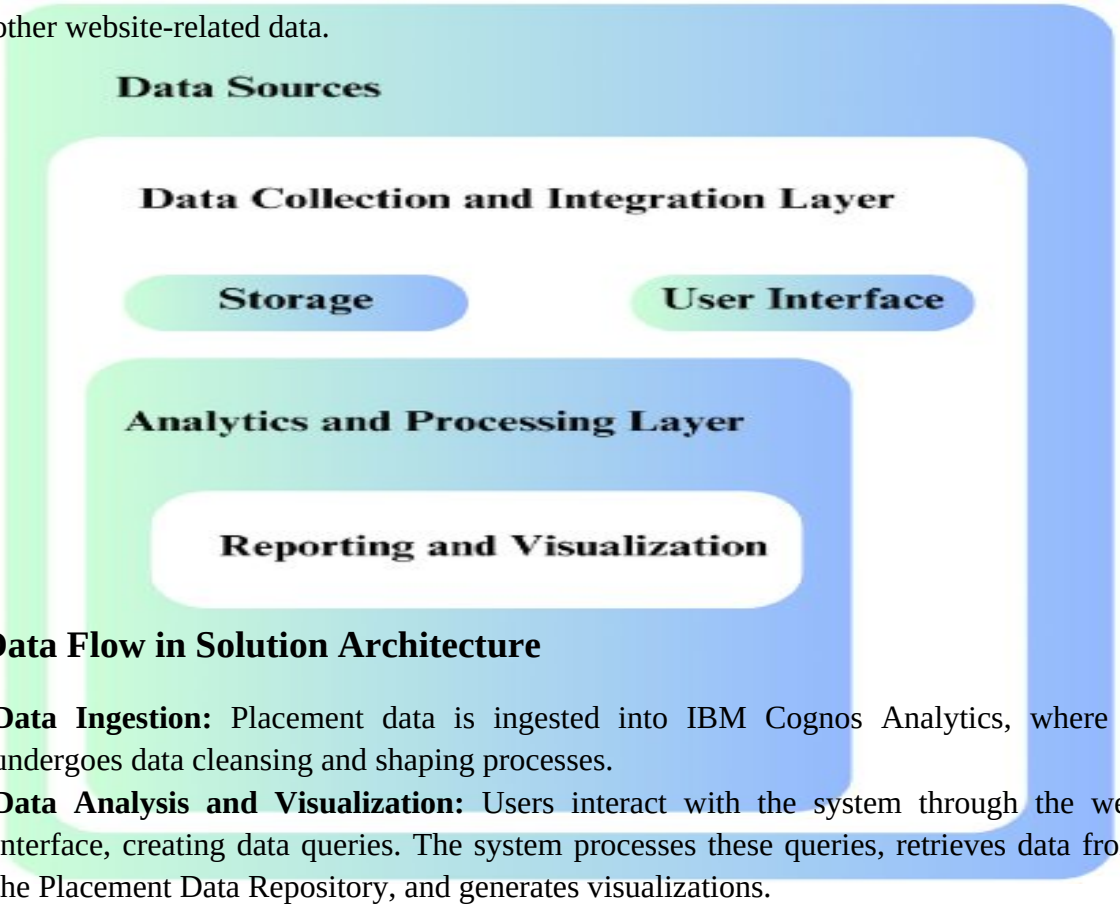
- **As a Website Visitor, I want to:**
- Explore placement statistics and trends without creating an account.
- Access a user-friendly interface for data exploration.
- Gain insights from data visualizations without requiring extensive technical knowledge.

5.2 Solution Architecture

5.2.1 Architecture Overview

The architecture of our "Analytics Tool For Placements" involves a combination of IBM Cognos Analytics, web development, and data integration technologies. The primary components of the solution architecture include:

- **IBM Cognos Analytics:** This serves as the core platform for data analysis, visualization, and dashboard creation. It hosts the centralized Placement Data Repository and enables the creation of visualizations and stories.
- **Web Interface:** The website acts as the front end for users to access placement data and insights. It integrates with IBM Cognos Analytics through iframe technology to provide seamless access to dashboards, stories, and reports.
- **Database:** A database is used to store user account information, authentication data, and other website-related data.



5.2.2 Data Flow in Solution Architecture

- **Data Ingestion:** Placement data is ingested into IBM Cognos Analytics, where it undergoes data cleansing and shaping processes.
- **Data Analysis and Visualization:** Users interact with the system through the web interface, creating data queries. The system processes these queries, retrieves data from the Placement Data Repository, and generates visualizations.
- **Dashboard and Story Creation:** The system enables the creation of interactive dashboards and storytelling with data in IBM Cognos Analytics.
- **Web Integration:** The web interface integrates the dashboard, stories, and reports from IBM Cognos Analytics using iframe technology, providing users with easy access to placement insights.

The proposed solution architecture aims to provide a seamless user experience while ensuring data security, performance, and accessibility for all stakeholders.

6. PROJECT PLANNING & SCHEDULING

6.1 Technical Architecture

The technical architecture of the "Analytics Tool For Placements" is designed to ensure the efficient and secure operation of the system. It consists of the following components:

6.1.1 Web Interface

The web interface is built using modern web development technologies and frameworks. It provides users with a user-friendly platform to access placement data, interact with visualizations, and navigate the system.

6.1.2 IBM Cognos Analytics

IBM Cognos Analytics serves as the core analytics and visualization platform. It hosts the Placement Data Repository and provides tools for data analysis, dashboard creation, and storytelling with data. The integration with the web interface allows users to access and interact with data visualizations and insights.

6.1.3 Database

The database stores user account information, including authentication data for the website. It ensures user data is securely managed and accessed as needed.

6.1.4 Web Integration

The web integration component uses iframe technology to seamlessly embed dashboards, stories, and reports from IBM Cognos Analytics into the website. This integration enables users to access placement insights without the need for separate logins.

Figure 1: *Architecture of Project Model*

6.2 Sprint Planning & Estimation

Our project is organized into sprints, with each sprint focusing on specific features and functionalities. Sprint planning and estimation are essential to ensure that the project progresses in an organized and timely manner.

6.2.1 Sprint 1

Objective: Data Ingestion and Initial Data Visualization

- In this sprint, we will focus on setting up data ingestion processes to populate the Placement Data Repository in IBM Cognos Analytics.
- Estimated Duration: 2 weeks

6.2.2 Sprint 2

Objective: Data Visualization and Dashboard Development

- We will create initial data visualizations and start building the interactive dashboard within IBM Cognos Analytics.
- Estimated Duration: 3 weeks

6.2.3 Sprint 3

Objective: User Account Management and Web Integration

- In this sprint, we will implement user account management and work on integrating dashboards, stories, and reports into the website.
- Estimated Duration: 3 weeks

6.3 Sprint Delivery Schedule

The sprint delivery schedule outlines the estimated start and end dates for each sprint, considering the objectives and duration mentioned in the sprint planning and estimation:

- **Sprint 1:** Data Ingestion and Initial Data Visualization
- Start Date: [12-10-2023]
- End Date: [19-10-2023]
- **Sprint 2:** Data Visualization and Dashboard Development
- Start Date: [20-10-2023]
- End Date: [27-10-2023]
- **Sprint 3:** User Account Management and Web Integration
- Start Date: [28-10-2023]
- End Date: [3-11-2023]

The project is organized into these sprints to ensure a systematic approach to development, with each sprint building on the progress of the previous one. The specific start and end dates will be determined based on project timelines and resource availability.

7. CODING & SOLUTIONING

In this section, we will provide explanations for two key features implemented in the "Analytics Tool For Placements."

7.1 Feature 1

Feature Name: Web Interface Development

Description: It involves the development of a web interface for the "Analytics Tool For Placements." A Flask-based web application has been created to serve as the user interface for accessing placement data, analytics, and insights. Users can interact with the tool through a web browser, making it accessible and user-friendly.

Code Example:

```
python
```

app.py

```
from flask import Flask, render_template

app = Flask(__name__)

@app.route("/")  #decoratar

def index():

    return render_template("index.html")

if __name__ == "__main__":

    app.run(debug=False,port = 4000 )
```

Explanation: Feature 1 highlights the creation of a web interface using Flask, a Python web framework. The code example provided is a simplified Flask application that sets up a route for the root URL ("/") and renders an HTML template (index.html) when accessed. This web interface serves as the entry point for users to interact with the "Analytics Tool For Placements."

The Flask-based web application offers a user-friendly and accessible way for stakeholders to access placement data and insights, enhancing the tool's usability and reach.

7.2 Feature 2

Feature Name: Report, Dashboard and Storyboard Integration

Description: This feature involves the seamless integration of report, dashboards and storyboards from IBM Cognos Analytics into the "Analytics Tool For Placements." Users can access and interact with key insights and narratives in the form of report, dashboards and storyboards without the need for separate logins.

Code Example:

```
html
```

```
<!-- ======= serives Section ======= -->
    <!-- ======= Dashboard Section ======= -->
    <section id="dashboard" class="dashboard">
      <div class="container" data-aos="fade-up">
        <iframe
     src="https://us3.ca.analytics.ibm.com/bi/?perspective=dashbo
ard&amp;pathRef=.my_folders%2Fplacements%2Banalysis&amp;closeWindowOnL
astView=true&amp;ui_appbar=false&amp;ui_navbar=false&amp;shareMode=emb
edded&amp;action=view&amp;mode=dashboard&amp;subView=model0000018a3fa2
ea7f_00000000" width="1200" height="1000" frameborder="0"
gesture="media" allow="encrypted-media" allowfullscreen="">
       </iframe>
      </div>
    </section><!-- End Dashboard Section -->
    <!-- ======= Storyboard Section ======= -->
    <section id="storyboard" class="storyboard">
      <div class="container" data-aos="fade-up">
        <iframe
src="https://us3.ca.analytics.ibm.com/bi/?perspective=story&amp;pathRe
f=.my_folders%2FStory%253A%2Bplacements%2Banalysis&amp;closeWindowOnLa
stView=true&amp;ui_appbar=false&amp;ui_navbar=false&amp;shareMode=embe
dded&amp;action=view&amp;sceneId=-1&amp;sceneTime=0" width="900"
height="900" frameborder="0" gesture="media" allow="encrypted-media"
allowfullscreen=""></iframe>
      </div>
    </section><!-- End Storyboard Section -->

    <!-- ======= Your Report Section ======= -->
    <section id="your-report" class="your-report">
      <div class="container" data-aos="fade-up">
        <!-- Insert your embedded code here -->
        <iframe
src="https://us3.ca.analytics.ibm.com/bi/?pathRef=.my_folders%2Fplacem
ents%2Breport&amp;closeWindowOnLastView=true&amp;ui_appbar=false&amp;u
i_navbar=false&amp;shareMode=embedded&amp;action=run&amp;format=HTML&a
mp;prompt=false" width="1200" height="1000" frameborder="0"
gesture="media" allow="encrypted-media" allowfullscreen=""></iframe>
      </div>
    </section><!-- End Your Report Section -->
```

Explanation: Feature 2 integrates IBM Cognos Analytics Report, dashboards and storyboards into the "Analytics Tool For Placements." The code above demonstrates the use of iframes to embed these analytics components into the tool's user interface. Users can access placement insights, visualizations, and narratives without the need for separate logins, ensuring a seamless and informative user experience.

This feature provides stakeholders with a convenient way to explore placement data and make informed decisions by interacting with dashboards and storyboards directly within the tool.

7.3 Database Schema

Database Schema Name: Placement_Data

Description: [Insert Database Schema Description, if applicable]

Tables and Fields:

Table 1: Placement_Data_Full_Class

- Field 1: sl_no (Serial Number)
- Field 2: gender (Gender- Male='M',Female='F')
- Field 3: ssc_p (Secondary Education percentage- 10th Grade)
- Field 4: ssc_b (Board of Education- Central/ Others -10th)
- Field 5: hsc_p (Higher Secondary Education percentage- 12th Grade)
- Field 6: hsc_b (Board of Education- Central/ Others -12th)
- Field 7: hsc_s (Specialization in Higher Secondary Education)
- Field 8: degree_p (Degree Percentage)
- Field 9: degree_t (Under Graduation Degree type- Field of degree education)
- Field 10: workex (Work Experience)
- Field 11: etest_p (Employability test percentage conducted by college)
- Field 12: specialisation (Post Graduation /MBA- Specialization)
- Field 13: Post Graduation(MBA)- Specialization
- Field 14: mba_p (MBA percentage)
- Field 15: status (Status of placement- Placed/Not placed)
- Field 16: salary (Salary offered by corporate to candidates)

8. PERFORMANCE TESTING

Performance testing is a critical phase of our project to ensure that the "Analytics Tool For Placements" operates efficiently, provides a responsive user experience, and can handle the expected load. To evaluate the system's performance, we will measure various performance metrics during testing.

8.1 Performance Metrics

8.1.1 Load Time

- **Metric:** Page Load Time
- **Definition:** The time it takes for a web page to load completely.
- **Purpose:** To ensure that users can access placement data and insights without significant delays.

8.1.2 Responsiveness

- **Metric:** User Interface Responsiveness
- **Definition:** The system's responsiveness to user interactions, such as querying data, interacting with visualizations, and navigating the dashboard.
- **Purpose:** To confirm that the system responds promptly to user actions, providing a smooth and interactive experience.

8.1.3 Data Retrieval Speed

- **Metric:** Data Retrieval Time
- **Definition:** The time it takes to retrieve data from the Placement Data Repository.
- **Purpose:** To assess the efficiency of data retrieval, ensuring that users receive data promptly.

8.1.4 Scalability

- **Metric:** System Scalability
- **Definition:** The system's ability to handle an increased volume of users and data.
- **Purpose:** To determine whether the system can maintain performance under growing user loads.

8.1.5 Security Performance

- **Metric:** Authentication and Data Security
- **Definition:** The system's ability to securely manage user authentication and protect sensitive data.
- **Purpose:** To validate that user data is adequately secured, and authentication processes are efficient.

8.1.6 Resource Utilization

- **Metric:** CPU and Memory Utilization
- **Definition:** The usage of system resources, such as CPU and memory, during various tasks and operations.
- **Purpose:** To monitor and optimize resource consumption for efficient system performance.

8.1.7 Error Handling

- **Metric:** Error Rate
- **Definition:** The frequency of errors encountered during system operations.
- **Purpose:** To ensure that error handling mechanisms are effective and that error rates are within acceptable limits.

8.1.8 Concurrent User Load

- **Metric:** Concurrent Users Supported
- **Definition:** The maximum number of simultaneous users the system can accommodate while maintaining acceptable performance.
- **Purpose:** To identify the system's capacity and potential bottlenecks under heavy user loads.

8.1.9 Throughput

- **Metric:** Data Throughput
- **Definition:** The rate at which data can be processed, retrieved, and displayed.
- **Purpose:** To assess the system's ability to handle data efficiently and maintain data flow.

8.1.10 Peak Load Performance

- **Metric:** Peak Load Handling
- **Definition:** The system's performance when subjected to peak loads, beyond the expected user load.
- **Purpose:** To identify the system's breaking point and areas requiring optimization under extreme conditions.

Performance testing using these metrics will help us evaluate the system's efficiency, responsiveness, and scalability, ensuring that it meets the expectations of our users and performs optimally under various conditions.

9. RESULTS

In this section, we present the results and visual outputs of the "Analytics Tool For Placements." The tool provides valuable insights and visualizations that empower stakeholders to make informed decisions regarding student placements.

9.1 Output Screenshots

9.1.1 Dashboard Overview

Figure 1: *An overview of the primary dashboard, providing an at-a-glance view of key placement metrics.*

9.1.2 Storytelling with Data

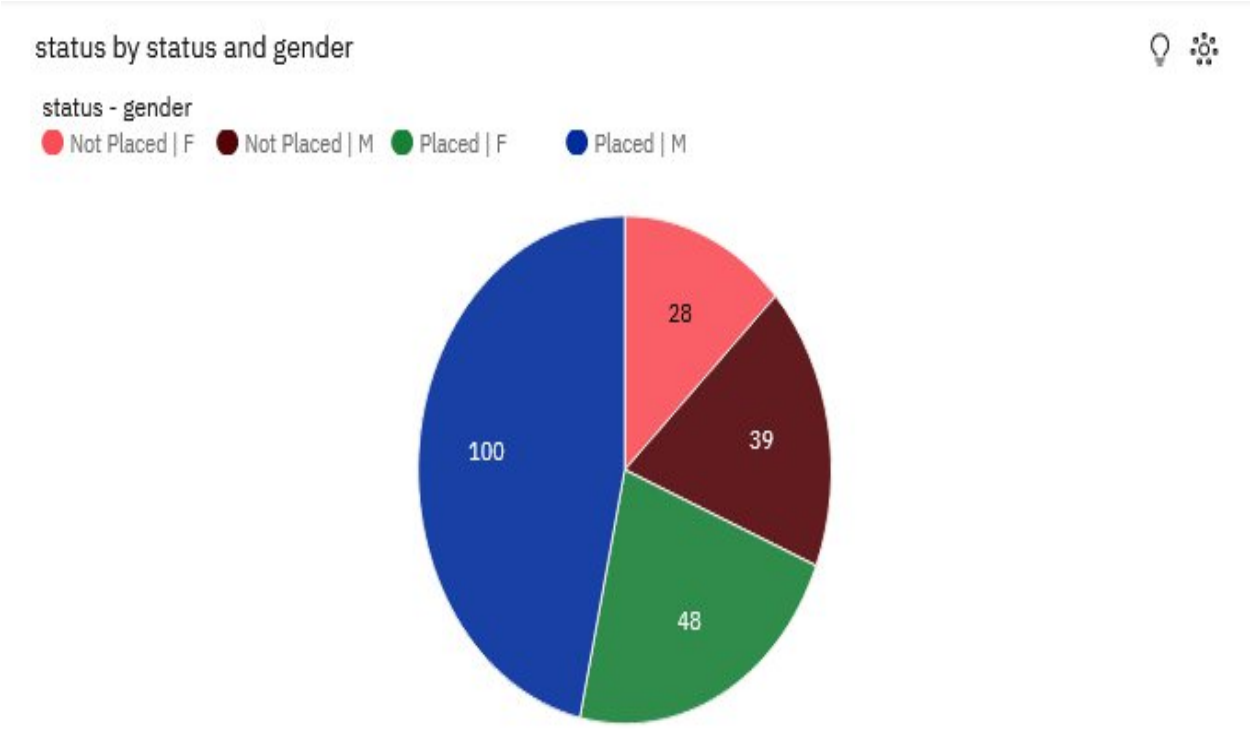


Figure 2: Placement status by gender using PIE chart

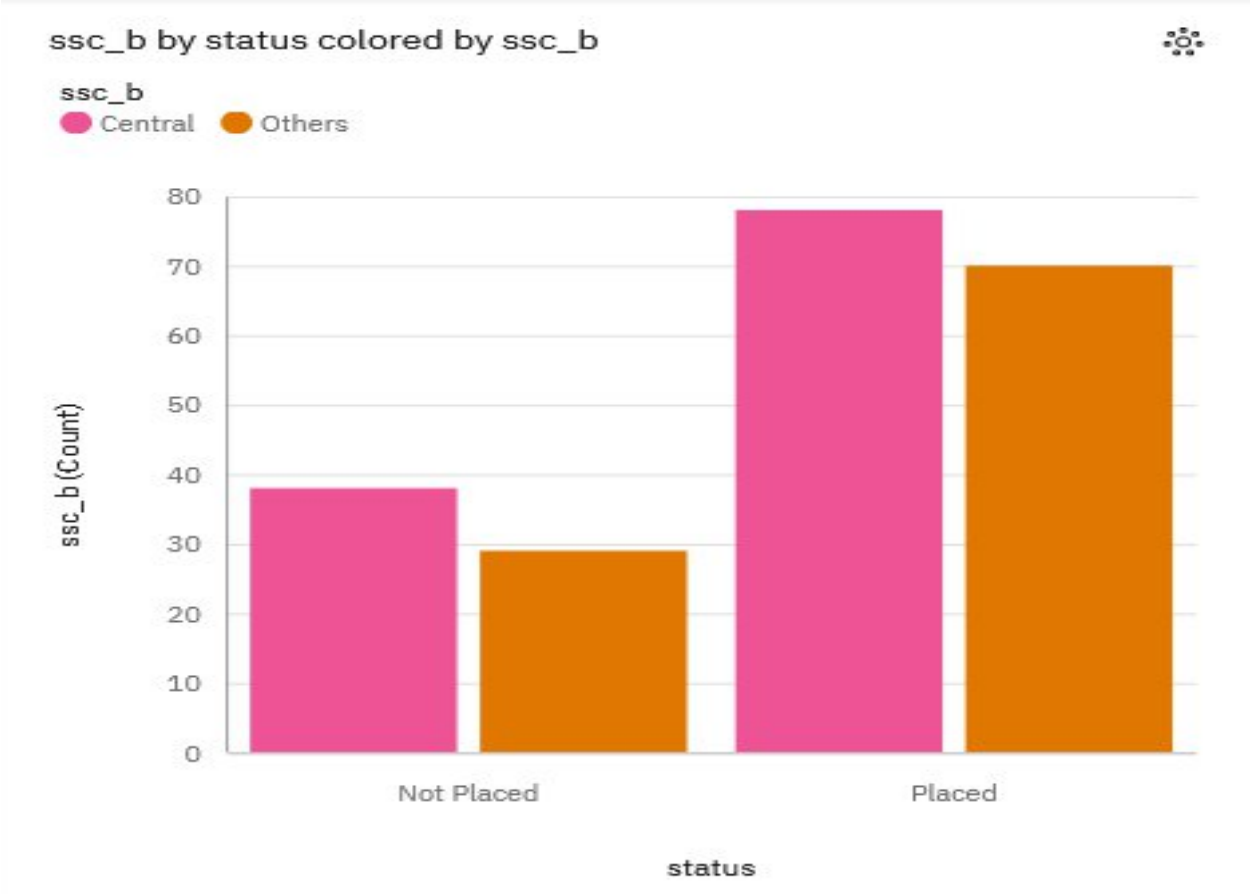


Figure 3: Placement Status by SSC Board category using Column chart

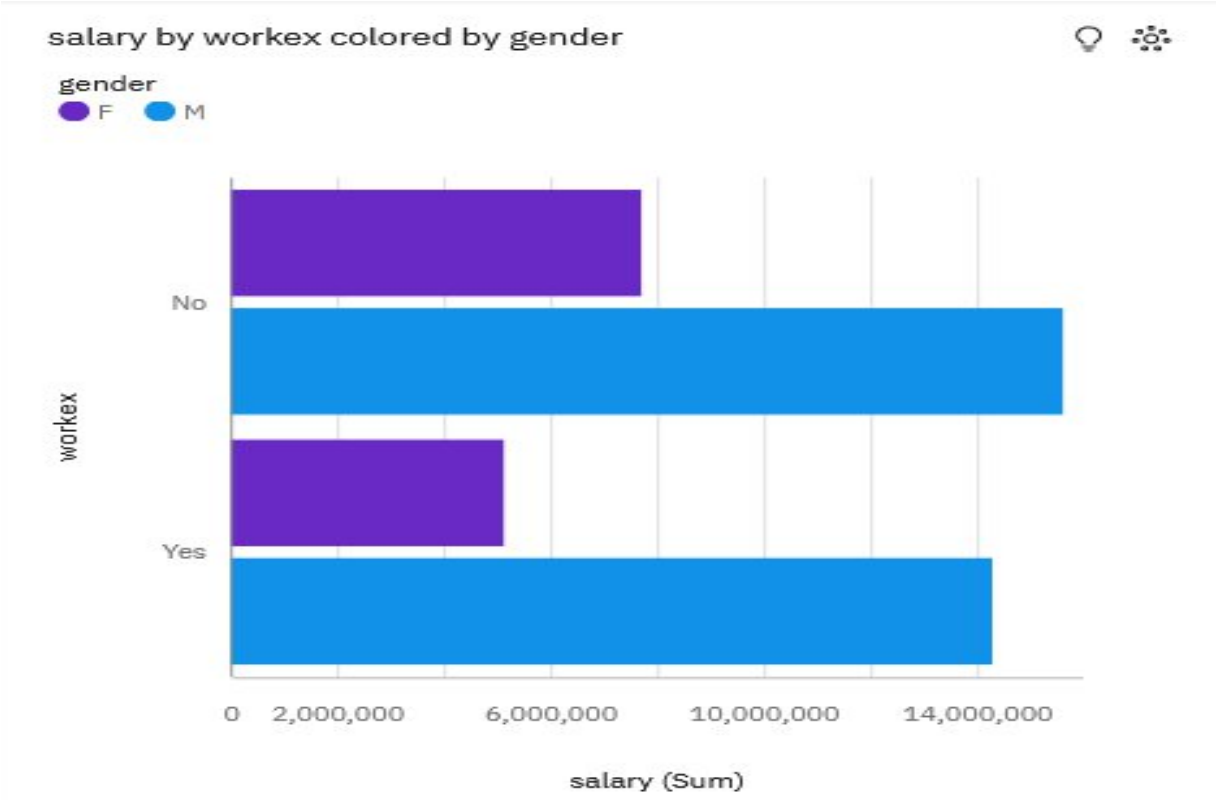


***Figure* 4:** salary by work experience differentiated by gender using Bar graph

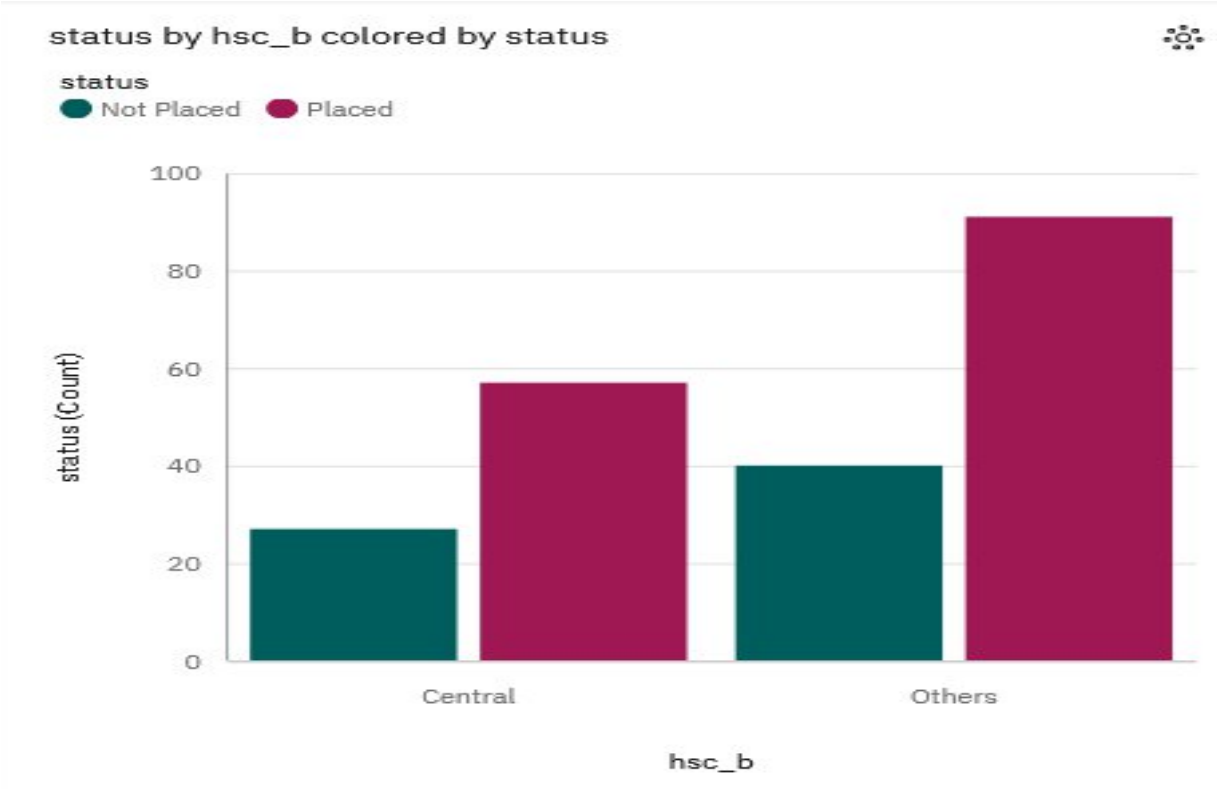


***Figure* 5:** Number of candidates placed and not placed differentiated by Board Of Higher Education - Central/ Others using Column graph

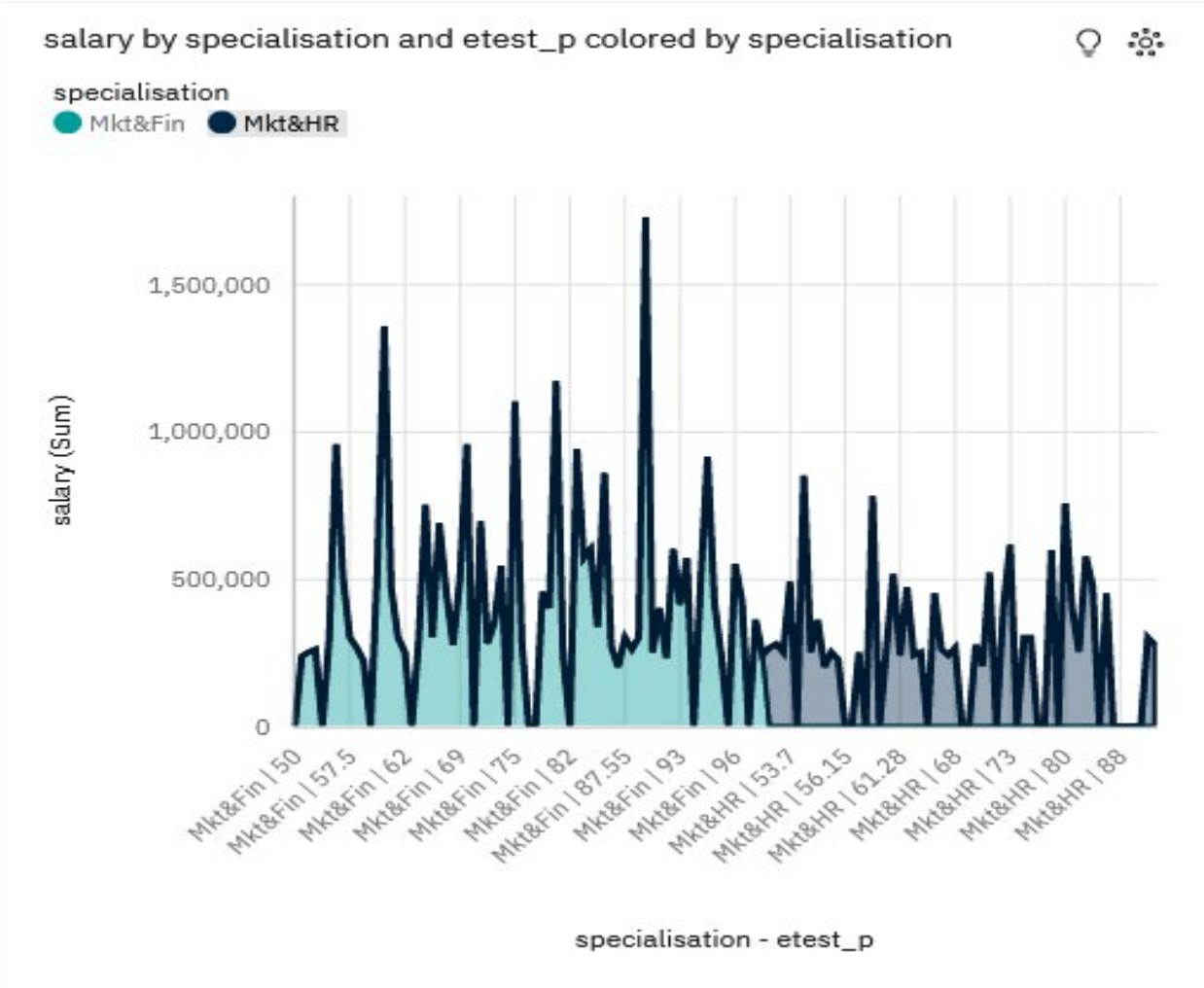


***Figure* 6:** Maximum Salaries offered by the score of Etest in different specializations.using Area graph.

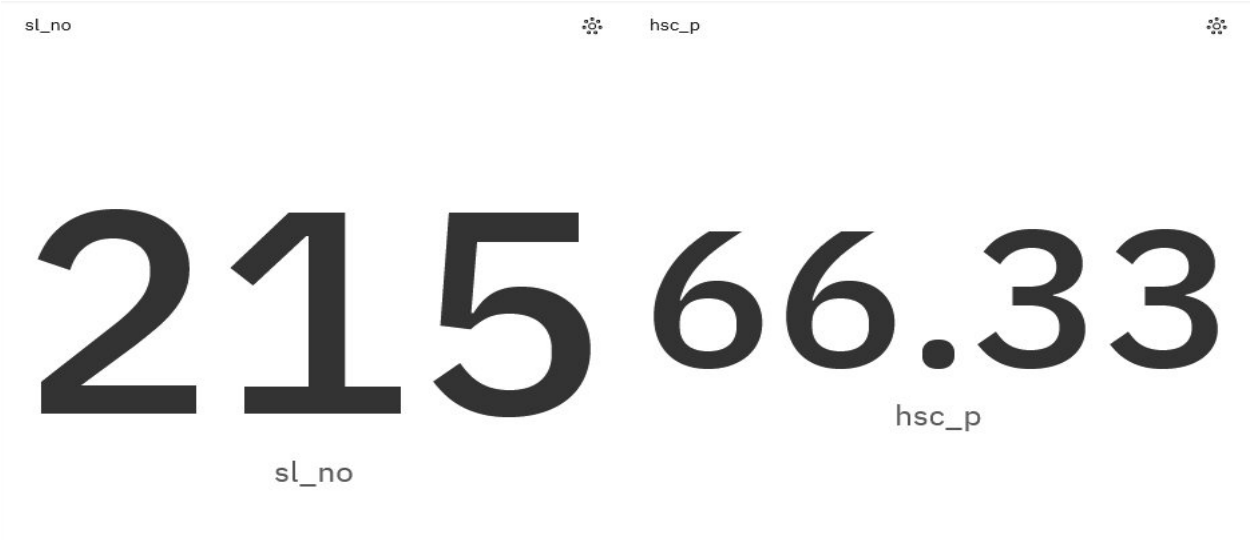
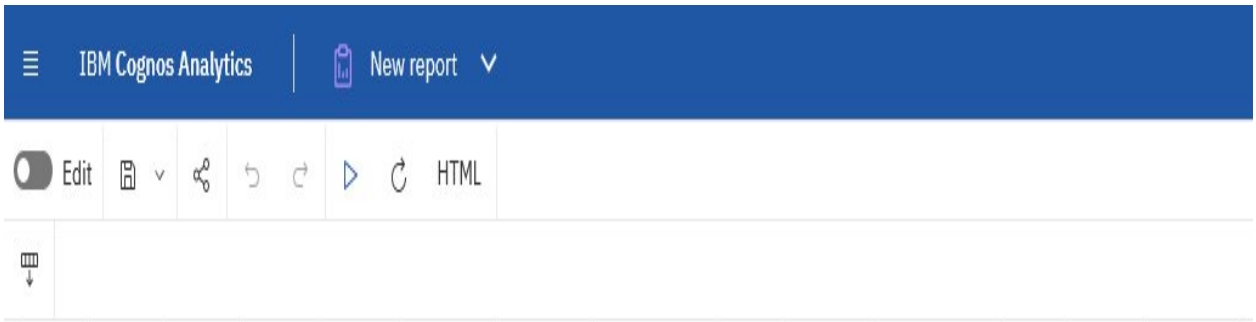


***Figure* 7**: *Total Entries* ***Figure* 8**: Average Higher Secondary Education Percent using KPI

These **screenshots** offer a glimpse of the user interface and the visualizations provided by the tool. They are instrumental in helping users navigate through placement data and gain valuable insights for educational institutions and corporate recruiters.

9.1.3 Report



gender	ssc_p	ssc_b	hsc_p	hsc_b	hsc_s	degree_p	degree_t	workex	etest_p	specialisation	mba_p	status	salary
M	124	Central	137	Central	Commerce	132	Comm&Mgmt	Yes	146	Mkt&HR	119.8	Placed	535,000
F	65	Central	75	Central	Commerce	69	Comm&Mgmt	Yes	72	Mkt&Fin	64.66	Placed	200,000
F	153.76	Others	113.8	Others	Science	163.23	Sci&Tech	No	114.85	Mkt&HR	138.52	Placed	620,000
F	87	Others	65	Others	Science	81	Comm&Mgmt	Yes	88	Mkt&Fin	72.78	Placed	260,000
F	75.2	Central	73.2	Central	Science	68.4	Comm&Mgmt	No	65	Mkt&HR	62.98	Placed	200,000
M	342.24	Others	331.83	Others	Science	339.77	Sci&Tech	Yes	381	Mkt&Fin	307.53	Placed	1,890,000
F	84	Others	75	Others	Science	69	Sci&Tech	Yes	62	Mkt&HR	62.36	Placed	210,000
M	128	Central	149	Central	Commerce	137	Comm&Mgmt	No	138	Mkt&HR	122.26	Placed	656,000
F	73	Others	63	Others	Science	66	Comm&Mgmt	No	89	Mkt&Fin	60.5	Placed	216,000
F	64	Central	67	Others	Science	69.6	Sci&Tech	Yes	55.67	Mkt&HR	71.49	Placed	250,000
F	74.9	Others	57	Others	Science	62	Others	Yes	80	Mkt&Fin	60.78	Placed	360,000
M	67	Others	63	Central	Commerce	72	Comm&Mgmt	No	56	Mkt&HR	60.41	Placed	225,000
F	88	Central	72	Central	Science	78	Others	No	82	Mkt&HR	71.43	Placed	252,000
M	67	Others	61	Central	Science	72	Comm&Mgmt	No	72	Mkt&Fin	61.01	Placed	264,000
M	70	Central	63	Central	Science	66	Sci&Tech	No	61.28	Mkt&HR	60.11	Placed	240,000
M	466.8	Central	467.2	Central	Commerce	455.9	Comm&Mgmt	Yes	528.06	Mkt&Fin	427.75	Placed	2,484,000
M	549.68	Others	554.33	Others	Commerce	513.87	Comm&Mgmt	No	574	Mkt&HR	471.49	Placed	2,105,000
M	521.5	Others	519.6	Others	Science	478.36	Sci&Tech	No	594.44	Mkt&Fin	448.57	Placed	2,416,000
M	74	Central	70	Central	Science	72	Comm&Mgmt	Yes	60	Mkt&Fin	57.24	Placed	260,000
F	86.5	Others	64.2	Others	Science	67.4	Sci&Tech	No	59	Mkt&Fin	59.69	Placed	240,000

Figure 8: *Total Entries*

9.1.4 Web-page

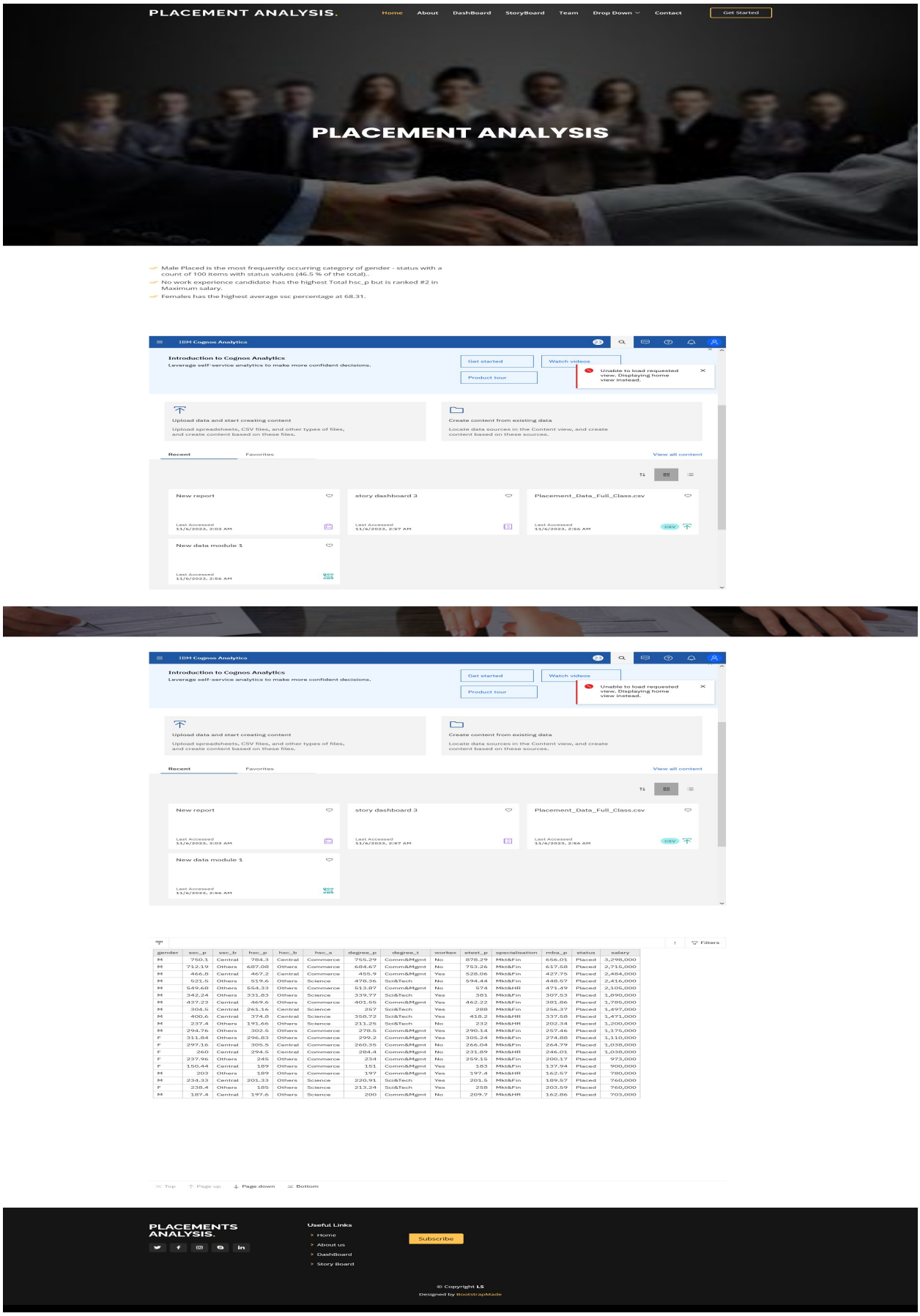


Figure 8: *Rendered by app.py for local host server and running in browser*

10. ADVANTAGES & DISADVANTAGES

The "Analytics Tool For Placements" offers several advantages, making it a valuable asset for stakeholders in the field of education and recruitment. However, like any project, it also comes with its own set of disadvantages and challenges.

10.1 Advantages

10.1.1 Data-Driven Decision Making

- **Advantage:** The tool empowers educational institutions and corporate recruiters to make informed decisions based on placement data analysis. This leads to more successful placements and better candidate selection.

10.1.2 Improved Placement Rates

- **Advantage:** The system provides insights into placement trends, allowing educational institutions to identify areas for improvement, ultimately leading to improved placement rates for students.

10.1.3 User-Friendly Interface

- **Advantage:** The user interface is designed to be intuitive and user-friendly, making it accessible to a wide range of users, including those without technical expertise.

10.1.4 Real-Time Data Access

- **Advantage:** Users can access placement data in real time, ensuring that the information is up-to-date and relevant for decision-making.

10.1.5 Seamless Integration

- **Advantage:** The integration of IBM Cognos Analytics dashboards and reports into the website using iframes provides a seamless user experience without the need for multiple logins.

10.2 Disadvantages

10.2.1 Data Privacy and Security

- **Disadvantage:** Handling sensitive placement data requires robust data security measures. Any breach or data mishandling could have serious consequences.

10.2.2 Technical Challenges

- **Disadvantage:** Implementing and maintaining the technical infrastructure and ensuring the seamless integration of external content can be technically challenging.

10.2.3 Resource Intensiveness

- **Disadvantage:** The system may require significant computational resources, particularly during peak usage, which could lead to resource constraints.

10.2.4 User Adoption

- **Disadvantage:** While the user interface is designed to be user-friendly, there may still be challenges in getting all stakeholders to adopt and effectively utilize the tool.

10.2.5 Potential for Misinterpretation

- **Disadvantage:** Data analysis and visualization may lead to misinterpretation if users do not have a strong understanding of the data or context.

11. CONCLUSION

The "Analytics Tool For Placements" project represents a significant step towards enhancing data-driven decision-making processes in the realm of student placements. This project leverages advanced analytics, visualization, and web integration to provide a comprehensive solution for educational institutions and corporate recruiters. As we conclude this project, we reflect on its significance and achievements.

11.1 Empowering Stakeholders

The primary goal of this project was to empower stakeholders in the field of education and recruitment by providing them with valuable insights into placement data. The tool facilitates data-driven decisions that can lead to improved placement rates for students and more effective candidate selection for corporate recruiters.

11.2 Realizing a Seamless User Experience

The integration of IBM Cognos Analytics into the website through iframes enables a seamless user experience. Users can access placement data, explore visualizations, and make decisions without the need for multiple logins. The user-friendly interface ensures that a wide range of users can benefit from the tool.

11.3 Acknowledging Challenges

It is essential to acknowledge the challenges associated with data privacy, security, technical requirements, and user adoption. These challenges underscore the importance of robust security measures, technical proficiency, resource management, and effective user training and support.

11.4 The Path Forward

As we conclude this project, we recognize that it marks the beginning of a journey. The tool's implementation is just the first step, and its true value will be realized as it continues to evolve and adapt to the ever-changing needs of its users.

11.5 A Call for Continuous Improvement

In conclusion, the "Analytics Tool For Placements" is a testament to the power of data in decision-making. It is a tool that empowers institutions and recruiters and, in turn, benefits students in their career aspirations. The path forward calls for continuous improvement, adaptability, and a commitment to providing valuable insights and a seamless user experience.

As we conclude this project, we look ahead to its impact and the potential it holds for the future of student placements and data-driven decision-making in the educational and recruitment sectors.

12. FUTURE SCOPE

The "Analytics Tool For Placements" has laid the foundation for data-driven decision-making in the field of student placements. While the project has achieved its initial objectives, there is significant potential for future development and enhancements that can further empower stakeholders and enhance the user experience.

12.1 Enhanced Data Analytics

The future scope of the project includes advancements in data analytics. More sophisticated data analysis techniques, such as machine learning and predictive modeling, can be applied to provide deeper insights into placement trends, student performance, and recruitment patterns.

12.2 Personalized Recommendations

The tool can evolve to offer personalized recommendations to students based on their profiles, academic performance, and career aspirations. This feature can provide valuable guidance to students, helping them make informed decisions about their career paths.

12.3 Extended Integration

Expanding the integration capabilities of the tool to include additional data sources, external APIs, and third-party systems can further enhance its utility. This can enable a more comprehensive view of placement data and trends.

12.4 Mobile Accessibility

Ensuring that the tool is accessible via mobile devices can increase its reach and usability. A responsive design that adapts to various screen sizes will cater to users who prefer to access data on their smartphones and tablets.

12.5 Advanced Security Measures

With the growing importance of data privacy and security, the tool can benefit from advanced security measures. Implementing robust encryption, access controls, and compliance with data protection regulations can enhance user trust.

12.6 User Training and Support

Providing ongoing user training and support can further improve user adoption. The development of user guides, training materials, and a responsive support system will help users make the most of the tool's capabilities.

12.7 Collaboration with Educational Institutions

Collaboration with educational institutions can result in the integration of the tool as part of their educational programs. It can be used for research, academic projects, and improving curriculum relevance.

12.8 Feedback Mechanisms

Implementing feedback mechanisms for users to provide suggestions and report issues will allow for continuous improvement. Users can contribute to the tool's evolution, ensuring that it remains aligned with their needs.

12.9 Scalability and Performance

As the user base grows, scalability and performance optimization will be essential. This includes load balancing, resource management, and ensuring the system can handle a larger volume of users and data.

The future scope of the "Analytics Tool For Placements" is not limited to these points, and it can continue to evolve based on emerging technologies and user requirements. The tool has the potential to become an indispensable resource for educational institutions, students, and corporate recruiters in the dynamic and competitive world of student placements.

13. APPENDIX

Source Code

The source code for the "Analytics Tool For Placements" is available on GitHub. You can access and review the code by following this link:

[https://github.com/devaprog/PlacementAnalyticsTool]

Project Demo

A live demo of the project is accessible online. You can explore the features and functionality of the "Analytics Tool For Placements" by visiting the project demo at the following URL:

HD

[https://drive.google.com/file/d/1APc7AKcK-Fn61CqGQ4maw2y2YAcrkcKC/view?usp=sharing]

Normal
[https://drive.google.com/file/d/1SoJuhw419Ycq8acutyCdgWx9qdmYdtl8/view?usp=sharing]