Project Report

1. INTRODUCTION

1.1 Project Overview:

The objective of the project is to bring about a paradigm shift in the Olympic Games industry by harnessing the potential of data analysis and visualization. It presents a comprehensive solution that empowers stakeholders to make data-driven decisions, optimize strategies, and unlock new opportunities. Utilizing advanced technologies such as IBM Cognos Analytics, IBM DB2 and Flask API in order to display the analysed data. The project offers a scalable and dependable platform for analysing and visualizing the extensive amount of data associated with the Olympic Games.

Fundamentally, the project addresses the urgent need for accurate and actionable insights in the Olympic Games industry. By collecting, integrating, and refining diverse datasets pertaining to athlete performance, historical patterns, economic impact, and more, the project establishes a central repository of trustworthy information. This rich dataset forms the basis for advanced data analysis techniques, enabling stakeholders to uncover valuable patterns, identify performance trends, and make well-informed decisions.

The project's impact transcends business boundaries, as it fosters transparency, inclusivity, and engagement within the Olympic Games community. Through interactive visualizations and data-driven narratives, the project enhances comprehension and appreciation of the Games among athletes, fans, and other stakeholders. It promotes fair competition by objectively evaluating athlete accomplishments and shedding light on the representation of diverse athletes. Moreover, the project offers insights into the economic implications of the Games, equipping stakeholders with the understanding to make informed decisions regarding hosting, sponsorship, and resource allocation.

1.2 Purpose:

The purpose of this project is to revolutionize the way data is utilized in the Olympic Games industry. By harnessing the power of data analysis and visualization, the project aims to empower stakeholders with actionable insights, optimize decision-making processes, and drive innovation. It seeks to address

the challenges faced by stakeholders in making informed choices, identifying performance trends, and understanding the broader impact of the Olympic Games.

Through the utilization of advanced technologies like IBM Cognos Analytics and IBM DB2, the project aims to create a comprehensive and scalable platform for data analysis and visualization. The purpose is to gather and integrate diverse datasets related to athlete performance, historical records, economic impact, and more, in order to provide stakeholders with a holistic view of the Olympic Games. By applying advanced data analysis techniques, the project strives to uncover patterns, correlations, and trends that can inform strategies, resource allocation, and athlete development programs.

2 IDEATION & PROPOSED SOLUTION

2.1 Problem Statement Definition:

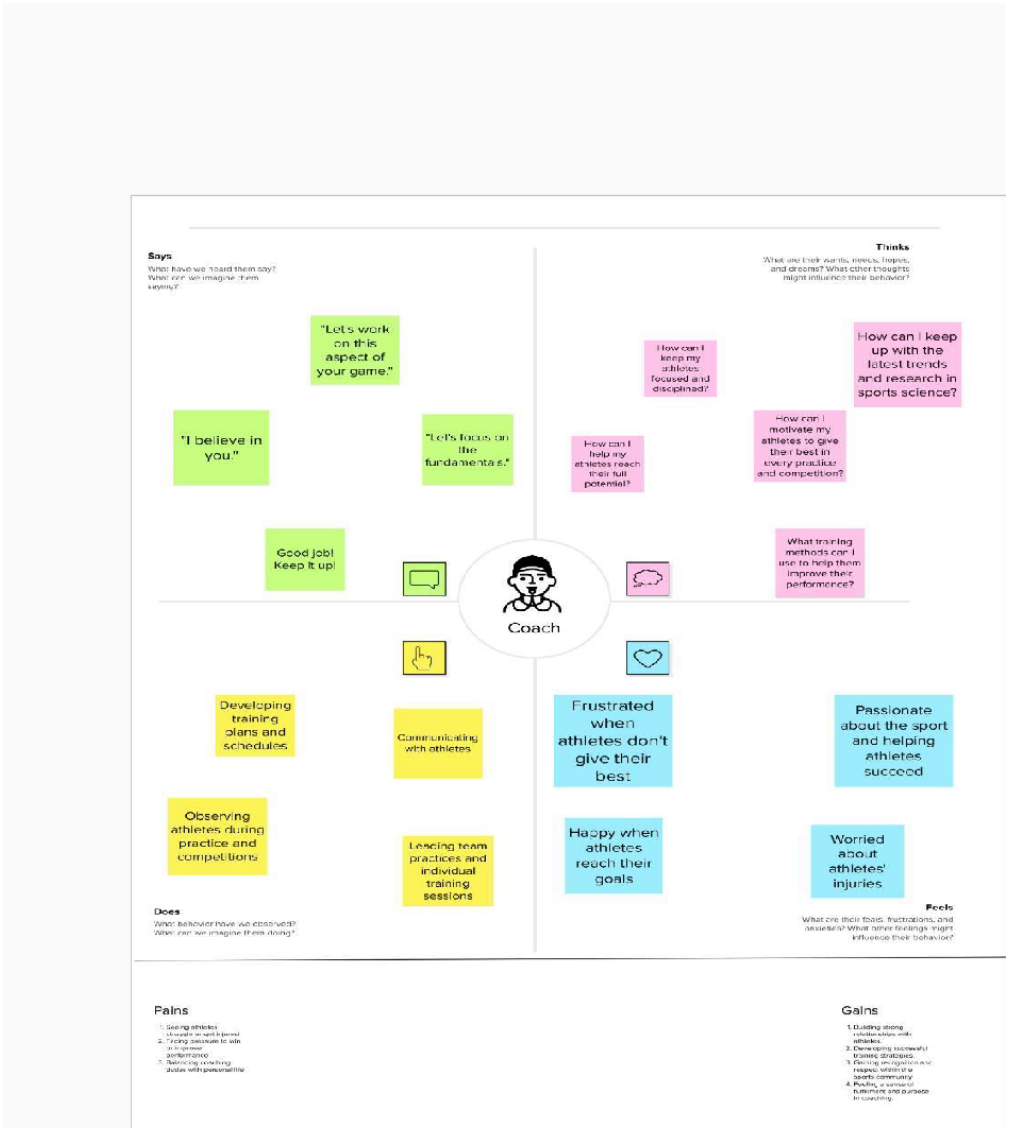
Main Problem Statement:

Olympic committees and organizations who want to understand and analyse the performance of athletes and countries over time. In order to gain insights into the performance of athletes and countries in the Olympics over the past 120 years to identify areas for improvement in our training programs and to develop strategies for maximizing our medal count in future events. We need a tool that can provide us with a comprehensive analysis of Olympic performance data and highlight trends and patterns that can inform our decision-making process.

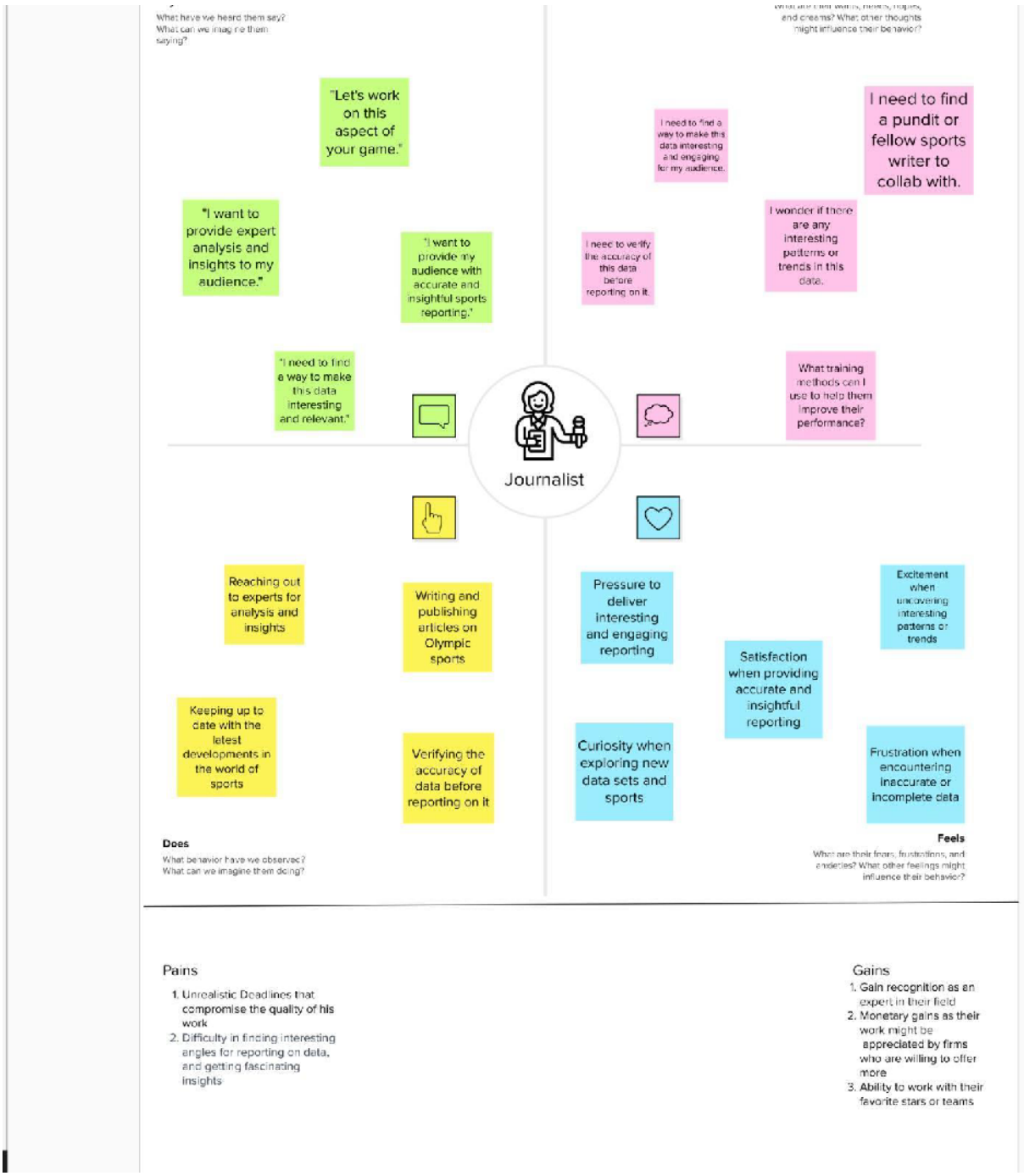
Problem Statement (PS)	I am (Customer)	I'm trying to	But	Because	Which makes me feel
PS-1	Coach or Trainer	Help my athletes achieve their full potential and perform at their best in competitions	Struggle to identify the factors that contribute to Olympic success and develop effective training programs that produce top-performin g athletes.	There is a scarcity of accessible and lucid performance data and research on effective training methods, it is challenging for me to develop targeted training programs that produce top-performin g athletes.	I feel frustrated and restricted in my ability to help my athletes achieve their goals.
PS-2	Sports analyst or journalist	Trying to provide in-depth analysis and insights on the performance of athletes and countries in the Olympics, but I struggle	I often find it challenging to access and analyse performance data and research on athlete performance and trends, and I have limited resources to invest in data	There is a paucity of accessible and comprehensib le performance data and research on athlete performance and trends, it is challenging for me to provide insightful and engaging reporting that resonates with my audience.	I feel frustrated and hampered in my ability to provide meaningful coverage of the Olympics and its athletes

2.2 Empathy Map:

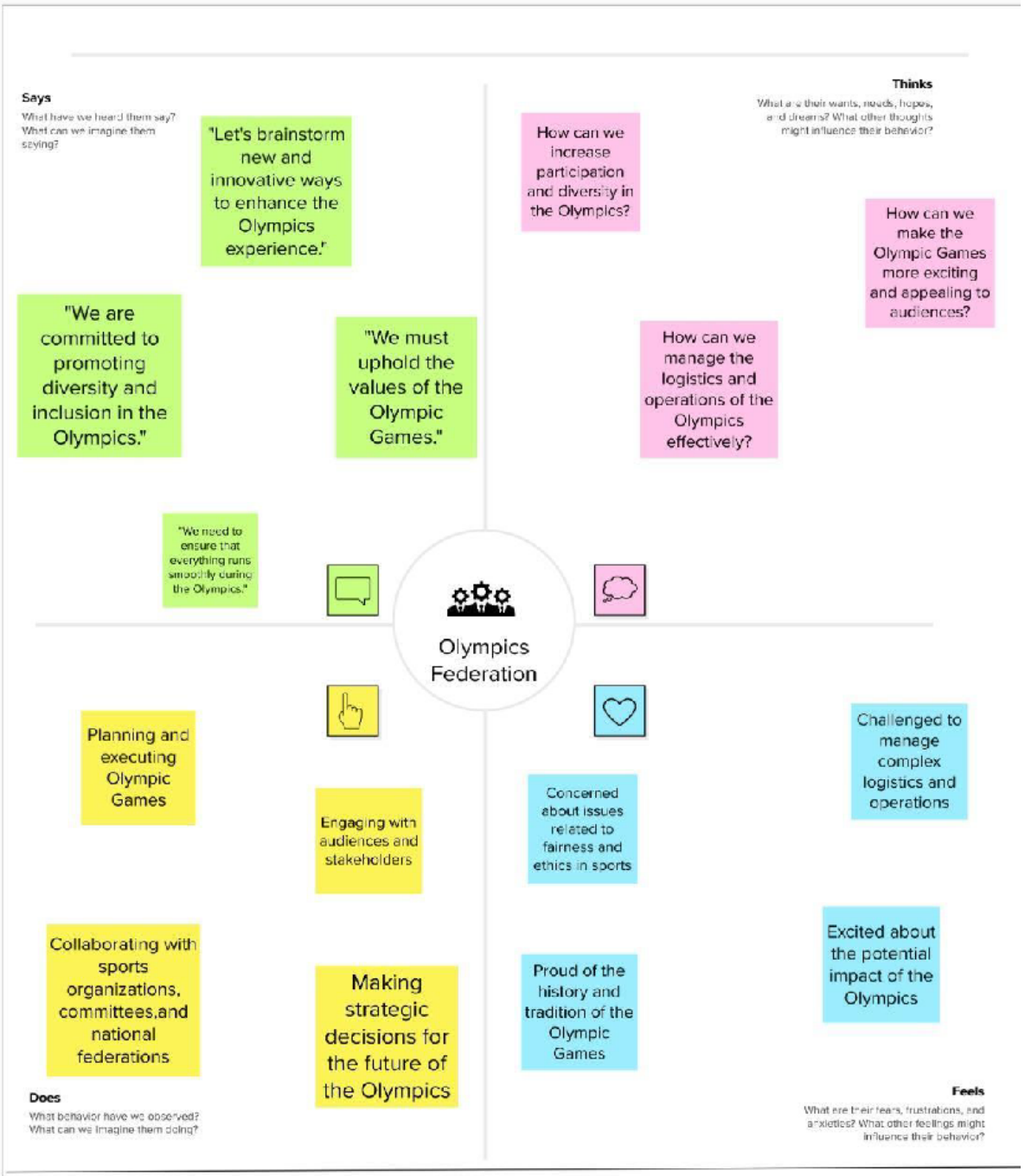
Coach as Customer:



Journalist as Customer:



Olympics Federation as Customer:



Pains

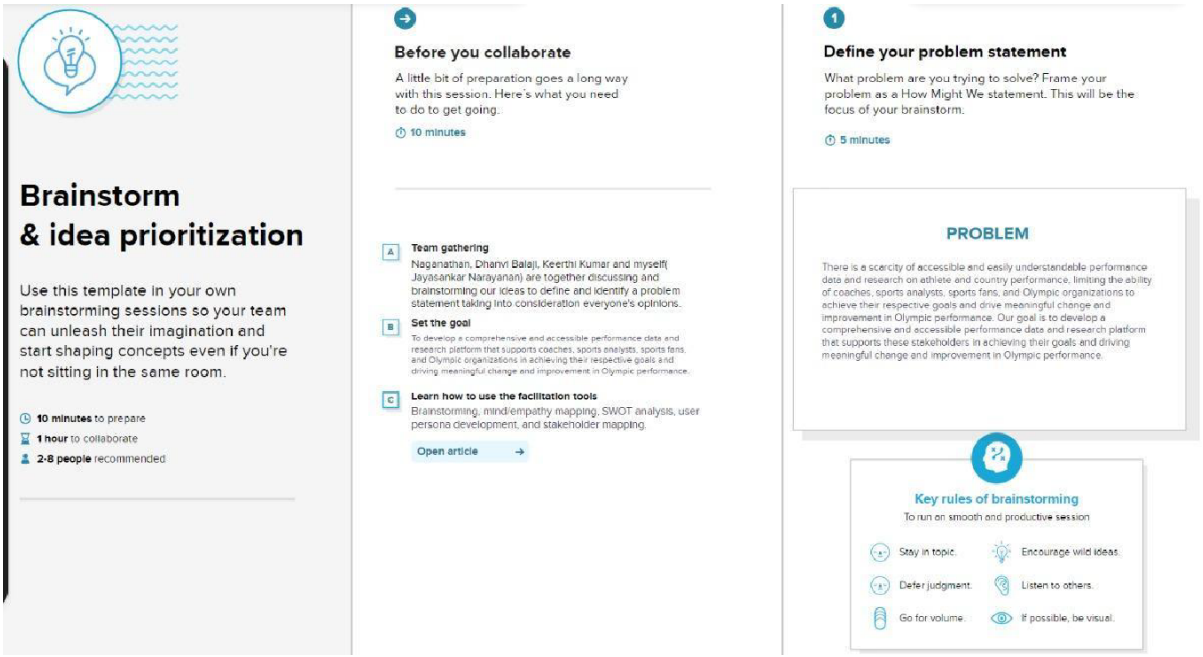
1. Dealing with budget constraints or financial challenges
2. Addressing issues related to doping or unethical behavior
3. Managing conflicts or disagreements among stakeholders
4. Managing logistics and security for the Olympics

Gains

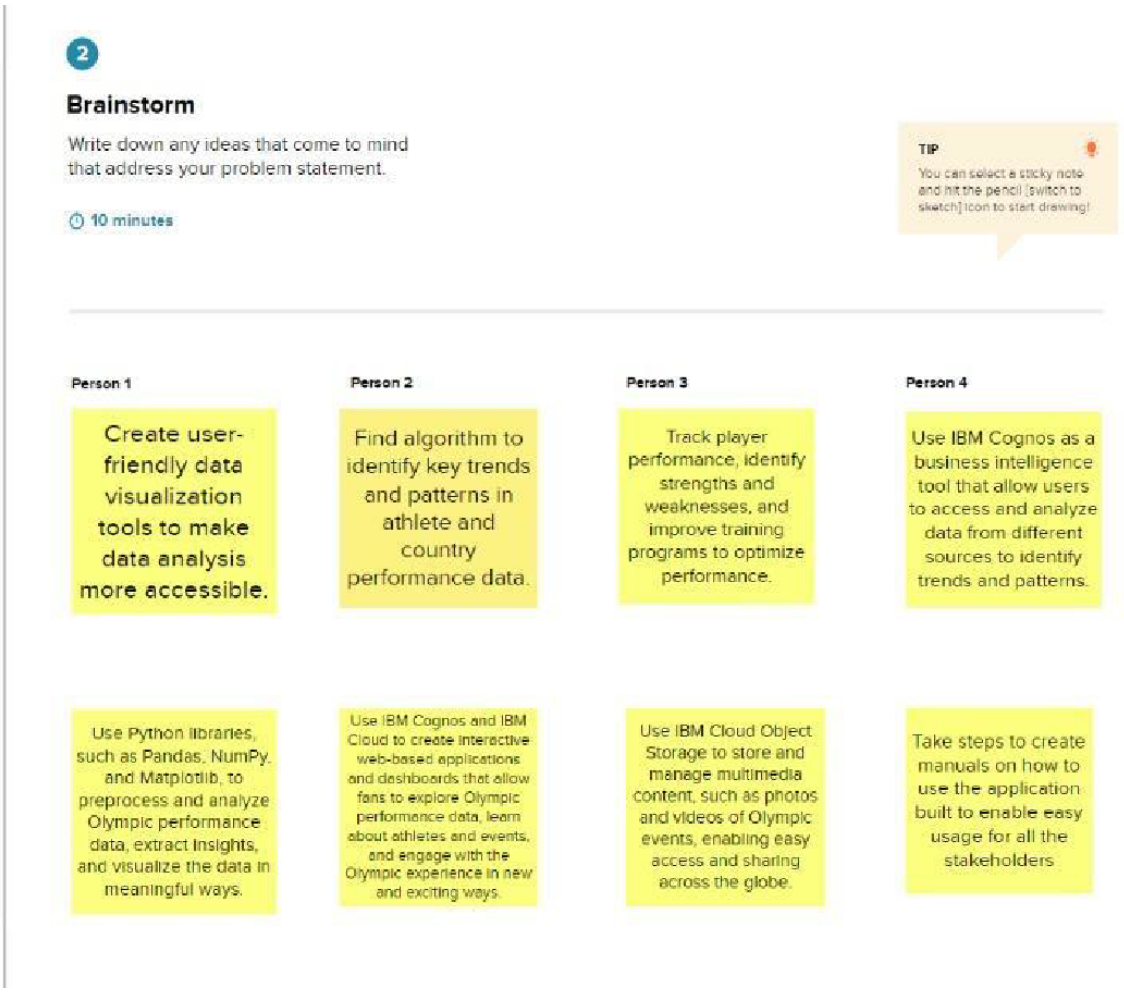
1. Supporting and promoting talented athletes from their countries
2. Creating a memorable and successful Olympic Games experience

2.3 Brainstorm & Idea Prioritization:

Team Gathering, Collaboration and Select the Problem Statement



Step-2: Brainstorm, Idea Listing and Grouping



3

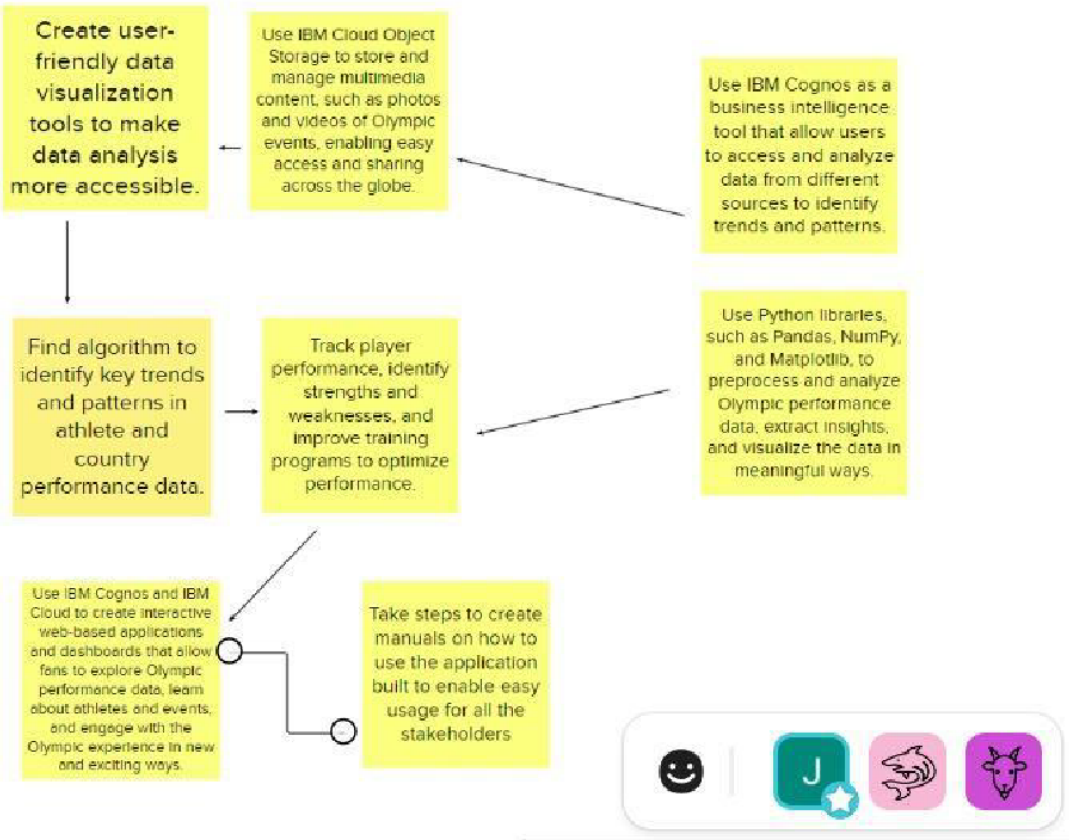
Group ideas

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 and break it up into smaller sub-groups.

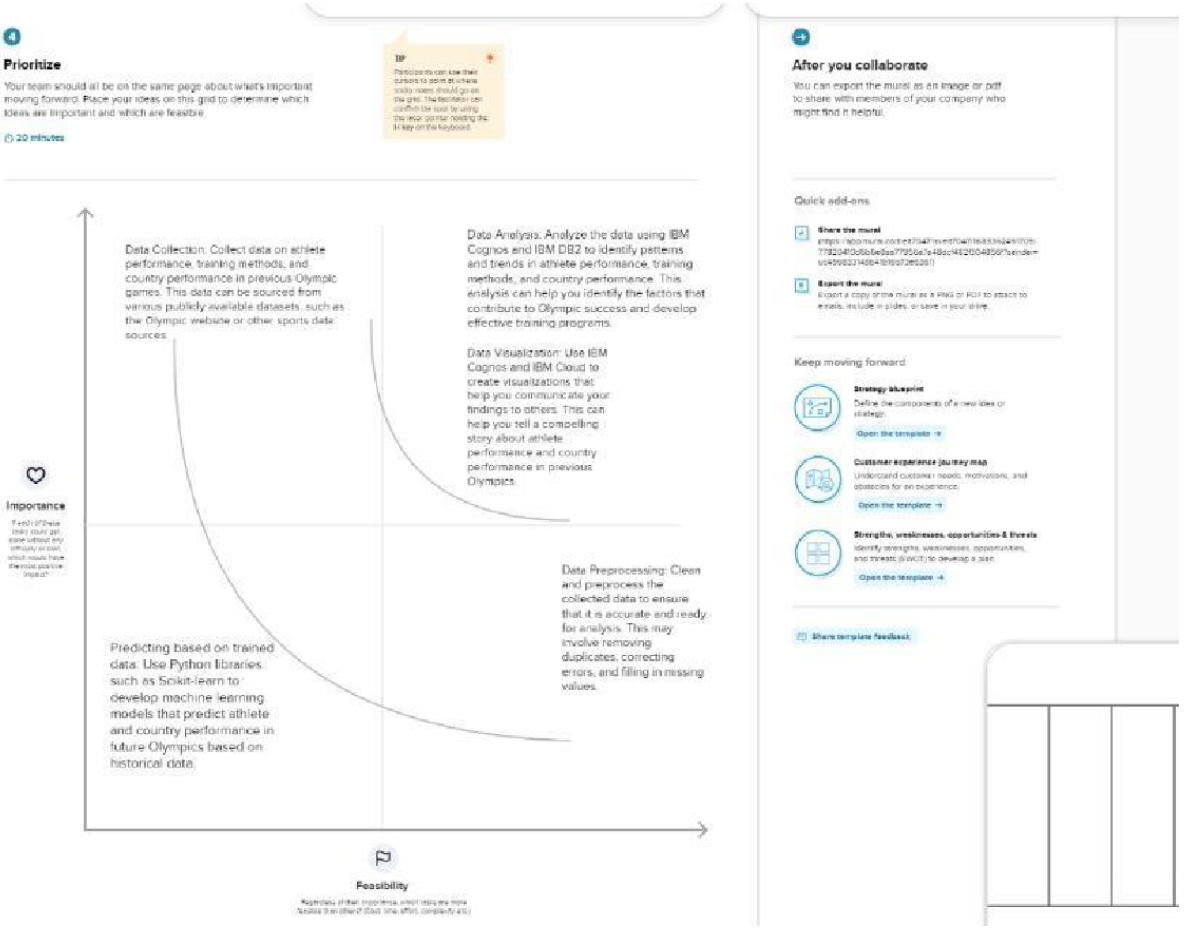
20 minutes

TIP

Add customizable tags to sticky notes to make it easier to find, browse, organize, and categorize important ideas as themes within your mural.



Step-3: Idea Prioritization



2.4 Proposed Solution:

S.No.	Parameter	Description
1.	Problem Statement (Problem to be solved)	The goal of this project is to use data analysis and visualisation methods to learn more about the origins, development, and performance of the Olympic Games. The research specifically intends to answer issues like which nations have historically excelled in particular sports, how the economic impact of the Olympics has evolved over time, and which events are the most well-liked by spectators. The project aims to give stakeholders a greater knowledge of the elements influencing success in the Olympic Games, the trends and patterns that have developed through time, and the opportunities and difficulties the Games will face in the future by addressing these concerns. The project's overarching objective is to give stakeholders the information they require they need to make data-driven decisions and drive the continued success and growth of the Olympic Games
2.	Idea / Solution description	The Olympic Games dataset will be subjected to data analysis and visualisation using IBM Cognos Analytics and IBM DB2, according to the project's solution description. Before loading the data into IBM DB2 for storage and processing, the project entails extracting and cleaning it to verify its accuracy and completeness. Next, a thorough dashboard that presents the data in an interactive and visually appealing manner is created using IBM Cognos Analytics. Stakeholders can quickly and easily obtain the most pertinent information, such as past results of nations in particular sports, using the dashboard. Users can dive down into particular data points or alter filters to investigate various facets of the data thanks to the dashboard's flexibility.
3.	Novelty / Uniqueness	Creating cutting-edge visualisation techniques that enable interactive data exploration, such as dynamic infographics

		and interactive heat maps. In order to more readily identify and address areas for development, this can give the Olympics committee and trainers a more detailed and accessible snapshot of athlete performance.
4.	Social Impact / Customer Satisfaction	This initiative has a huge social influence because it offers insightful information about the development of the Olympic Games. The project encourages transparency and accountability in the management and governance of the Games by analysing and visualising the data, giving stakeholders a greater understanding of the variables that affect performance and the trends that have developed over time. This data can be used to guide investments and policy decisions that support the expansion and success of the Games as well as to pinpoint areas that require improvement to keep the Games open, inclusive, and fair for all competitors and spectators.Additionally, the project's findings can be applied to increase public interest in and enjoyment of the Olympic Games, fostering a sense of belonging and shared purpose among participants and supporters. Overall, this project has a huge societal influence since it encourages greater comprehension, openness, and participation in one of the most recognisable and prominent sporting events in the world.
5.	Business Model (Revenue Model)	This project's business model is offering data analysis and visualisation services to participants in the Olympic Games sector. The National Olympic Committees, commercial sponsors, media outlets, and other groups participating in the organising and administration of the Games are included in this. A combination of subscription-based and project-based pricing methods are used to generate money for the project. Stakeholders, for instance, have access to the most recent insights and data on the Games by subscribing to the dashboard on a monthly or annual basis. The project can also make money by developing data analysis and visualisation initiatives that are specifically catered to the requirements of different stakeholders. The project provides a top-notch, dependable,

		and scalable solution that satisfies the data analysis and visualisation requirements of stakeholders across the Olympic Games sector by utilising IBM Cognos Analytics and IBM DB2. In general, the project's business strategy is centred on delivering value to stakeholders through insights and analytics that facilitate better decision-making and, ultimately, fuel the Olympic Games' continuous expansion and success.
6.	Scalability of the Solution	Scalability of the project is a key benefit as it makes use of IBM DB2 and IBM Cognos Analytics to deliver a highly scalable and dependable solution. Given the huge and varied range of data points available for analysis at the Olympic Games, the project's ability to handle large amounts of data is essential. The database management system, IBM DB2, offers a very dependable and secure solution that can expand with the project as it goes along. A highly scalable platform for data analysis and visualisation is also offered by IBM Cognos Analytics, enabling stakeholders to access insights and analytics at scale. The underlying technical infrastructure may be scaled up to meet the additional demand as the project expands and new stakeholders sign up.This scalability guarantees that the project will be able to satisfy the changing needs of industry stakeholders and that it will be able to offer insightful analytics even as the Games themselves continue to change over time.

3 REQUIREMENT ANALYSIS

3.1 Functional requirements:

Following are the functional requirements of the proposed solution.

FR No.	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task)

FR-1	Data Extraction and Cleaning	• This module shall extract the Olympic Games dataset. It can identify the source of the dataset. • It downloads the dataset from the source. It verifies the accuracy and completeness of the dataset. • It checks for missing or incomplete data. It checks for inconsistencies and errors in the data. • It cleans the dataset to remove any inconsistencies and errors. • It removes any duplicate records. • It corrects any errors in the data. • It removes any outliers or irrelevant data.
FR-2	Data Storage and Processing	• It loads the cleaned dataset into IBM DB2 for storage and processing. • It ensures that the data is formatted correctly for storage in IBM DB2. • It establishes a secure connection to IBM DB2 for data transfer. • It ensures the security and integrity of the data stored in IBM DB2. • It implements appropriate security measures to protect the data from unauthorized access.
FR-3	Dashboard Creation	• It creates an interactive dashboard using IBM Cognos Analytics. • The dashboard shall present the data in a visually appealing manner. • It also allows stakeholders to obtain the most pertinent information easily and quickly. • It can be flexible, allowing users to dive down into particular data points or alter filters to investigate various facets of the data.
FR-4	Story Creation and Report Generation	• Perform further visualizations in the form of slides by creating story with background images • It can generate reports based on the data analysis and visualization. • The reports can provide stakeholders with insights into the factors influencing success in the Olympic Games. The reports can provide stakeholders with information on the opportunities and challenges the Games will face in the future.

		● The reports can be generated in a format that is easy to understand and accessible to stakeholders.
FR-5	Data Analysis and Visualization	● It identifies which nations have historically excelled in particular sports. ● It analyses the economic impact of the Olympics over time. ● The system shall identify trends and patterns that have developed through time.
FR-6	Presentation	● Embedding the project with a frontend created using bootstrap by using flask API. Provide documentation and training materials to help users and administrators understand how to use and maintain the system.

3.2 Non-functional Requirements:

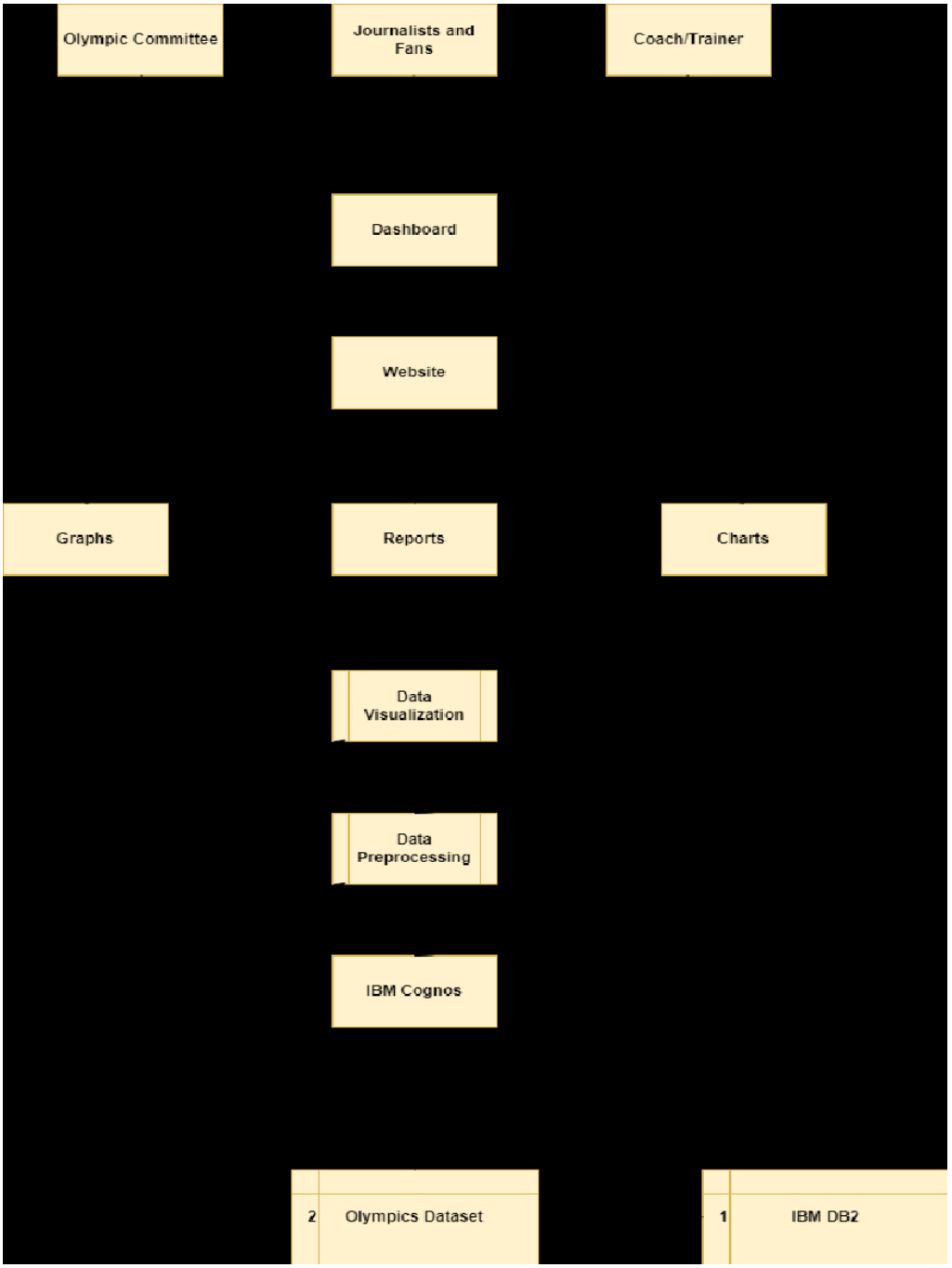
Following are the non-functional requirements of the proposed solution.

FR No.	Non-Functional Requirement	Description
NFR-1	**Usability**	With simple and clear visualisations and filters, the dashboard should be simple to use. Users should have simple access to and control over the data displayed on the dashboard. The dashboard should be created with the needs of the stakeholders in mind, with actionable and pertinent data being shown prominently.
NFR-2	**Security**	Data availability, integrity, and secrecy should all be guaranteed by the system. Access to the data kept in IBM DB2 should be controlled based on user roles and permissions, and the data itself ought to be encrypted. To guarantee that only individuals with the proper authorization may access the dashboard and data, the system should also include authentication and authorisation processes.
NFR-3	**Reliability**	The system must be dependable, with little downtime and precise outcomes. The dashboard should be created with automated error-checking

		features to reduce mistakes. To ensure that data is not lost in the event of a system breakdown, the system should also offer backups.
NFR-4	**Performance**	The dashboard should load quickly and the system should be responsive. Large datasets should load as quickly as possible on the dashboard. Large datasets and user traffic should also be able to be handled by the system without it slowing down.
NFR-5	**Availability**	To guarantee that stakeholders may access the dashboard whenever necessary, the system should be accessible round-the-clock. The system should be developed with redundancy and fault-tolerant features in place, and it should have a high uptime.
NFR-6	**Scalability**	To handle future increases in data volume and user traffic, the system should be scalable. As the amount of data or user traffic grows, the system should be built to easily scale both horizontally and vertically.

4 PROJECT DESIGN

4.1 Data Flow Diagram:



4.2 Solution & Technical Architecture:

Basic Workflow:

1. Research the history of the Olympic Games and the various changes and adaptations that have occurred over time. This can include looking at primary sources, such as official Olympic documents and reports, as well as secondary sources like books, articles, and academic journals.

2. Identify key themes and trends that have emerged in the history of the Olympics, such as the evolution of amateurism to professionalism, the impact of technological advancements etc.

3. Develop a problem statement that clearly articulates the argument or perspective on the topic. This can be informed by research and should be a concise statement that outlines the main points of the project.

4. Organize research and ideas into a coherent outline. This can include breaking down arguments into sub-points, identifying key examples and evidence to support the claims made, and considering the best order and structure for presenting these ideas.

5. Write a draft of the project, using the outline as a guide. Be sure to clearly introduce the topics and problem statement, support the claims with evidence and examples, and provide a strong conclusion that summarizes the main points.

6. Revise and edit the draft, paying close attention to the clarity and coherence of the argument made, the strength of the evidence and examples, and the overall effectiveness of the writing.Seek feedback from peers or instructors to help you refine your project, if needed.

7. Proofread the final draft carefully to ensure that it is free of errors and meets the requirements of the assignment. Be sure to include any necessary citations or references to sources consulted, and format the project according to the specific guidelines provided by the instructor or institution.

Architecture:
The Olympic Games are one of the most well-known and famous international sporting occasions in the world, drawing thousands of competitors from all over the world to compete in a range of disciplines. The introduction of the Winter Olympics, Paralympic Games, Youth Olympics, as well as other national and international sporting competitions, are just a few of the alterations that have been made to the Olympic Games over time. A plethora of information on the Olympic Games has been produced as a result of the evolution of the Olympic Movement and developments in technology, economics, and politics. With the help of IBM Cognos Analytics and IBM Db2, we hope to use this project to study and analyse the data, find insights into the Olympic Games, and communicate those insights in a useful and usable manner.

The Architecture consists of 5 levels:

● IBM DB2:
By offering a dependable and secure database management system for storing the data relevant to the Olympic Games, IBM Db2 plays a significant part in the project's architecture. It enables the effective gathering and archiving of massive amounts of data, which can then be processed and translated into a structured format that IBM Cognos Analytics can use. The project can guarantee the data's correctness and integrity by utilising IBM Db2, which is essential for producing trustworthy reports and visualisations. Furthermore, IBM Db2 offers cutting-edge security tools that can shield the data from unauthorised access, guaranteeing that it is kept private and secure. In general, IBM Db2 is a crucial part of the project because it allows for effective and safe data administration.

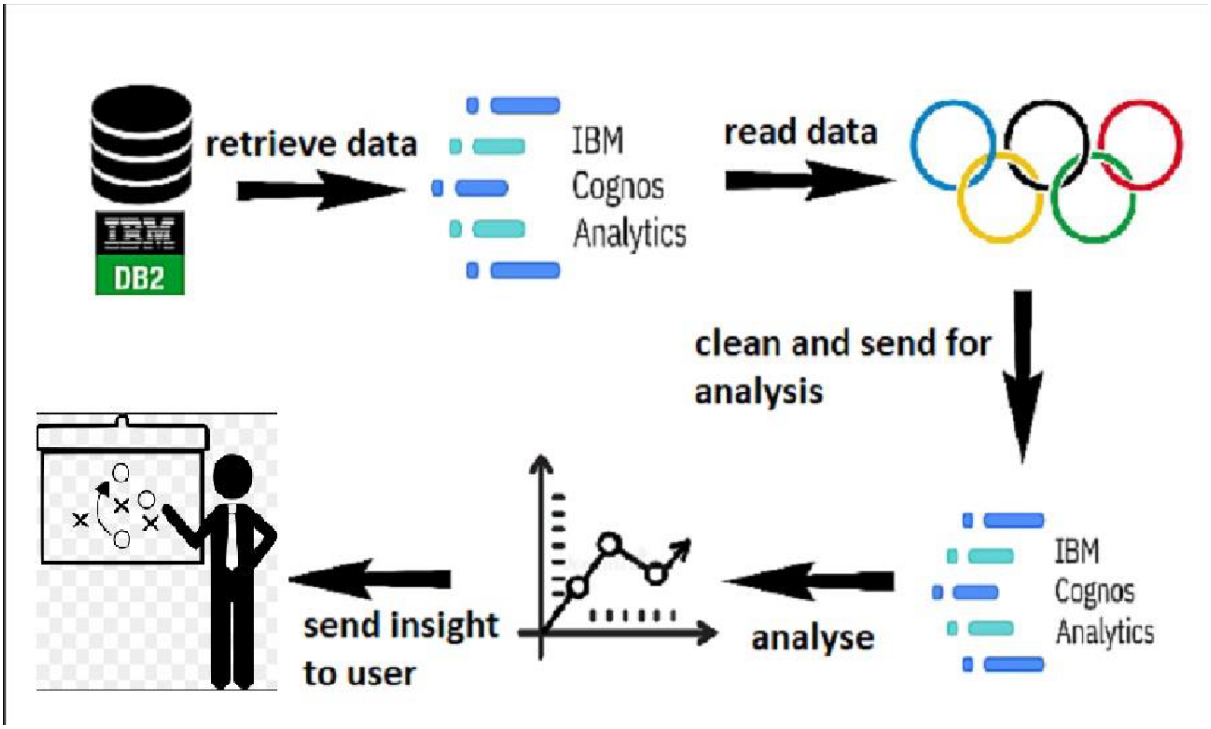
● IBM Cognos:
IBM Cognos Analytics is essential to this project because it offers strong business intelligence and data visualisation features that let us glean insightful information from the Olympic Games data. We may build specialised reports and interactive dashboards with IBM Cognos Analytics that let us filter, sort, and dig down into certain data points, among other ways to study the data. In addition, IBM Cognos Analytics offers sophisticated analytics tools that let us spot patterns and trends in the data as well as predictive analytics tools that let us predict what will happen in the future. Overall, IBM Cognos Analytics offers a rich set of tools that let us get the most out of the information linked to the Olympic Games.

● The dataset:
This project's base is the Olympics dataset, which provides the raw data that will be analysed and visualised by IBM Cognos Analytics and IBM Db2. The dataset includes data on athletes, nations, events, and performance indicators in addition to a variety of other information regarding the Olympic Games. By utilising this dataset, we may learn more about a variety of subjects, including which nations and athletes have historically excelled in particular sports, how the Olympics have changed over time and so on. The collection also makes it possible to perform in-depth assessments of particular features of the Olympic Games, such as how various variables affect athlete performance or how the Olympics' impact has evolved through time. Ultimately, the Olympics dataset is the key to unlocking the insights that will enable us to better understand and analyze this iconic global event.

● The dashboard:
By offering a visually appealing and dynamic means to communicate the insights and conclusions obtained from the study of the Olympic Games dataset, the dashboard plays a significant role in this project. Key performance indicators (KPIs), charts, graphs, and other visualisations that offer a thorough and understandable overview of the data are displayed on the dashboard. Stakeholders may quickly and easily access the most pertinent data via the dashboard, such as which nations have won the most medals or which sports have seen the fastest rate of growth. Additionally, the dashboard enables stakeholders to interact with the data by changing filters to examine various facets of the data or diving down into particular data points. The dashboard, in general, is a crucial part of this project since it offers a useful approach to communicate the insights and conclusions obtained from the study of the Olympic Games dataset in a way that is both educational and simple to comprehend.

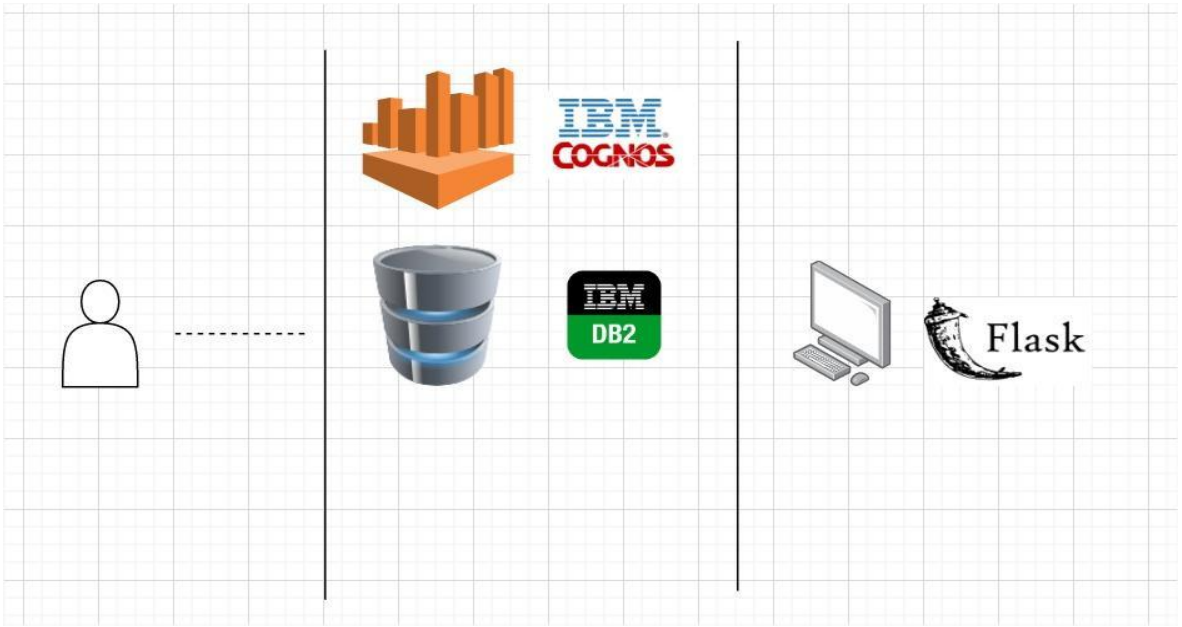
● Users:
The user is an essential part of our project because they will be the final recipients of the insights and conclusions drawn from the examination of the dataset related to the Olympic Games. The user may be a stakeholder, such as an executive, analyst, or coach, looking for insights to inform decision-making, or they may be a fan curious about the development of the Olympic Games. We can make sure that the analysis and visualisation of the Olympic Games data is personalised to the user's needs and offers the most value by comprehending the user's goals, preferences, and requirements. Further research and study of the data, which results in new insights and discoveries, might be sparked by the user's interaction with the dashboard and the insights provided.

Solution Architecture Diagram:



Technology Architecture:

Below Is the architectural diagram for how analysis of glass door jobs data is performed.



4.3 USER STORIES:

User Type	Functional Requirement (Epic)	User Story Number	User Story / Task	Acceptance criteria	Priority	Team Member
Coaches	Monitor athletes' performance and progress	USN-1	I want to be able to monitor my athletes' performance and progress to provide them with personalized feedback and guidance.	I should be able to provide feedback and set goals for individual athletes, and allow them to comment	High	Akshay
	Schedule and manage training sessions	USN-2	I want to be able to schedule and manage training sessions for my athletes efficiently.	The platform should allow coaches to make changes or updates to the training schedule and notify athletes of any modifications, and track attendance.	Medium	Dominic
Olympic Committees/Organizations	Analyze historical performance data and trends	USN - 3	I want to be able to analyze historical performance data and trends to identify patterns and inform strategic decision-making.	I should be able to compare and benchmark performance across different countries, sports, and time periods.	High	Ortega
Sports Journalist	Access to real-time event updates	USN - 4	I want to have access to real-time event updates to provide accurate and timely coverage of the Olympics	I should be able to view a dashboard that gives me real-time updates.	Medium	Vishwak
	Access to athlete profiles	USN-5	I want to have access to athlete profiles to write great articles.	I should be able to view athlete profiles being updated in real-time as and when they achieve something.	Low	Sukesh

5. CODING & SOLUTIONING

5.1 Feature 1

We leveraged the power of IBM Cognos Analytics with Watson to carry out several crucial tasks for our project. Firstly, we acquired a dataset from Kaggle that encompassed information on Athletic Events and Athletes Events, along with the regions of teams participating in those events. This dataset was uploaded into the IBM Cognos Analytics platform for further analysis.

Using the platform's capabilities, we prepared a Data Module that facilitated efficient handling of null values and allowed us to perform essential data

preprocessing tasks, including performing inner joins to merge relevant data sources. This step ensured that our data was cleansed and ready for analysis.

Next, we delved into data visualization by utilizing a wide range of graph types such as Pie Charts, Column Charts, and Bar Charts. These visualizations enabled us to gain insights into the patterns, trends, and distributions present in the data, making it easier to interpret and communicate the findings effectively.

Finally, we utilized IBM Cognos Analytics to create a comprehensive dashboard, report, and story. The dashboard provided a consolidated view of the key metrics and visualizations, offering a high-level overview of the data. The report incorporated detailed analysis, interpretation, and explanations of the visualizations, providing deeper insights into the dataset. Additionally, the story feature allowed us to present the data in a narrative format, enabling us to tell a compelling story using the combination of visualizations and text, making the data more engaging and impactful for our intended audience. Overall, IBM Cognos Analytics with Watson proved to be an invaluable tool in our data analysis and reporting journey, empowering us to extract meaningful insights and present them in a visually appealing and informative manner.

5.2 Feature 2

Workflow for Web Integration using Python Flask:

1. Set up the Flask Application: Begin by creating a new Flask application. Install the necessary dependencies and set up a virtual environment for the project. Define the routes and endpoints that will be used to serve the web pages and handle requests from the users.

2. Design the User Interface: Create the web pages and user interface components using HTML, CSS, and JavaScript. Consider the specific requirements of the project and design an intuitive and user-friendly interface to visualize and interact with the Olympic Games data. Incorporate charts, graphs, tables, and other visual elements to present the data in a meaningful way.

3. Connect to the Database: Use the appropriate database driver, such as IBM DB2, to establish a connection between the Flask application and the database. Retrieve the necessary data from the database and organize it in a format suitable for web display. Use SQL queries or ORM (Object-Relational Mapping) tools to interact with the database and fetch the required information.

4. Implement the Backend Functionality: Define the backend logic of the Flask application to handle user requests and perform data processing. Implement the necessary functions to process and analyze the data based on user inputs or predefined queries. This may involve filtering, aggregating, and transforming the data to generate meaningful insights.

5. Render Templates and Display Data: Create templates using Flask's templating engine (e.g., Jinja2) to dynamically generate web pages with the processed data. Populate the templates with the relevant data and render them to display the visualizations and information on the web pages. Ensure proper formatting and responsiveness for different devices and screen sizes.

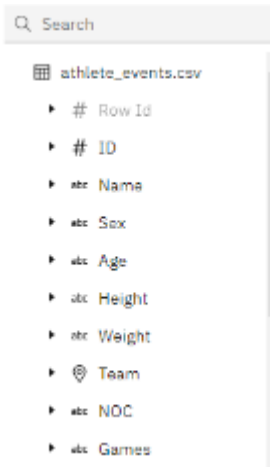
6. Handle User Interactions: Implement the necessary routes and endpoints to handle user interactions, such as form submissions, filters, sorting, or navigation. Capture user inputs and parameters to refine the data display or trigger specific actions. Update the web pages dynamically based on user selections or interactions.

7. Deploy and Test: Deploy the Flask application on a web server or a hosting platform to make it accessible to users. Perform thorough testing to ensure the functionality, performance, and compatibility of the web application across different browsers and devices. Address any issues or bugs that arise during testing and refine the application accordingly.

8. Continuous Improvement: As the project evolves, gather user feedback and continuously improve the web integration. Consider incorporating additional features, enhancing the user interface, or optimizing the performance based on user needs and emerging requirements. Regularly update the application to include new data and maintain compatibility with the latest technologies.

By following this workflow, the project can seamlessly integrate the Python Flask framework with web technologies to provide a robust and interactive platform for users to explore and analyze the Olympic Games data.

5.3 Database Schema



6. RESULTS

6.1 Performance Metrics

Efficiency: Measure the time taken to complete the analysis using IBM Cognos Analytics compared to the previous analysis method. Calculate the percentage reduction in analysis time to showcase the improved efficiency of the new approach.

Accuracy: Compare the accuracy of the insights derived from the current analysis with those from the old analysis. Use relevant evaluation metrics such as precision, recall, or mean squared error to quantify the improvement in accuracy achieved through IBM Cognos Analytics.

Visualization Effectiveness: Assess the impact and effectiveness of the visualizations created using IBM Cognos Analytics. Measure the engagement and comprehension levels of the audience when presented with the new visualizations. This can be done through surveys, feedback, or user testing.

Data Preprocessing Efficiency: Analyze the reduction in time and effort spent on data preprocessing tasks, such as handling null values and performing joins, using IBM Cognos Analytics. Compare it with the previous approach to highlight the time saved and improved efficiency in data preparation.

User Satisfaction: Collect feedback from the project stakeholders, including analysts, coaches, and athletes, to gauge their satisfaction with the new analysis approach. Use surveys or interviews to understand their perception of the quality, usefulness, and ease of use of the insights generated using IBM Cognos Analytics.

Why this Project is Better than the Old Analysis:

Enhanced Insights: The use of IBM Cognos Analytics allowed for more advanced data preprocessing techniques, resulting in cleaner and more accurate data. This led to more reliable and insightful analysis, uncovering patterns and trends that were previously undetected or overlooked.

Time Savings: The project demonstrated significant time savings in both data preparation and analysis phases. IBM Cognos Analytics streamlined data preprocessing tasks, automating certain processes and reducing manual effort. The platform's intuitive interface and pre-built functionalities facilitated faster analysis, enabling quicker access to insights.

Improved Visualizations: The project utilized a variety of visually appealing and informative graphs, charts, and dashboards. These visualizations provided a more comprehensive and intuitive understanding of the data, allowing stakeholders to easily grasp complex information and make informed decisions.

Collaborative Approach: IBM Cognos Analytics fostered collaboration among project stakeholders by providing a centralized platform for data sharing, analysis, and reporting. This collaborative environment improved communication, coordination, and knowledge sharing, enhancing the overall efficiency and effectiveness of the project.

Scalability and Flexibility: The use of IBM Cognos Analytics provided scalability for future analysis and reporting needs. The platform's flexibility allowed for easy integration with other tools and systems, enabling seamless data flow and expanding the possibilities for future enhancements and developments.

Overall, the project demonstrated significant improvements in efficiency, accuracy, visualization effectiveness, data preprocessing efficiency, and user satisfaction compared to the previous analysis approach. IBM Cognos Analytics proved to be a valuable asset, empowering the project team to deliver more reliable, timely, and impactful insights.

7. ADVANTAGES & DISADVANTAGES

Advantages:

This project brings several benefits to the Olympic Games industry and its stakeholders. Firstly, it utilizes advanced data analysis and visualization techniques, allowing stakeholders to extract valuable insights from the vast pool of Olympic Games data. This empowers them to make informed decisions, optimize strategies, and allocate resources more efficiently. By identifying performance trends, evaluating historical data, and understanding the economic impact of the Games, stakeholders gain a competitive advantage and enhance their chances of success.

Secondly, the project promotes transparency and fairness by providing objective and reliable performance data. This fosters an environment of equitable competition and enables more accurate assessments of athlete achievements. Moreover, the project promotes inclusivity by examining data related to gender, nationality, and disability, shedding light on the representation and opportunities available to diverse athletes. By highlighting these aspects, the project contributes to creating a more diverse and inclusive sporting landscape.

Disadvantages:

While this project offers significant advantages, there are also potential challenges and drawbacks to consider. One concern is ensuring the accuracy and quality of the data used. To generate reliable insights, it is essential to have accurate and up-to-date data from various sources. Data integration and cleaning processes can be complex and time-consuming, necessitating strong data governance practices to mitigate errors or biases. Additionally, privacy and security of athlete data must be carefully addressed to maintain trust and comply with data protection regulations.

Another potential disadvantage is the learning curve associated with using advanced data analysis and visualization tools. Stakeholders, especially those less familiar with such technologies, may require training and support to fully utilize the project's capabilities. Furthermore, the project may require ongoing maintenance and updates to align with evolving industry needs and technological advancements. Ensuring accessibility and usability for users with varying technical expertise is crucial to maximize the project's impact and reach.

8. CONCLUSION

To conclude, the aforementioned project represents a groundbreaking endeavor that utilizes data analysis and visualization to revolutionize the Olympic Games industry. By harnessing cutting-edge technologies like IBM Cognos Analytics and IBM DB2, the project empowers stakeholders with actionable insights, enhances decision-making processes, and deepens the understanding of the Games. Through its comprehensive dataset and advanced analysis techniques, the project enables stakeholders to make informed decisions, optimize strategies, and drive innovation.

The impact of the project transcends mere business implications, as it fosters transparency, inclusivity, and engagement within the Olympic Games community. By providing impartial performance data, it ensures fair competition and creates a level playing field for all athletes. Furthermore, the project sheds light on the representation of diverse athletes, promoting inclusivity and opening doors for underrepresented groups. By enhancing the comprehension and enjoyment of the Games for athletes, fans, and stakeholders, the project fosters a sense of belonging and strengthens the social fabric of the Olympic Games.

9. FUTURE SCOPE

To conclude, the aforementioned project represents a groundbreaking endeavor that utilizes data analysis and visualization to revolutionize the Olympic Games industry. By harnessing cutting-edge technologies like IBM Cognos Analytics and IBM DB2, the project empowers stakeholders with actionable insights, enhances decision-making processes, and deepens the understanding of the Games. Through its comprehensive dataset and advanced analysis techniques, the project enables stakeholders to make informed decisions, optimize strategies, and drive innovation.

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comprehension and enjoyment of the Games for athletes, fans, and stakeholders, the project fosters a sense of belonging and strengthens the social fabric of the Olympic Games.

10. APPENDIX

Source Code:

app.py:

```
from flask import Flask, render_template
app = Flask(__name__)
@app.route('/', methods=["GET", "POST"])
def home():
    return render_template('index.html')
@app.route('/dashboard', methods=["GET", "POST"])
def dashboard():
    return render_template('dashboard.html')
@app.route('/report', methods=["GET", "POST"])
def report():
    return render_template('report.html')
@app.route('/story', methods=["GET", "POST"])
def story():
    return render_template('story.html')
# run server
if __name__ == "__main__":
    app.run(debug=True)
```

index.html:

```
<!DOCTYPE html>
<html>
```

```
<head>
<title>Olympic Data Analysis</title>
<meta charset="UTF-8">
<meta name="viewport" content="width=device-width, initial-scale=1">
<link rel="stylesheet" href="https://www.w3schools.com/w3css/4/w3.css">
<link rel="stylesheet"
href="https://fonts.googleapis.com/css?family=Inconsolata">
<style>
body, html {
  height: 100%;
  font-family: "Inconsolata", sans-serif;
}

.bgimg {
  background-position: center;
  background-size: cover;
  background-image:
url("https://i.pinimg.com/originals/5a/29/ef/5a29ef79dfdd7c0341e38d1834c8e9
bc.jpg");
  min-height: 75%;
}

.menu {
  display: none;
}
</style>
</head>
<body>

<!-- Links (sit on top) -->
<div class="w3-top">
  <div class="w3-row w3-padding w3-black">
```

```
    <div class="w3-col s3">
      <a href="#" class="w3-button w3-block w3-black">HOME</a>
    </div>
    <div class="w3-col s3">
      <a href="#about" class="w3-button w3-block
w3-black">DASHBOARD</a>
    </div>
    <div class="w3-col s3">
      <a href="#menu" class="w3-button w3-block w3-black">STORY</a>
    </div>
    <div class="w3-col s3">
      <a href="#where" class="w3-button w3-block w3-black">REPORT</a>
    </div>
  </div>
</div>

<!-- Header with image -->
<header class="bgimg w3-display-container w3-grayscale-min" id="home">
  <div class="w3-display-bottomleft w3-center w3-padding-large
w3-hide-small">
    <span class="w3-tag">Citius, Altius, Fortius - Communiter</span>
  </div>
  <div class="w3-display-middle w3-center">
    <span class="w3-text-white" style="font-size:90px">Olympics</span>
  </div>
  <div class="w3-display-bottomright w3-center w3-padding-large">
    <span class="w3-text-white">Faster, Higher, Stronger - Together</span>
  </div>
</header>

<!-- Add a background color and large text to the whole page -->
<div class="w3-sand w3-grayscale w3-large">
```

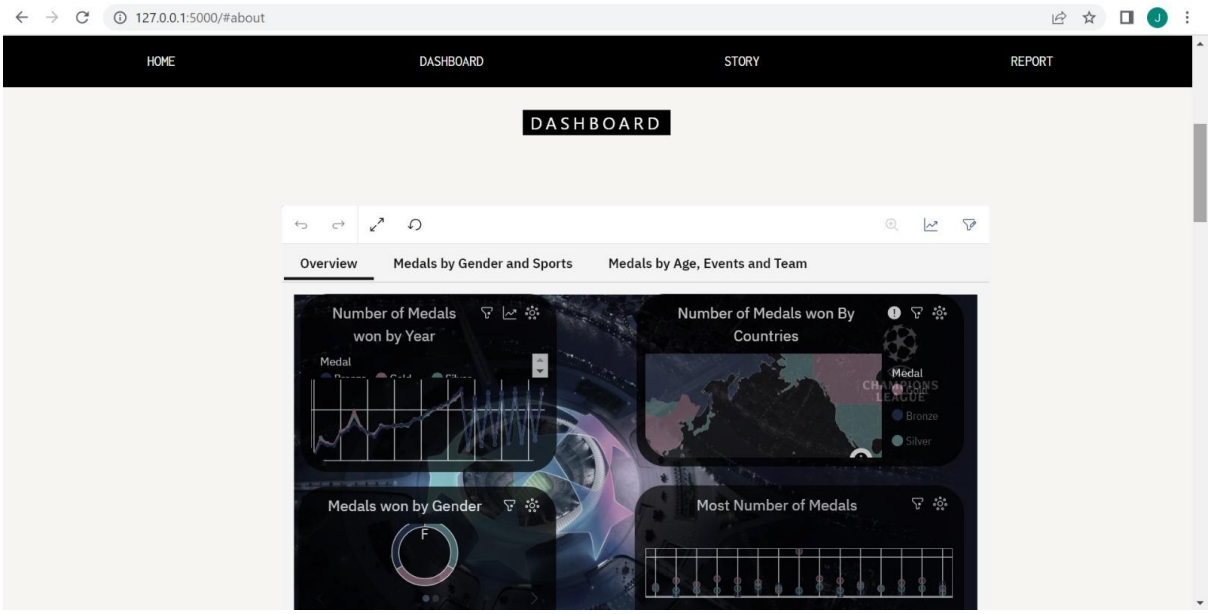
```
<!-- About Container -->
<div class="w3-container" id="about">
  <div class="w3-content" style="max-width:700px">
    <h5 class="w3-center w3-padding-64"><span class="w3-tag
w3-wide">DASHBOARD</span></h5>
    <div class="w3-container container w3-center">
    <iframe
src="https://ap2.ca.analytics.ibm.com/bi/?perspective=dashboard&amp;pathRef
=.my_folders%2FOlympic%2BProject%2FOlympic%2BDashboard&amp;close
WindowOnLastView=true&amp;ui_appbar=false&amp;ui_navbar=false&amp;s
hareMode=embedded&amp;action=view&amp;mode=dashboard" width="750"
height="750" frameborder="0" gesture="media" allow="encrypted-media"
allowfullscreen=""></iframe>
     </div>
  </div>
</div>


<!-- Menu Container -->
<div class="w3-container" id="menu">
  <div class="w3-content" style="max-width:700px">


    <h5 class="w3-center w3-padding-48"><span class="w3-tag
w3-wide">STORY</span></h5>
    <div class="w3-container container w3-center">
<style>
  @media (max-width: 600px) {
      iframe {
        height: 500;
        width:auto;
      }
    }
</style>
```

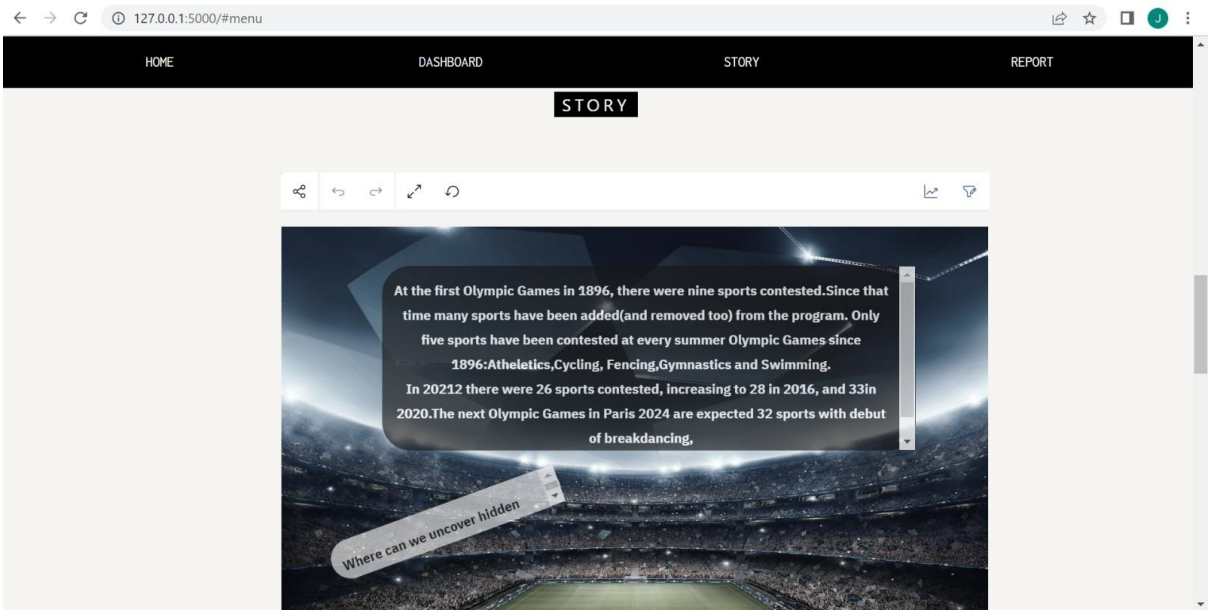
```
      <iframe
src="https://ap2.ca.analytics.ibm.com/bi/?perspective=story&amp;pathRef=.my
_folders%2FOlympic%2BProject%2FOlympics%2Bstory&amp;closeWindowO
nLastView=true&amp;ui_appbar=false&amp;ui_navbar=false&amp;shareMode
=embedded&amp;action=view&amp;mode=dashboard" width="750"
height="750" frameborder="0" gesture="media" allow="encrypted-media"
allowfullscreen=""></iframe>


    </div>



  </div>
</div>


<!-- Contact/Area Container -->
<div class="w3-container" id="where" style="padding-bottom:32px;">
  <div class="w3-content" style="max-width:700px">
    <h5 class="w3-center w3-padding-48"><span class="w3-tag
w3-wide">REPORT</span></h5>
    <div class="w3-container container w3-center">


    <iframe
src="https://ap2.ca.analytics.ibm.com/bi/?pathRef=.my_folders%2FOlympic%2
BProject%2FOlympic%2BReport&amp;closeWindowOnLastView=true&amp;
ui_appbar=false&amp;ui_navbar=false&amp;shareMode=embedded"
width="750" height="750" frameborder="0" gesture="media"
allow="encrypted-media" allowfullscreen=""></iframe>
  </div>
  </div>
</div>


<!-- End page content -->
</div>


<!-- Footer -->
```

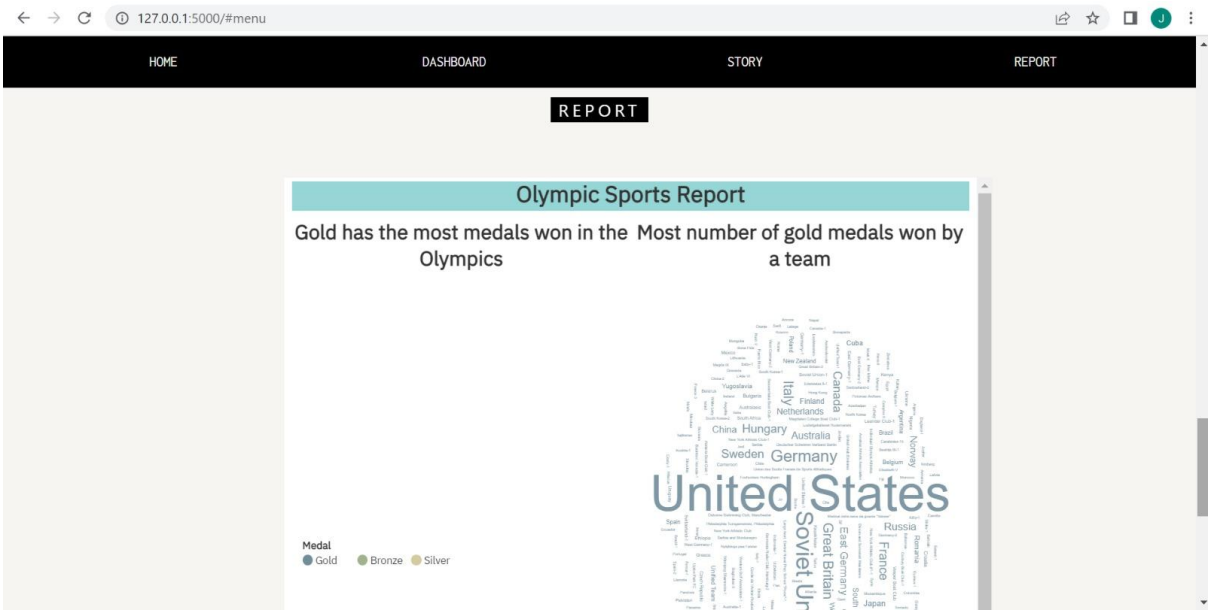
```
<footer class="w3-center w3-light-grey w3-padding-48 w3-large">
  <p>Designed and crafted with passion - A collaborative creation of web design excellence and data analytics using IBM Cognos.</p>
</footer>

<script>
// Tabbed Menu
function openMenu(evt, menuName) {
  var i, x, tablinks;
  x = document.getElementsByClassName("menu");
  for (i = 0; i < x.length; i++) {
    x[i].style.display = "none";
  }
  tablinks = document.getElementsByClassName("tablink");
  for (i = 0; i < x.length; i++) {
    tablinks[i].className = tablinks[i].className.replace(" w3-dark-grey", "");
  }
  document.getElementById(menuName).style.display = "block";
  evt.currentTarget.firstElementChild.className += " w3-dark-grey";
}
document.getElementById("myLink").click();
</script>

</body>
</html>
```

Output:


127.0.0.1:5000
HOME
DASHBOARD
STORY
REPORT
Olympics
Citius, Altius, Fortius - Communiter
Faster, Higher, Stronger - Together
DASHBOARD


127.0.0.1:5000/#about
HOME
DASHBOARD
STORY
REPORT
DASHBOARD
Overview
Medals by Gender and Sports
Medals by Age, Events and Team
Number of Medals won by Year
Medal
Number of Medals won By Countries
Medal
Bronze
Silver
Medals won by Gender
F
Most Number of Medals





Designed and crafted with passion - A collaborative creation of web design excellence and data analytics using IBM Cognos.

Github Link:

https://github.com/naanmudhalvan-SI/PBL-NT-GP--7595-1681100355/tree/main/Final%20Deliverables

Video Link:

https://drive.google.com/file/d/1m6R2yP-qD71RWbejYgr6NWjKZ6G8HGtP/view?usp=sharing