



**DATA-DRIVEN INSIGHTS ON
OLYMPIC SPORTS
PARTICIPATION
AND PERFORMANCE**



Beyond Knowledge

NAAN MUDHALVAN

NM2023TMID01815

Submitted By

SIVA KARTHIKEYAN S (611220104314)

SWARNALAKSHMI V (611220104160)

TANISHKA K (611220104162)

VIKRAANTH SB (611220104169)

in partial fulfillment for the award of the degree

of

BACHELOR OF ENGINEERING

IN

COMPUTER SCIENCE AND ENGINEERING

**KNOWLEDGE INSTITUTE OF
TECHNOLOGY,**

SALEM-637504

ANNA UNIVERSITY::CHENNAI 600 025

NOVEMBER 2023

BONAFIDE CERTIFICATE

Certified that this project report titled **“DATA DRIVEN INSIGHTS ON OLYMPIC SPORTS PARTICIPATION AND PERFORMANCE”** is the bonafide work of **“SIVA KARTHIKEYAN S (611220104314), SWARNALAKSHMI V (611220104160), TANISHKA K (611220104162), VIKRAANTH SB (611220104169)”** who carried out the project work under my supervision.

SIGNATURE

Dr. V. KUMAR M.E., Ph.D.,

HEAD OF THE DEPARTMENT

PROFESSOR

Department of Computer Science
and Engineering,

Knowledge Institute of
Technology,
Kakapalayam,
Salem- 637 504.

SIGNATURE

Mr. M.GOPIKUMARAN
B.Tech.,M.E

FACULTY MENTOR

ASSISTANT PROFESSOR

Department of Computer Science
and Business System,

Knowledge Institute of
Technology,
Kakapalayam,
Salem- 637 504.

.....
HOD

.....
SPOC

ACKNOWLEDGEMENT

At the outset, we express our heartfelt gratitude to **GOD**, who has been our strength to bring this project to light.

At this pleasing moment of having successfully completed our project, we wish to convey our sincere thanks and gratitude to our beloved president **Mr. C. Balakrishnan**, who has provided all the facilities to us.

We would like to convey our sincere thanks to our beloved Principal **Dr. PSS. Srinivasan**, for forwarding us to do our project and offering adequate duration in completing our project.

We express our sincere thanks to our Head of the Department **Dr. V. Kumar**, Department of Computer Science and Engineering for fostering the excellent academic climate in the Department.

We express our pronounced sense of thanks with deepest respect and gratitude to our Faculty Mentor **Mr. M. GOPIKUMARAN**, Department of Computer Science and Business System for their valuable and precious guidance and for having amicable relation.

With deep sense of gratitude, we extend our earnest and sincere thanks to our SPOC **Mr. T. Karthikeyan**, Assistant Professor, Department of Computer Science and Engineering for his guidance and encouragement during this project.

We would also like express our thanks to all the faculty members of our Department, friends and students who helped us directly and indirectly in all aspects of the project work to get completed successfully.

TABLE OF CONTENTS

CHAPTER NO.	TITLE	PAGE NO.
	ABSTRACT	I
	LIST OF FIGURES	II
	LIST OF ABBREVIATIONS	III
1	INTRODUCTION	1
1.1	PROJECT OVERVIEW	2
1.2	PURPOSE	3
2	LITERATURE SURVEY	4
3	IDEATION & PROPOSED SOLUTION	10
3.1	PROBLEM STATEMENTS DEFINITION	10
3.2	EMPATHY MAP CANVAS	12
3.3	IDEATION & BRAINSTORMING	14
3.4	PROPOSED SOLUTION	17
4	REQUIREMENT ANALYSIS	19
4.1	FUNCTIONAL REQUIREMENT	19

4.2	NON -FUNCTIONAL REQUIREMENT	20
5	PROJECT DESIGN	21
5.1	SOLUTION & TECHNOLOGY ARCHITECTURE	21
5.2	DATA FLOW DIAGRAMS	22
5.3	USER STORIES	23
6	CODING & SOLUTIONING	25
6.1	FEATURE 1	25
6.2	FEATURE 2	26
7	RESULTS	29
7.1	PERFORMANCE METRICS	29
8	ADVANTAGES & DISADVANTAGES	31
9	CONCLUSION	34
10	FUTURE SCOPE	36
A	APPENDIX	A1
A.1	SOURCE CODE	A1
A.2	SCREENSHOT	A15
A.3	GITHUB & DEMO VIDEO LINK	A18

ABSTRACT

The largest and most prestigious international sporting event in the world is the Olympic Games, which include a variety of sports and events. The patterns of participation and performance in various sports can provide crucial information on the elements that influence the success of elite athletes. Using a data-driven technique, this paper analyses historical participation and performance patterns in Olympic sports. The analysis uses a range of data sources, such as historical records of Olympic participation and performance, demographic, and socioeconomic statistics. It illustrates, for instance, a trend towards more gender diversity in the sports represented as well as a continuous rise in the number of countries competing in the Olympics throughout time. The results show that while some countries have had significant performance variability throughout time, others have consistently performed well in a range of sports. The importance of socioeconomic factors like GDP and population size, together with athlete age and experience, in predicting Olympic performance is also emphasised. Overall, this analysis provides insightful data-driven information about the patterns and trends in Olympic sports performance that can inform strategies for improving athlete development and promoting participation of the sports around the world.

LIST OF FIGURES

FIGURE NO.	NAME OF FIGURE	PAGE NO.
5.1.1	SOLUTION ARCHITECTURE	25
5.1.2	TECHNICAL ARCHITECHTURE	26
5.2	DATA FLOW DIAGRAM	27

LIST OF ABBREVIATIONS

ABBREVIATION	EXPANSION
DFD	DATA FLOW DIAGRAM
FR	FUNCTIONAL REQUIREMENT
NFR	NON-FUNCTIONAL REQUIREMENT
PS	PROBLEM STATMENT

CHAPTER - 1

INTRODUCTION

International sporting events, which include summer and winter sports competitions with thousands of athletes from around the world competing in a variety of disciplines, are led by modern Olympic Games or Olympics. The Olympic Games are held every four years, with the Summer and Winter Games alternating by occurring every four years but two years apart. Several changes in the Olympic Games have been made over the course of the 20th century and 21st centuries due to the evolution of the Olympic Movement. Some of these adjustments include the creation of the Winter Olympic Games for snow and ice sports, the Paralympic Games for athletes with a disability, the Youth Olympic Games for athletes aged 14 to 18, the five Continental games (Pan American, African, Asian, European, and Pacific), and the World Games for sports that are not contested in the Olympic games. The International Olympic Committee also endorses the Deaf Olympics and Special Olympics. A range of economies, politics and technological developments has had an impact on the Indian Oil Company. As a result, Olympic Games have shifted away from pure amateurism as proposed by Coubertin in order to allow participation of professional athletes. The question of corporate sponsorship and the commercialisation of the Games has been raised in view of the growing importance of mass media. The 1916, 1940 World War had forced the cancellation of this event. and 1944 Games. Participation was limited in the 1980 and 1984 Olympics because of major boycotts brought about by the Cold War. The latter, however, attracted 140 National Olympic Committees, which was a record at the time.

1.1 PROJECT OVERVIEW

International sporting events, which include summer and winter sports competitions with thousands of athletes from around the world competing in a variety of disciplines, are led by modern Olympic Games or Olympics. More than 200 countries are taking part in the Olympics, considered by many to be the world's greatest sporting event. The Olympic Games are held every four years, with the Summer and Winter Games alternating by occurring every four years but two years apart. Several changes in the Olympic Games have been made over the course of the 20th century and 21st centuries due to the evolution of the Olympic Movement. Some of these adjustments include the creation of the Winter Olympic Games for snow and ice sports, the Paralympic Games for athletes with a disability, the Youth Olympic Games for athletes aged 14 to 18, the five Continental games (Pan American, African, Asian, European, and Pacific), and the World Games for sports that are not contested in the Olympic games. The International Olympic Committee also endorses the Deaf Olympics and Special Olympics. A range of economies, politics and technological developments has had an impact on the Indian Oil Company. As a result, Olympic Games have shifted away from pure amateurism as proposed by Coubertin in order to allow participation of professional athletes. The question of corporate sponsorship and the commercialisation of the Games has been raised in view of the growing importance of mass media. The 1916, 1940 World War had forced the cancellation of this event. and 1944 Games. Participation was limited in the 1980 and 1984 Olympics because of major boycotts brought about by the Cold War. The latter, however, attracted 140 National Olympic Committees, which was a record at the time.

1.2 PURPOSE

The purpose highlights the use of a data-driven technique to analyze historical participation and performance patterns in Olympic sports. It also mentions the sources of data that will be used, such as historical records, demographic, and socioeconomic statistics. Additionally, it outlines some of the key findings and insights that the analysis will reveal, including trends in gender diversity, increasing participation from different countries, performance variability among countries, and the influence of socioeconomic factors, athlete age, and experience on Olympic performance. The ultimate goal of the analysis is to provide valuable information that can be used to improve athlete development and promote participation in Olympic sports worldwide.

CHAPTER – 2

LITERATURE SURVEY

2.1 Olympic Data Analysis using Data Science

Dhiraj Patil, Nishant Kulkarni, Parth Prabhu, Pranav Bhosale, Pranav Nair,
Pratik Patil, Pratyush Doshi, Rugved Pande (2022)

The Olympic games are international sports events with more than 200 nations participating in various competitions. The Sportspersons from various countries participate in competitions and make their countries proud of their excellence in sports. The primary objective of this paper is to analyze the Olympic dataset using Python to compare the overall performance of countries and to evaluate the contribution of each country to the Olympics. These analyses will give deeper insight into the performance of countries in the Olympics over the years and help sportspersons to quickly analyze their own and the competitor's performance. In this paper, exploratory data analysis techniques are used to provide a comparison between the performance of various countries and the contribution of each country in the Olympics. Visualization of the Olympics dataset in many aspects provides the status of countries in the Olympics and helps countries with poor performance to produce quality players and improve the nation's performance in the Olympics. An analysis needs to be done by each country to evaluate the previous statistics which will detect the mistakes, Visualization of the data over various factors will provide us with a statistical view of the various factors which lead to the evolution of the Olympic Games and Improvement in the performance of various Countries/Players over time.

2.2 Sustainable Development of Olympic Sports Participation Legacy

Alan Bairne and Pengfei Shi (2022)

After the 2022 Beijing Winter Olympics, Chinese officials claimed that the goal of “driving 300 million people to participate in ice and snow sports” had been achieved. Historically, the London 2012 Olympic Games had a similar goal: to increase sports participation for all by hosting the Olympic Games. Given these goals, the impact of the Olympic Games on sports participation has become significant. These impacts can be referred to as the Olympic sport participation legacy, an intangible Olympic legacy. The Olympic sport participation legacy has attracted a lot of researchers’ interest in the academic field in recent years. This paper aims to conduct a scoping review of Olympic sport participation legacy studies between 2000 and 2021 to identify the progress of studies on the sustainability of Olympic sport participation legacies. Unlike previous scoping reviews on sport participation legacies, this review adopts a Patterns, Advances, Gaps, Evidence of Practice, and Research Recommendations (PAGER) framework at the results analysis stage to improve the quality of the findings. The results from the scoping review contained 54 peer-reviewed articles on three levels of research: the population level, social level, and intervention processes.

2.3 Analyzing the Evolution of the Olympics by Exploratory Data analysis using R

Anubhav Nag, Kartik Agrawal and Rahul Pradhan (2022)

Olympic Games are one of the main international events and also a matter of prestige for countries and therefore each country tries to give their best performance during the event. Despite a lot of hard work, many countries/players are unable to perform well during the events and grab medals whereas many countries perform very well in the event and secure many medals. An Analysis need to be done by each country to evaluate the previous statistics which will detect the mistakes which they have done previously and will also help them in future development. An analysis can also be done by the host country to find out the mistakes in the arrangements of the Event which will help them in overcoming these mistakes and host the event accurately. The primary objective of this Research paper is to analyze the large Olympic dataset using Exploratory Data Analysis to evaluate the evolution of the Olympic Games over the years. This analysis will provide detailed and accurate information regarding various factors which lead to the evolution of the Olympic games and the improvement of Countries/Players over time in a visual format.

2.4 Big Data and Analytics in Sport Management

Joris Drayer Nicholas M. Watanabe, Stephen Shapiro (2021)

Big data and analytics have become essential components of organizational operations. The ability to collect and interpret significantly large data sets has provided a wealth of knowledge to guide decision-makers in all facets of society. This is no different in sport management where big data has been used on and off the field to guide decision-making across the industry. As big data evolves, there are concerns regarding the use of enhanced analytic techniques and their advancement of knowledge and theory. This special issue addresses these concerns by advancing our understanding of the use of big data in sport management research and how it can be used to further scholarship in the sports industry. The six articles in this special issue each play a role in advancing sports analytics theory, producing new knowledge, and developing new inquiries. The implications discussed in these articles provide a foundation for future research on this evolving area within the field of sport management.

2.5 Predictive Analytics of Performance of India in the Olympics Using Machine Learning Algorithms

K Deepthi Reddy, J Padma Priya, Rayala Lohitha, Sreethi Musunuru, Varagiri Shailaja (2020)

India is a country which all the time maintained an exciting pitch and intense exhilaration for sports. Different reasons have been insinuated for India's lack of tendency to stand atop the podium in the Olympics. A natural endowment can take the athletes only to some extent, but support and encouragement in either financial, emotional, or physical form are essential aspects that are necessary to an athlete and without them, the source can often be hopeless. The potential of education is substantial, and sports are considered a source of relaxation and amusement for millions of youth who are aspiring to be at the top of their class in a country where there are millions of unemployed. The combination of this with terrible food habits, inefficient coaching, bad rehab facilities, increase in competition in schools, shortfall of exercise with physical education, and long commutes from work results in many talents getting wasted. Despite all this, we see that India's cricket team is considered one of the world's best cricket teams of all time. But at the same time, we are not able to bring the same commitment and rectitude to the other sports, the Olympics in particular. When all the nations are ranked in the order of the number of medals they have won over the years, India ranks at the fifty-fifth position. To understand the medal deficiency, various attributes are considered.

2.6 Data Analytics on Olympics Datasets

Suraj Kum, Surya Sena Reddy (2022)

Today, the Olympics is one of the most famous sporting events across the world, with almost all major countries taking part in it. Over time, the Olympics has marketed itself to the countries and general public in such a way that winning a medal in this competition has become a prestigious issue. Moreover, these games contribute to world peace and coordination among the world countries. The primary purpose of this paper is to publish the results of performing careful data analytical operations on the data collected from the Olympics from 1896 to 2016. This analysis aids in developing resourceful knowledge from the data, about the athlete's and countries' performance. For this purpose, two datasets are considered, namely Athlete Events and Athlete BMI. This paper finds its base in the Descriptive and Predictive forms of Analytics. Descriptive Analytics helps in knowing what has happened in a clear way such that one can look for reasons to substantiate the findings. Whereas, Predictive analytics casts light on what would happen or what should happen scenarios.

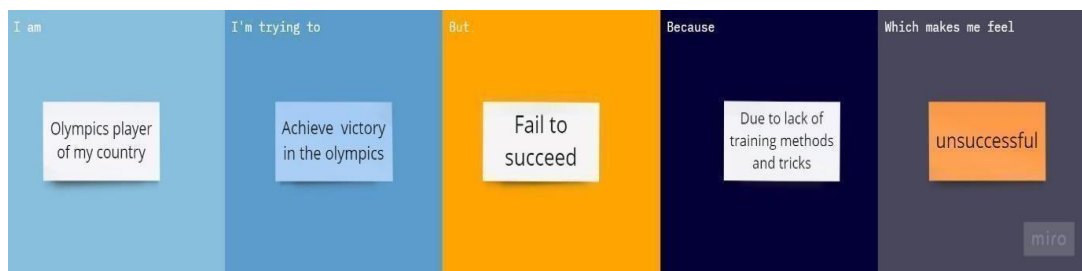
CHAPTER - 3

IDEATION & PROPOSED SOLUTION

3.1 PROBLEM STATEMENT DEFINITION

Problem Statement (PS)	I am (Customer)	I'm trying to	But	Because	Which makes me feel
PS-1	Sports player	Improve my performance	Some Important data about my sport are missing	Of there is no good data analytics in my field of sports	Helpless.
PS-2	Coach	Improve my students performance	Previous year data are missing	Of maintenance of record	Not a good coach because I can not help my students.

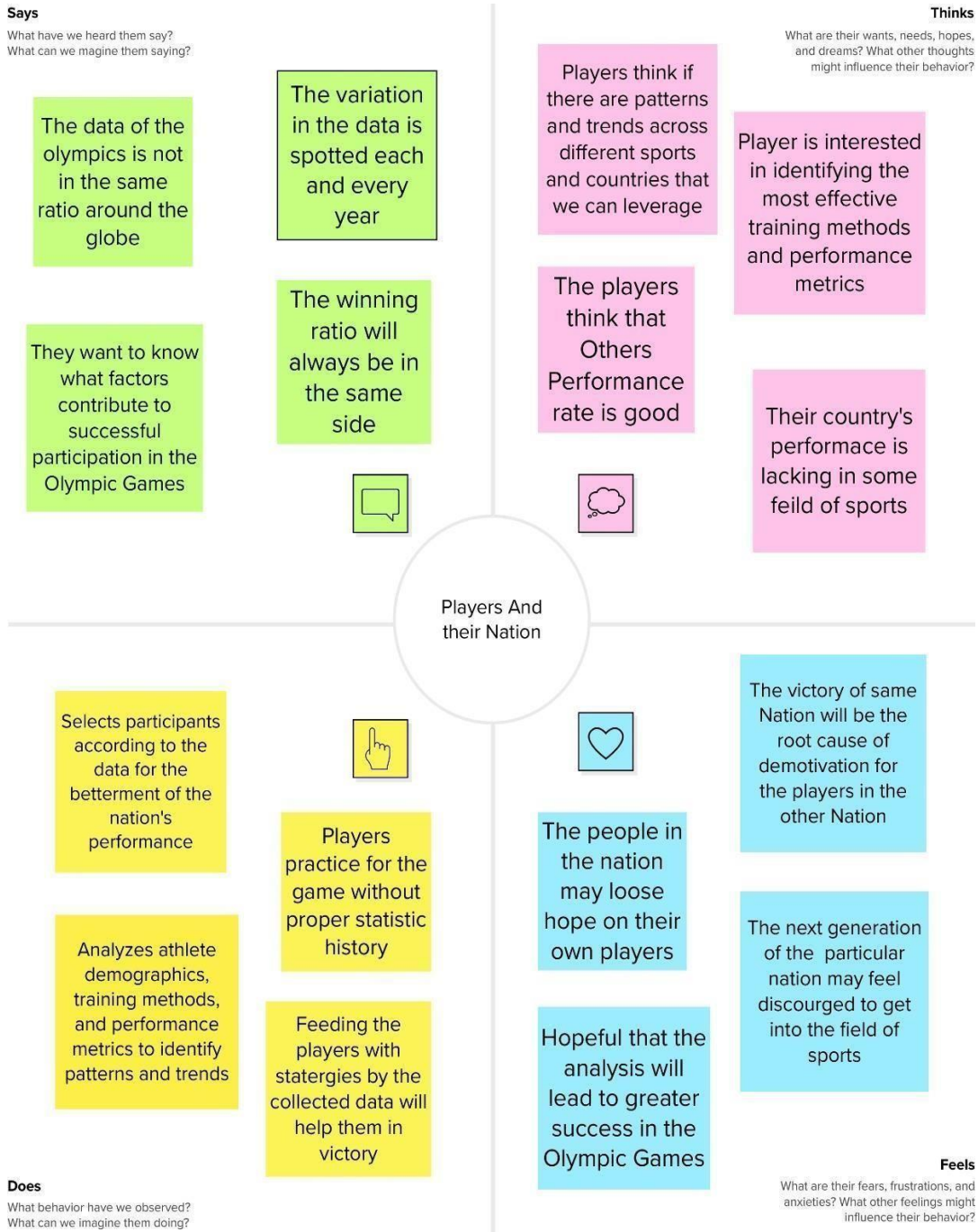
The problem statement for data-driven insights of Olympic sports participation and performance is to analyze and understand the factors that contribute to successful participation in the Olympic Games. This includes identifying patterns and trends in athlete demographics, training methods, and performance metrics across different sports and countries. By leveraging data from past Olympic Games and other relevant sources, the goal is to uncover insights that can inform strategies for improving athlete development, training programs, and overall performance at the Olympic level. Ultimately, this analysis aims to help athletes, coaches, and sports organizations make data-driven decisions that lead to greater success in the Olympic Games.



3.2 EMPHATHY MAP

An empathy map is a collaborative tool teams can use to gain a deeper insight into their customers. Much like a user persona, an empathy map can represent a group of users, such as a customer segment. The empathy map was originally created by Dave Gray and has gained much popularity within the agile community. Have the team members speak about the sticky notes as they place them on the empathy map. Ask questions to reach deeper insights so that they can be elaborated for the rest of the team. To help bring the user to life, you may even wish to sketch out the characteristics this person may have on the center of the face.

Data-Driven Insights on Olympic Sports Participation and Performance



Data-Driven Insights on Olympic Sports Participation and Performance

3.3 IDEATION & BRAINSTORMING

2

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

10 minutes

TIP
 You can select a sticky note and hit the pencil (switch to sketch) icon to start drawing!

Person 1

Data Analysis can help countries to improve their performance

Many players emerge with good statistics in a particular sport

Analyzation helps players to relieve from stress

Players can know the area of improvement

Team sports can improve their lacking teamwork

Can increase their time of practice in particular sport which is tough for them

Data Analytics can educate people to practice and participate in sports

The funding for least known sports can improve performance in that sports

For injured player a nation can provide insurance, this can lead to more participation

Person 2

Analyzing the demographics like age,gender,height ectto identify the patterns and trends

Practicing the training methods of successful countines

To examine performance data from past olympics

Conducting the country level analysis to fetch data

Using the data to inform the stratgies to the players

Identifying and implementing the new technologies which can be used for olympics

Preparing the players both physically and mentally

collabortating with other sports for the better tips and tricks

Creating the awarness on the countries which has less participation in sports

Person 3

Analyze athlete demographic data, including age, gender, and nationality, to identify trends in Olympic sports participation over time.

Analyze training methods and techniques used by successful athletes and coaches to identify best practices.

Analyze data on athlete nutrition and hydration to identify patterns.

Compare athlete performance data across different countries and sports to identify areas of strength and weakness.

Compare athlete performance data across different countries and sports to identify areas of strength and weakness.

Analyze data on sports equipment and technology to identify trends.

Identify opportunities for sports organizations to build their brand.

Identify areas of strength and weakness and inform strategies for improving overall performance at the Olympic level.

Use social media and other digital data to analyze athlete.

Person 4

Analysis of athlete demographics: Examine how ethnic, demographic, such as age, gender, and nationality, are associated with performance in different Olympic sports.

Evaluation of training methods and techniques: Use machine learning algorithms to analyze the effectiveness of different training methods and techniques across different sports.

Analyze trends in athlete performance over time, including changes in performance metrics, training methods, and competition results.

This could provide insights into how the sport has evolved and identify areas for further improvement.

Compare athlete performance across different countries and regions to identify potential areas for improvement in athlete development programs and training strategies.

Analysis of the impact of Olympic rule changes.

This could provide insights into how rule changes can impact athlete development and performance strategies.

This could help coaches and athletes identify the most effective strategies for improving performance.

A group idea is a concept or plan formulated by a collective of individuals with a shared vision and objectives. It represents the thoughts and goals that the group seeks to pursue together.

Data-Driven Insights on Olympic Sports Participation and Performance

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 can break it up into smaller sub-groups.

🕒 20 minutes

TIP

Add custom color tags to sticky notes to make it easier to find, review, organize and categorize important ideas as themes within your mind.

By analyzing the athlete's demographic data we may be able to conclude with the trends and the pattern of them

The collection of data of the past history will help us in prediction and training

Training the players with knowledge of new technologies will help in the betterment of the winning statistics

Creating awareness through social media to the countries which have less participation

Accurate analysis of data will make the players stress-free and promote them with the level of confidence

Analysis of impact of Olympic rule changes

Data-Driven Insights on Olympic Sports Participation and Performance

4

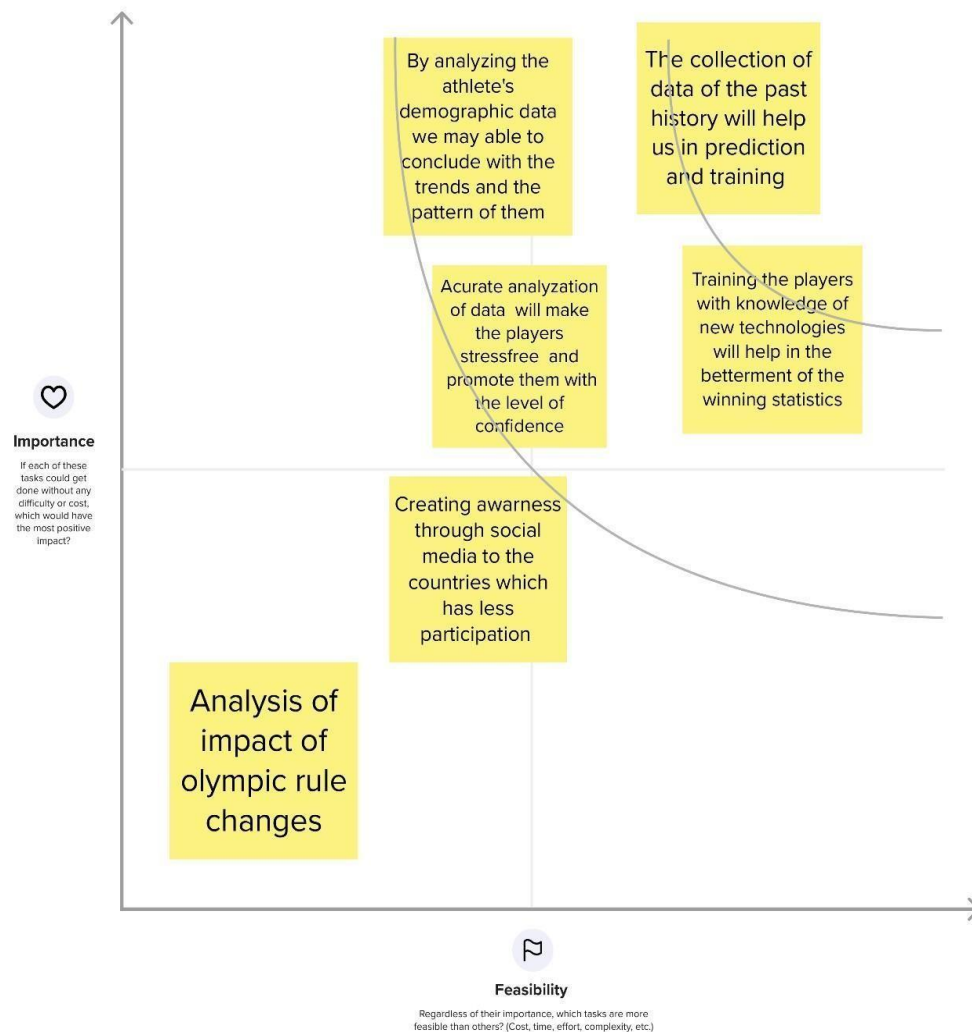
Prioritize

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

🕒 20 minutes

TIP

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



3.4 PROPOSED SOLUTION

S.No.	Parameter	Description
1.	Problem Statement (Problem to be solved)	The lack of data analytics in the Olympic games will result in a suboptimal understanding of athlete performance and training strategies, leading to missed opportunities for enhancing overall medal counts and improving athlete welfare.
2.	Idea / Solution description	To analyze and understand the factors contributing to successful Olympic Games participation. This includes identifying patterns and trends in athlete demographics, training methods, and performance metrics across different sports and countries. By leveraging data from past Olympic Games and other relevant sources, the goal is to uncover insights that can inform strategies for improving athlete development, training programs, and overall performance at the Olympic level. Ultimately, this analysis aims to help athletes, coaches, and sports organizations make data-driven decisions leading to greater Olympic Games success.
3.	Novelty / Uniqueness	The uniqueness of the project depends on the research question, Data Science, Analytical techniques, and Collaborative efforts.
4.	Social Impact / Customer Satisfaction	It can help the players and the countries that participate in the Olympics to

Data-Driven Insights on Olympic Sports
Participation and Performance

		perform better which will lead to a good social status for the respective.
5.	Business Model (Revenue Model)	By creating an analysis of Olympic data every country can perform well with the stats which can help them get more viewership for the same. By this, they earn a certain amount which will be useful.
6.	Scalability of the Solution	The high amount of data collected from various sources like social media will increase the scalability of the solution. The analytical techniques will also promote the raise in the scalability as project utilizes automated analytics.

CHAPTER - 4

SOLUTION REQUIREMENTS

4.1 FUNCTIONAL REQUIREMENTS

Following are the functional requirements of the proposed solution.

FR No.	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task)
FR-1	User Registration	Registration through Form Registration through Gmail Registration through LinkedIn
FR-2	User Confirmation	Confirmation via Email Confirmation via OTP
FR-3	Login	The user should login to the system by using valid user credentials
FR-4	Dataset	Upload dataset into the analytics tool.
FR-5	Analysis	It involves gathering all the information, processing it, exploring the data, and using it to find patterns and other insights.
FR-6	Create Dashboard	Create Charts, Graphs, Tables, etc.
FR-7	Reporting	The reporting function helps users have complete control over their business. The real-time reporting collects current information and displays the data on an intuitive user interface

4.2NON-FUNCTIONAL REQUIREMENTS

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

FR No.	Non-Functional Requirement	Description
NFR-1	Usability	Optimized resources and it can be used by everyone
NFR-2	Security	Anyone with correct Log in credentials can view the Dashboards/Templates
NFR-3	Reliability	Templates are reliable because we are uploading and accessing it through Cloud
NFR-4	Performance	It has high state of performance and efficiency
NFR-5	Availability	It is free of cost and available to everyone who wants to know about sales data
NFR-6	Scalability	Dashboards/Templates are very much Scalable, the user can modify the metrics whenever they want.

CHAPTER 5

PROJECT DESIGN

5.1 SOLUTION & TECHNOLOGY ARCHITECTURE

Solution architecture refers to the process of designing and describing the structure and behavior of a software solution that addresses specific business requirements. It involves defining the components, relationships, and interactions between various software elements to create a cohesive and functional system.

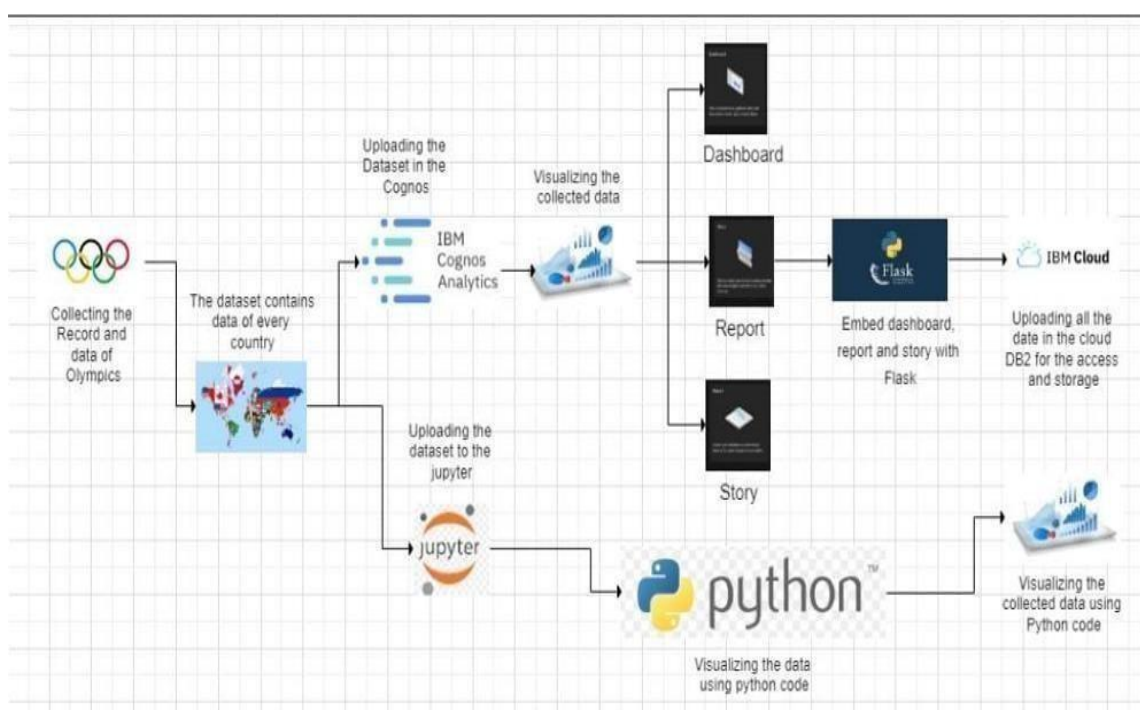


FIG 5.1.1 SOLUTION ARCHITECTURE

Technical architecture refers to the structure and organization of the hardware, software, networks, and other technical components that make up an information system or software application. It defines how these components interact and work together to support the desired functionality and performance of the system.

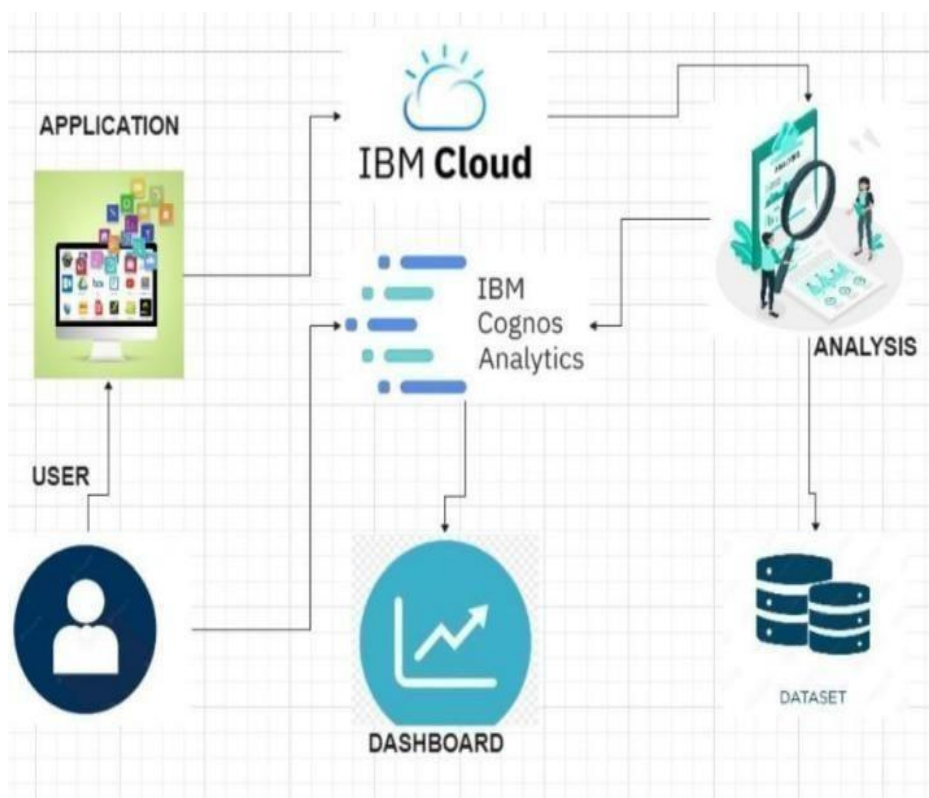


FIG 5.1.2 TECHNICAL ARCHITECTURE

5.2 DATA FLOW DIAGRAM

A data flow diagram (DFD) is a graphical representation that illustrates the flow of data within a system or process. It is commonly used in software engineering and systems analysis to visualize the movement and transformation of data as it moves through different stages or components of a system.

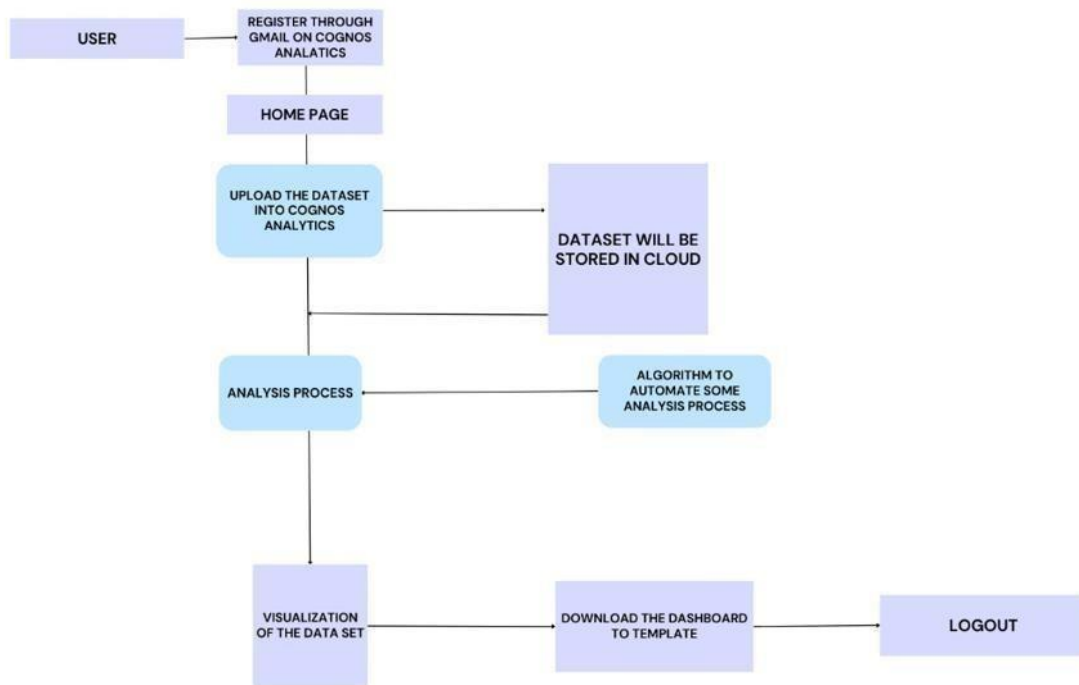


FIG 5.2 DATA FLOW DIAGRAM

5.3 USER STORIES

User Type	Functional Requirement (Epic)	User Story Number	User Story / Task	Acceptance criteria	Priority	Team Member
Customer (Web user)	Registration	USN-1	As a user, I can register for the application by entering my email, and password, and confirming my password.	I can access my account/dashboard	High	Tanishka. K
		USN-2	As a user, I will receive a confirmation email once I have registered for the application	I can receive a confirmation email & click confirm	High	Siva Karthikeyan.S

Data-Driven Insights on Olympic Sports
Participation and Performance

User Type	Functional Requirement (Epic)	User Story Number	User Story / Task	Acceptance criteria	Priority	Team Member
		USN-3	As a user, I can register for the application through Facebook	I can register & access the dashboard with Facebook Login	Low	Swarnala kshmi.V
		USN-4	As a user, I can register for the application through Gmail		Medium	Vikraanth SB
	Login	USN-5	As a user, I can log into the application by entering my email & password		High	Swarnala kshmi.V
	Dashboard	USN-6	User can able to see and upload dataset option in the browser	The user can upload the dataset into the Cognos analytics	High	Tanishka. K
	Dashboard	USN-7	If the user already used the Cognos analytics, we can able to see the previously uploaded dataset		Low	Swarnala kshmi.V
Admin	Login	USN-8	As an admin, I can login to the application by entering username & password		High	Siva Karthikeyan.S
	Dashboard	USN-9	As an admin, I can view the dashboard and other activities of the application	I can access the dashboard	High	Vikraanth SB

CHAPTER - 6

CODING AND SOLUTION

6.1FEATURE 1

```
from flask import Flask, redirect, url_for, render_template
```

```
app =Flask(__name__)
```

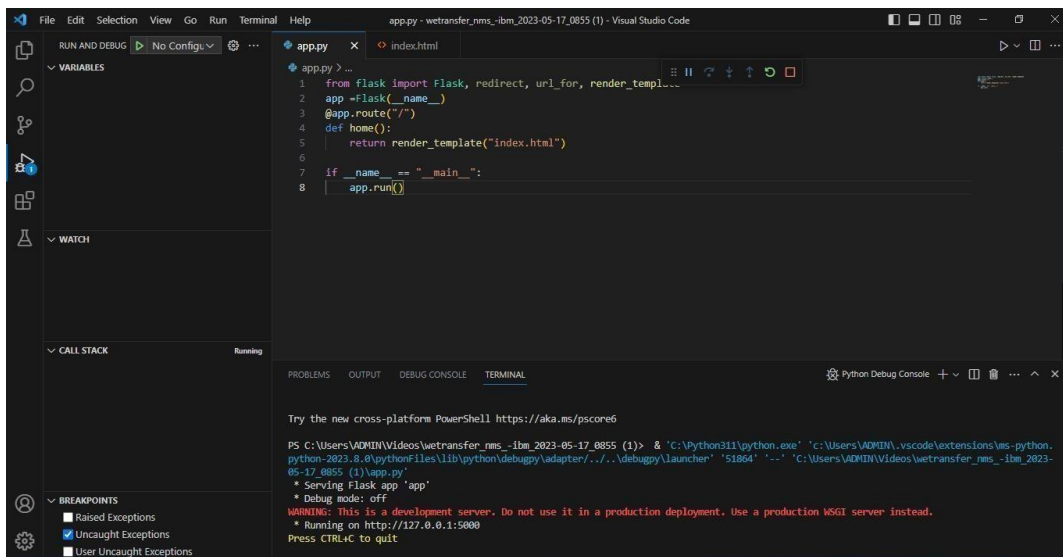
```
@app.route("/")
```

```
def home():
```

```
    return render_template("index.html")
```

```
if __name__ == "__main__":
```

```
    app.run()
```



6.2 FEATURE 2

DASHBOARD

```
<section id="Dashboard" class="services">
```

```
  <div class="container">
```

```
    <div class="section-title" data-aos="fade-up">
```

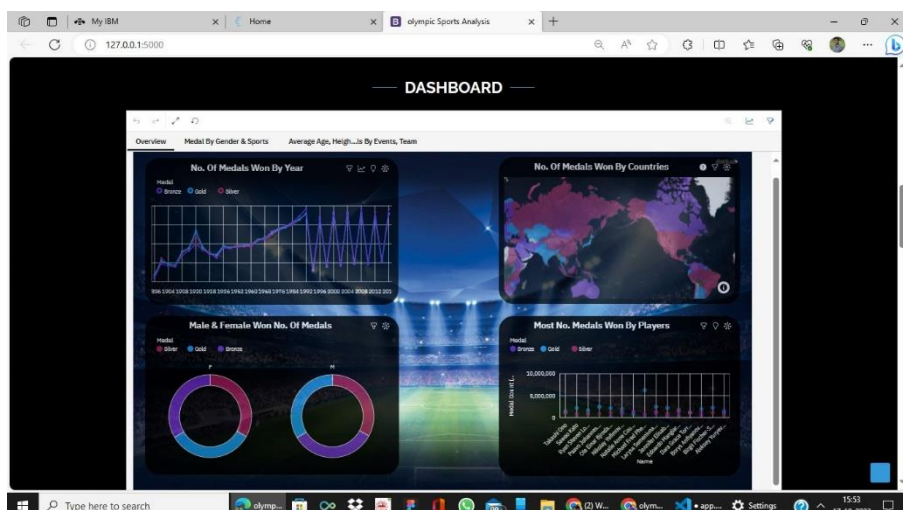
```
      <h2>Dashboard</h2>
```

```
      <h4>
```

```
    <iframe
```

```
      src="https://us3.ca.analytics.ibm.com/bi/?perspective=dashboard&path
      Ref=.my_folders%2FOlympic%2BOverview%2BDashboard&closeWi
      ndowOnLastView=true&ui_appbar=false&ui_navbar=false&
      shareMode=embedded&action=view&mode=dashboard&sub
      View=model000001881ec0da3a_00000000" width="1320" height="800"
      frameborder="1" gesture="media" allow="encrypted-media"
      allowfullscreen=""></iframe></h4>
```

```
  </div>
```



Data-Driven Insights on Olympic Sports
Participation and Performance
STORY

section id="Report" class="portfolio">

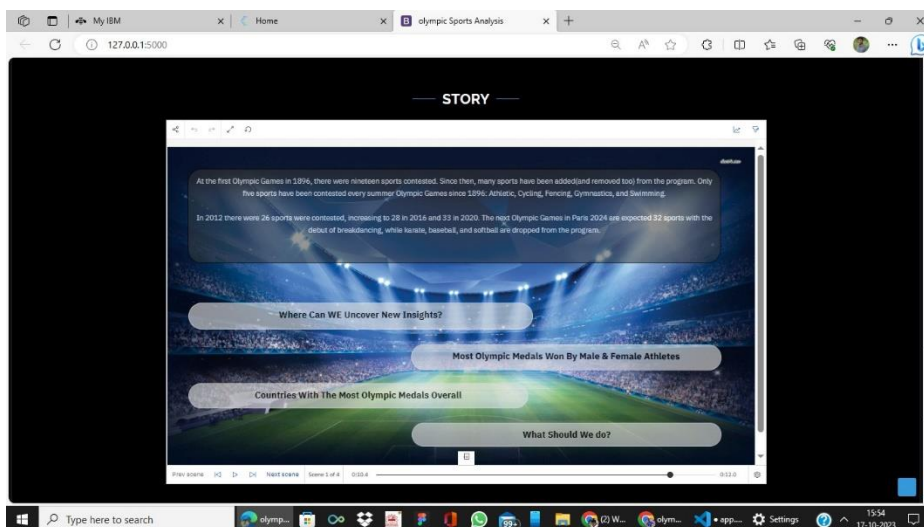
<div class="container"> <div class="section-title" data-aos="fade-up">

<h2>Report</h2>

<h4> <iframe

src="https://us3.ca.analytics.ibm.com/bi/?pathRef=.my_folders%2FOlympic%2BReport&closeWindowOnLastView=true&ui_appbar=false&ui_navbar=false&shareMode=embedded&action=run&format=HTML&prompt=false" width="1320" height="800" frameborder="1" gesture="media" allow="encrypted-media" allowfullscreen=""></iframe></h4>

</div>



REPORT

<section id="Story" class="portfolio">

<div class="container">

<div class="section-title" data-aos="fade-up">

<h2>Story</h2>

<h4> <iframe

src="https://us3.ca.analytics.ibm.com/bi/?perspective=story&pathRef=.

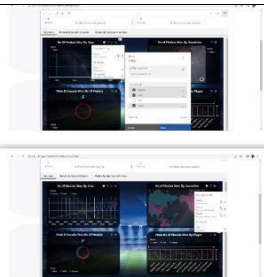
Participation and Performance



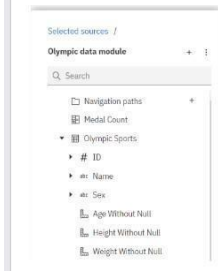
CHAPTER -7

RESULTS

7.1 PERFORMANCE METRICS

S.No	Parameter	Screenshot / Values
1.	Dashboard design	<p>No of Visualizations / Graphs –</p> <ol style="list-style-type: none"> 1. No Of Medals Won By Year 2. No of Medals Won By Countries 3. Male & Female Won No Of Medals 4. Most No Of Medals Won By Player 5. Top 3 Females Won Most No Of Medals 6. Top 3 Males Won Most No Of Medals 7. Won Gold Medals In Sports 8. Won Silver Medals In Sports 9. Male & Female Players Average Age & Height In Centimeters 10. Medal Count By Events 11. Gold, Silver & Bronze Medals Count by Team 12. Total Medal Counts By Team
2.	Data Responsiveness	

Data-Driven Insights on Olympic Sports
Participation and Performance

3.	Utilization of Data Filters	
4.	Effective User Story	No of Scene Added - 3 Scenes
5.	Descriptive Reports	No of Visualizations / Graphs - 12

CHAPTER - 8

ADVANTAGES & DISADVANTAGES

8.1 ADVANTAGES

- This type of analysis can help identify important factors that contribute to athlete success, such as the impact of gender diversity, the growth of participation from different countries, and the influence of socioeconomic factors like GDP and population size. Understanding these factors can inform strategies for athlete development, training programs, and resource allocation to improve performance in specific sports.
- The analysis can reveal the performance variability of different countries over time. This information can be valuable for countries looking to enhance their performance in specific sports or identify areas where they have consistently excelled. By studying the success patterns of countries with consistent high performance, other nations can learn from their strategies and approaches to athlete development.
- The data-driven analysis can provide valuable insights into the impact of athlete age and experience on Olympic performance. Understanding the relationship between age, experience, and performance can help guide athlete selection processes and inform decisions on training and competition schedules.
- The advantage of this data-driven analysis lies in its ability to provide empirical evidence and objective insights into the patterns and trends

in Olympic sports participation and performance. These findings can

be used to shape policies, programs, and strategies aimed at improving athlete development and promoting participation in these sports globally.

8.2 DISADVANTAGES

- 1.Data limitations: The analysis heavily relies on the availability and quality of historical data. In some cases, data may be incomplete, inconsistent, or biased, which can limit the accuracy and reliability of the findings. Missing or erroneous data can lead to misleading conclusions or prevent researchers from fully understanding certain aspects of participation and performance patterns.
- 2. Complexity and context: Olympic sports involve a complex interplay of various factors, including cultural, social, and economic contexts. While data analysis can provide valuable insights, it may oversimplify or overlook some of the nuanced aspects that contribute to performance. Factors such as coaching expertise, training facilities, cultural attitudes towards sports, and individual athlete motivations may not be adequately captured by the data alone.
- 3. Changing landscape: The sporting landscape is dynamic, with new sports being introduced, rules evolving, and geopolitical factors shifting over time. Historical data analysis may not fully capture these changes or account for the potential impact they have on participation and performance patterns. Therefore, relying solely on past data may not provide a comprehensive understanding of the current and future dynamics of Olympic sports.

- 4. Causality and correlation: While data analysis can identify correlations between certain factors and performance, establishing a direct causal relationship can be challenging. There may be confounding variables or underlying factors that are not captured or adequately accounted for in the analysis. As a result, drawing definitive conclusions about the causal influence of certain factors on performance can be difficult.

CHAPTER – 9

CONCLUSION

The analysis of historical participation and performance patterns in Olympic sports using a data-driven technique has provided valuable insights into the factors that influence the success of elite athletes. The study has highlighted several key findings:

1. Gender Diversity: There has been a positive trend towards increased gender diversity in the sports represented at the Olympic Games. This signifies progress towards gender equality in sports and highlights the importance of promoting inclusivity.

2. Growing Participation: The number of countries competing in the Olympics has been steadily increasing over time. This indicates a growing interest and participation in Olympic sports worldwide, fostering a more global and diverse sporting community.

3. Performance Variability: While some countries have shown significant variability in their performance throughout different Olympic Games, others have consistently excelled across a range of sports. This suggests the presence of various factors, such as athletic development programs, infrastructure, and sporting culture, that contribute to sustained success.

4. Socioeconomic Factors: The analysis underscores the importance of socioeconomic factors, such as GDP and population size, in predicting Olympic performance. Countries with larger economies and populations generally have greater resources to invest in athlete development and sports infrastructure, which can positively impact performance.

5. Athlete Age and Experience: The study highlights the significance of athlete age and experience in Olympic performance. It suggests that athletes with more experience and maturity tend to have an advantage, indicating the need for long-term athlete development programs and opportunities for athletes to gain valuable experience.

These insights provide valuable information for formulating strategies to enhance athlete development, foster participation, and improve performance in Olympic sports worldwide. By understanding the patterns and trends revealed in this analysis, stakeholders can work towards creating more inclusive and supportive sporting environments that enable athletes to reach their full potential.

CHAPTER - 10

FUTURE SCOPE

The future scope of this analysis is vast and holds great potential for further exploration and application. Here are some key areas where this data-driven technique can have a significant impact:

1. Talent identification and athlete development: The analysis can be utilized to identify patterns and factors that contribute to successful athlete development in various sports. By understanding the socioeconomic, demographic, and performance-related variables that influence Olympic success, sports organizations and governing bodies can develop targeted talent identification programs and implement effective athlete development strategies. This can help nations enhance their competitive advantage and optimize resource allocation towards sports where they have a higher likelihood of success.

2. Policy and funding decisions: The insights gained from this analysis can assist policymakers and funding agencies in making informed decisions related to sports policies, resource allocation, and funding distribution. By considering the historical patterns of participation and performance, countries can identify sports with untapped potential and invest resources accordingly. This can lead to the development of robust sports infrastructure, training facilities, coaching programs, and athlete support systems to improve overall performance at the Olympics.

3. Gender diversity and inclusivity: The analysis highlights the increasing gender diversity in Olympic sports over time. This information can be instrumental in promoting further inclusivity and gender equality in sports.

By understanding the historical trends and identifying areas where gender is still lacking, sports organizations and governing bodies can implement initiatives to encourage and support female participation in traditionally male-dominated sports. This can involve providing equal opportunities, resources, and support systems to female athletes, as well as addressing any systemic barriers that hinder their participation and success.

4. Predictive modeling and performance forecasting: The data-driven approach used in this analysis can form the foundation for predictive modeling and performance forecasting in Olympic sports. By incorporating additional variables such as training methodologies, technological advancements, and advancements in sports science, researchers and sports organizations can develop models that estimate future performance trends and identify emerging talent. This can be invaluable for strategic planning, talent acquisition, and decision-making processes within the sports industry.

CHAPTER – 11

APPENDIX

A.1 SOURCE CODE

```
<!DOCTYPE html>

<html lang="en">

<head>

  <meta charset="utf-8">

  <meta content="width=device-width, initial-scale=1.0" name="viewport">

  <script src="https://kit.fontawesome.com/949563e343.js"
crossorigin="anonymous"></script>

  <title> olympic Sports Analysis </title>

  <meta content="" name="description">

  <meta content="" name="keywords">

  <!-- Favicons -->

  <link href="/static/img/favicon.png" rel="icon">

  <link href="/static/img/apple-touch-icon.png" rel="apple-touch-icon">

  <!-- Google Fonts -->

  <link
href="https://fonts.googleapis.com/css?family=Open+Sans:300,300i,400,400i,600,600i,700,700i|Raleway:300,300i,400,400i,500,500i,600,600i,700,700i|Poppins:300,300i,400,400i,500,500i,600,600i,700,700i" rel="stylesheet">

  <!-- Vendor CSS Files -->
```

<link href="/static/vendor/aos/aos.css" rel="stylesheet">

```
<link href="/static/vendor/bootstrap/css/bootstrap.min.css"
rel="stylesheet">

<link href="/static/vendor/bootstrap-icons/bootstrap-icons.css"
rel="stylesheet">

<link href="/static/vendor/boxicons/css/boxicons.min.css" rel="stylesheet">

<link href="/static/vendor/glightbox/css/glightbox.min.css"
rel="stylesheet">

<link href="/static/vendor/remixicon/remixicon.css" rel="stylesheet">

<link href="/static/vendor/swiper/swiper-bundle.min.css" rel="stylesheet">


<!-- Template Main CSS File -->

<link href="/static/css/style.css" rel="stylesheet">


<!--
=====
=

* Template Name: Vesperr
* Updated: Mar 10 2023 with Bootstrap v5.2.3
* Template URL: https://bootstrapmade.com/vesperr-free-bootstrap-
template/
* Author: BootstrapMade.com
* License: https://bootstrapmade.com/license/

=====
== -->

</head>

<body>
```



```
<!-- ===== Header ===== -->

<header id="header" class="fixed-top d-flex align-items-center">

  <div class="container d-flex align-items-center justify-content-between">

    <div class="logo">

      <h1><a href="index.html">Olympic Sports
<span>Analysis</span></a></h1>

      <!-- Uncomment below if you prefer to use an image logo -->

    </div>

    <nav id="navbar" class="navbar" aria-label="navigation">

      <ul>

        <li><a class="nav-link scrollto active" href="#hero">Home</a></li>

        <li><a class="nav-link scrollto" href="#about">About</a></li>

        <li><a class="nav-link scrollto"
href="#Dashboard">Dashboard</a></li>

        <li><a class="nav-link scrollto" href="#Report">Report</a></li>

        <li><a class="nav-link scrollto" href="#Story">Story</a></li>

      </ul>

      <i class="bi bi-list mobile-nav-toggle"></i>

    </nav><!-- .navbar -->

  </div>

</header><!-- End Header -->

<!-- ===== Hero Section ===== -->

<section id="hero" class="d-flex align-items-center">
```

```
<div class="container">

  <div class="row">

    <div class="col-lg-6 pt-5 pt-lg-0 order-2 order-lg-1 d-flex flex-column
justify-content-center">

      <h1 data-aos="fade-up">WELCOME TO Olympic Sports
<span>Analysis</span></h1>

      <h2 data-aos="fade-up" data-aos-delay="400">Good Analysis For
Good Performance</h2>

      <div data-aos="fade-up" data-aos-delay="800">

        <a href="#Dashboard" class="btn-get-started scrollto">Get
Started</a>

      </div>

    </div>

    <div class="col-lg-6 order-1 order-lg-2 hero-img" data-aos="fade-left"
data-aos-delay="200">

    </div>

  </div>

</div>

</section><!-- End Hero -->

<!-- ===== About Us Section ===== -->

<section id="about" class="about">

  <div class="container">
```

```
<div class="section-title" data-aos="fade-up">
```

```
<h2>About Us</h2>
```

```
</div>
```

```
<!-- ===== Counts Section ===== -->
```

```
<section id="counts" class="counts">
```

```
<div class="container">
```

```
<div class="row">
```

```
<div class="image col-xl-5 d-flex align-items-stretch justify-content-center justify-content-xl-start" data-aos="fade-right" data-aos-delay="150">
```

```

```

```
</div>
```

```
<div class="col-xl-7 d-flex align-items-stretch pt-4 pt-xl-0" data-aos="fade-left" data-aos-delay="300">
```

```
<div class="content d-flex flex-column justify-content-center">
```

```
<div class="row">
```

```
<p>
```

```
    This application is a great analytics tool for Sports Analysis.
```

```
</p>
```

```
<a href="#contact" class="btn-learn-more">Learn More</a>
```

```
</div>
```

```
<div class="col">
```

```
<div class="col-md-6 d-md-flex align-items-md-stretch">
```

```
<div class="count-box">
  <i class="bi bi-journal-richtext"></i>
  <h5><strong>BETTER SPORTS INSIGHTS </strong></h5>
  <p> You'll get better Insights about different Sports and the
  opprtunities that can help you in your career in sports</p>
</div>
</div>
```

```
<div class="col-md-6 d-md-flex align-items-md-stretch">
  <div class="count-box">
    <i class="bi bi-award"></i>
    <h5><strong>ANALYTICS TOOL </strong></h5>

  </div>
</div>
```

```
</div>
</div><!-- End .content-->
</div>
</div>
</div>
```

```
</div>
</section><!-- End Counts Section -->
```

```
<!-- ===== Services Section ===== -->
<section id="Dashboard" class="services">
```

```
<div class="container">

<div class="section-title" data-aos="fade-up">

    <h2>Dashboard</h2>

    <h4> <iframe
src="https://us3.ca.analytics.ibm.com/bi/?perspective=dashboard&path
Ref=.my_folders%2FOlympic%2BOverview%2BDashboard&closeWi
ndowOnLastView=true&ui_appbar=false&ui_navbar=false&
shareMode=embedded&action=view&mode=dashboard&sub
View=model000001881ec0da3a_00000000" width="1320" height="800"
frameborder="1" gesture="media" allow="encrypted-media"
allowfullscreen=""></iframe></h4>

</div>

</div>

</section><!-- End Services Section -->

<!-- ===== Portfolio Section ===== -->

<section id="Report" class="portfolio">

    <div class="container">

        <div class="section-title" data-aos="fade-up">

            <h2>Report</h2>

            <h4> <iframe
src="https://us3.ca.analytics.ibm.com/bi/?pathRef=.my_folders%2FOlympi
c%2BReport&closeWindowOnLastView=true&ui_appbar=false&
&ui_navbar=false&shareMode=embedded&action=run&f
ormat=HTML&prompt=false" width="1320" height="800"
frameborder="1" gesture="media" allow="encrypted-media"
allowfullscreen=""></iframe></h4>
```

</div>

</div>

</section><!-- End Portfolio Section -->

<!-- ===== Portfolio Section ===== -->

<section id="Story" class="portfolio">

<div class="container">

<div class="section-title" data-aos="fade-up">

<h2>Story</h2>

<h4> <iframe

src="https://us3.ca.analytics.ibm.com/bi/?perspective=story&pathRef=.my_folders%2FOlympic%2BStory%2FOlympic%2BStory%2B1&closeWindowOnLastView=true&ui_appbar=false&ui_navbar=false&shareMode=embedded&action=view&sceneId=model0000018820b74770_00000002&sceneTime=0" width="1320" height="800" frameborder="1" gesture="media" allow="encrypted-media" allowfullscreen=""></iframe></h4>

</div>

</div>

</section><!-- End Portfolio Section -->

```
<!-- ===== Contact Section ===== -->

<section id="contact" class="contact">

  <div class="container">

    <div class="section-title" data-aos="fade-up">
      <h2>Contact Us</h2>
    </div>

    <div class="row">

      <div class="col-lg-6 col-md-6" data-aos="fade-up" data-aos-
delay="100">
        <div class="contact-about">
          <h3>Analysis<span>Sports</span></h3>
        </div>
        <div class="info">
          <div>
            &nbsp;
            <a href="#" class="linkedin"><i class="fa-brands fa-
linkedin"></i></a>
            <p>SWARNALAKSHMI V <span>(TL)</span></p>
          </div>

          <div>
```

[<i class="fa-brands fa-linkedin"></i>](#)

<p>SIVA KARTHIKEYAN S</p>

</div>

<div>

[<i class="fa-brands fa-linkedin"></i>](#)

<p>VIKRAANTH SB</p>

</div>

<div>

[<i class="fa-brands fa-linkedin"></i>](#)

<p>TANISHKA K</p>

</div>

</div>

</div>

<div class="col-lg-6 col-md-6 mt-4 mt-md-0" data-aos="fade-up" data-aos-delay="200">

<div class="info">

<div>

<i class="ri-map-pin-line"></i>

<p>KNOWLEDGE INSTITUTE OF
TECHNOLOGY
SALEM - 637504</p>

</div>


```
<div>  
  <i class="ri-mail-send-line"></i>  
  <p>2k20cse158@kiot.ac.in</p>  
</div>
```

```
<div>  
  <i class="ri-phone-line"></i>  
  <p>+91 9361618134</p>  
</div>
```

```
</div>  
</div>
```

```
</div>
```

```
</div>  
</section><!-- End Contact Section -->
```

```
</main><!-- End #main -->
```

```
<!-- ===== Footer ===== -->  
<footer id="footer">  
  <div class="container">  
    <div class="row d-flex align-items-center">  
      <div class="col-lg-6 text-lg-left text-center">
```

```
<div class="copyright">
    &copy; Copyright <strong>HireSense</strong>. All Rights
Reserved
</div>

<div class="credits">
    <!-- All the links in the footer should remain intact. -->
    <!-- You can delete the links only if you purchased the pro version. --
>

    <!-- Licensing information: https://bootstrapmade.com/license/ -->
    <!-- Purchase the pro version with working PHP/AJAX contact
form: https://bootstrapmade.com/vesperr-free-bootstrap-template/ -->
    <p>Designed by Sports<span>Sense</span> - Team</p>
</div>
</div>

<div class="col-lg-6">
    <nav class="footer-links text-lg-right text-center pt-2 pt-lg-0" aria-
label="navigation">
        <a href="#about" class="scrollto bjlv">About</a>
        <a href="#Dashboard" class="scrollto bjlv">Dashboard</a>
        <a href="#Report" class="scrollto bjlv">Report</a>
        <a href="#Story" class="scrollto bjlv">Story</a>
        <a href="#team" class="scrollto bjlv">Team</a>
    </nav>
</div>
</div>
</div>
</footer><!-- End Footer -->
```

<i class="bi bi-arrow-up-short"></i>

<!-- Vendor JS Files -->

<script src="/static/vendor/purecounter/purecounter_vanilla.js"></script>

<script src="/static/vendor/aos/aos.js"></script>

<script src="/static/vendor/bootstrap/js/bootstrap.bundle.min.js"></script>

<script src="/static/vendor/glightbox/js/glightbox.min.js"></script>

<script src="/static/vendor/isotope-layout/isotope.pkgd.min.js"></script>

<script src="/static/vendor/swiper/swiper-bundle.min.js"></script>

<script src="/static/vendor/php-email-form/validate.js"></script>

<!-- Template Main JS File -->

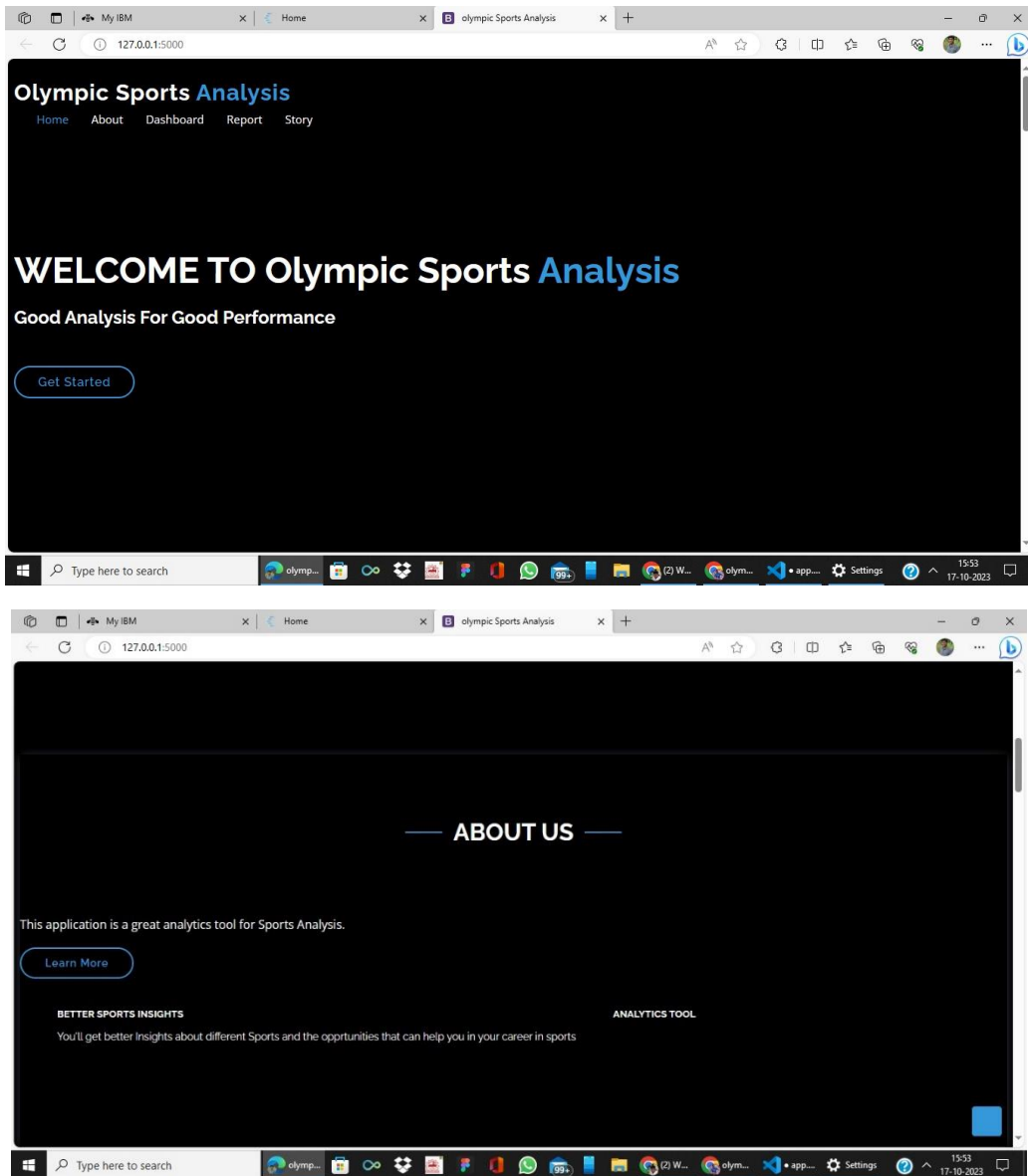
<script src="/static/js/main.js"></script>

</body>

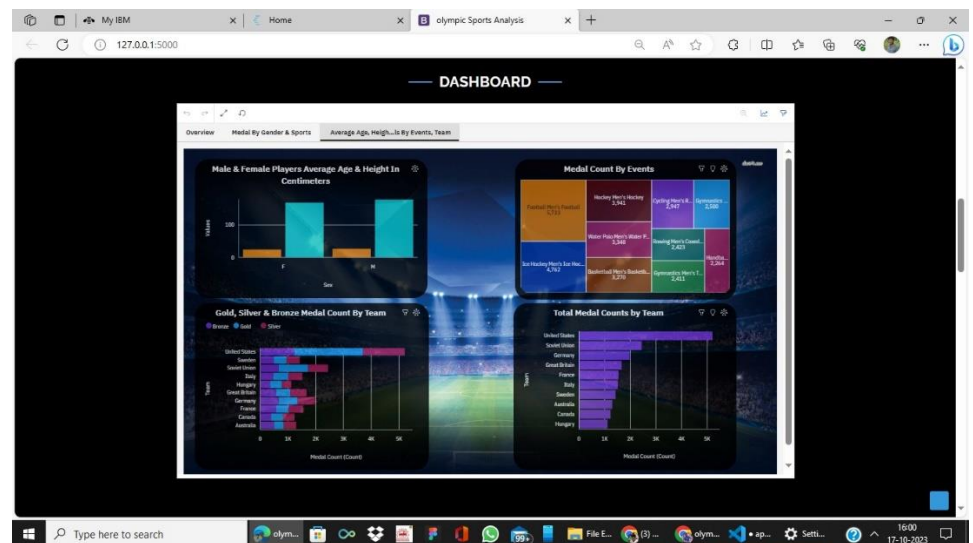
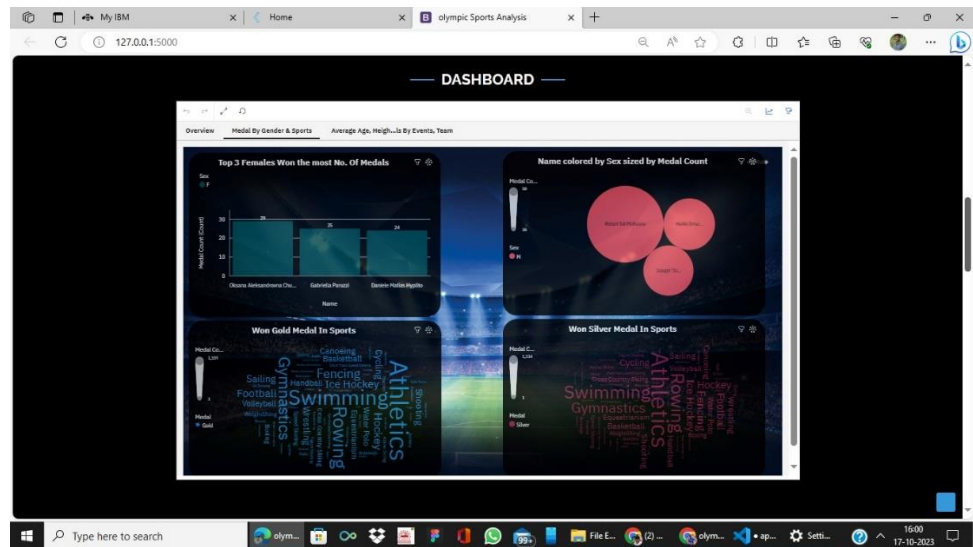
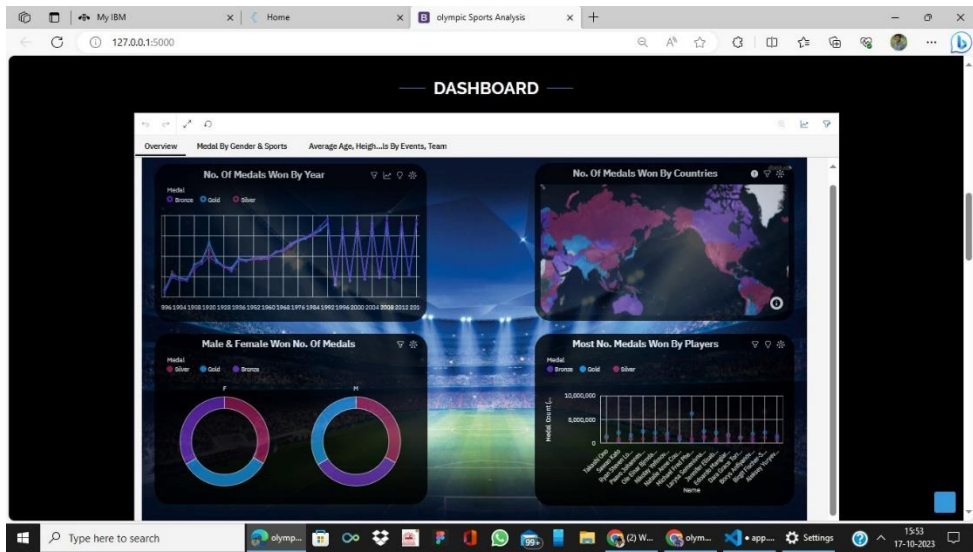
</html>

A.1 SCREENSHOT

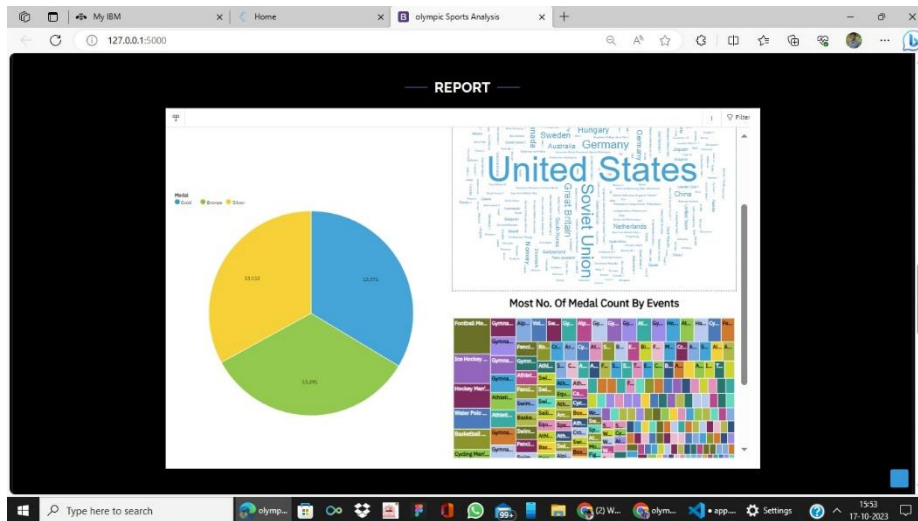
LANDING PAGE



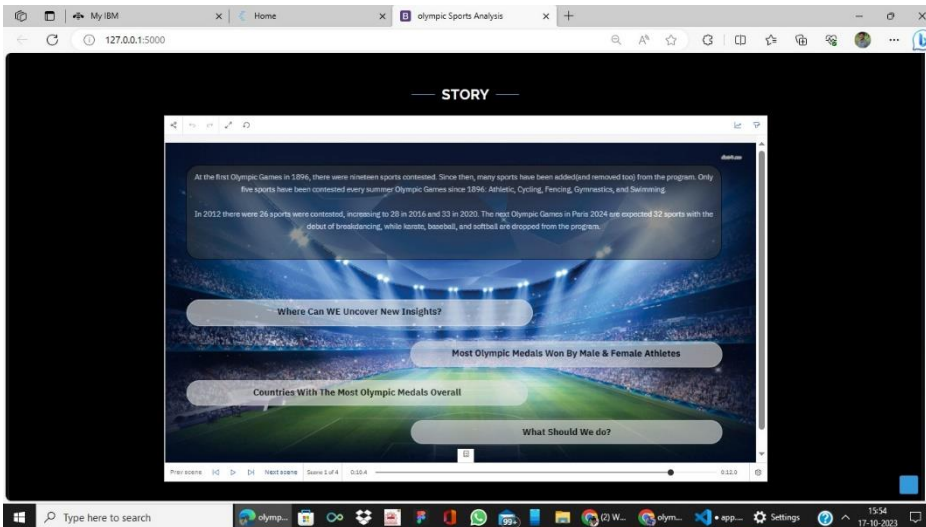
DASHBOARD



REPORT



STORY





A.2 GitHub & Project Video Demo Link

A.2.1 DEMO LINK -

<https://drive.google.com/drive/folders/1s7Ah1ZjfCbdQ3PZ6lzdafxrFjL3Fu4kY?usp=sharing>

A.2.2 GITHUB

LINK –

<https://github.com/SwarnaVenkat13/NaanMudhalvan-DataAnalytics-NM2023TMID01815>