A Project Report on

********** Data-Driven Insights On Olympics Sports Participation And Performance**********

by

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(Approved by AICTE | NAAC Accreditation with 'A' Grade | Accredited by NBA (ECE,CSE, EEE, CE) | Permanently Affiliated to JNTUA)

ABSTRACT

The Olympic Games represent a global sporting event that fosters unity, competition, and excellence. As the world's premier athletic spectacle, the Olympics witness the participation of diverse nations and athletes across various sports disciplines. In recent years, the increasing availability of data and advancements in data analytics have presented a unique opportunity to gain deeper insights into sports participation and performance trends at the Olympics. This study aims to provide data-driven insights into the Olympics, focusing on sports participation patterns and athlete performance.

By leveraging comprehensive datasets from multiple Olympic editions, this research analyzes the demographics of participating countries and athletes, evaluating the trends in sports inclusion and representation. Moreover, an examination of the correlation between a nation's socio-economic indicators and its medal-winning success is conducted to identify potential factors influencing performance.

Furthermore, machine learning models are employed to assess the impact of various athlete-related factors, such as age, gender, experience, and training regime, on individual and team performance. These models aid in understanding how specific attributes contribute to success in different sports, unraveling the critical determinants of excellence in Olympic competition.

The study also delves into the influence of technological advancements, sports science, and training methodologies on athletes' performance over time. By analyzing historical data and technological breakthroughs, this research aims to identify the turning points that have significantly impacted Olympic sports.

The findings of this study provide valuable insights to stakeholders in the sports industry, including athletes, coaches, policymakers, and sports organizations. The data-driven analysis offers evidence-based recommendations for enhancing sports development strategies, optimizing athlete preparation, and promoting sports inclusion and diversity.

In conclusion, this research sheds light on the evolving landscape of Olympic sports participation and performance through rigorous data analysis and machine learning techniques. By recognizing the underlying patterns and determinants of success, this study contributes to fostering a more competitive, inclusive, and progressive Olympic Games, inspiring athletes and sports enthusiasts worldwide.

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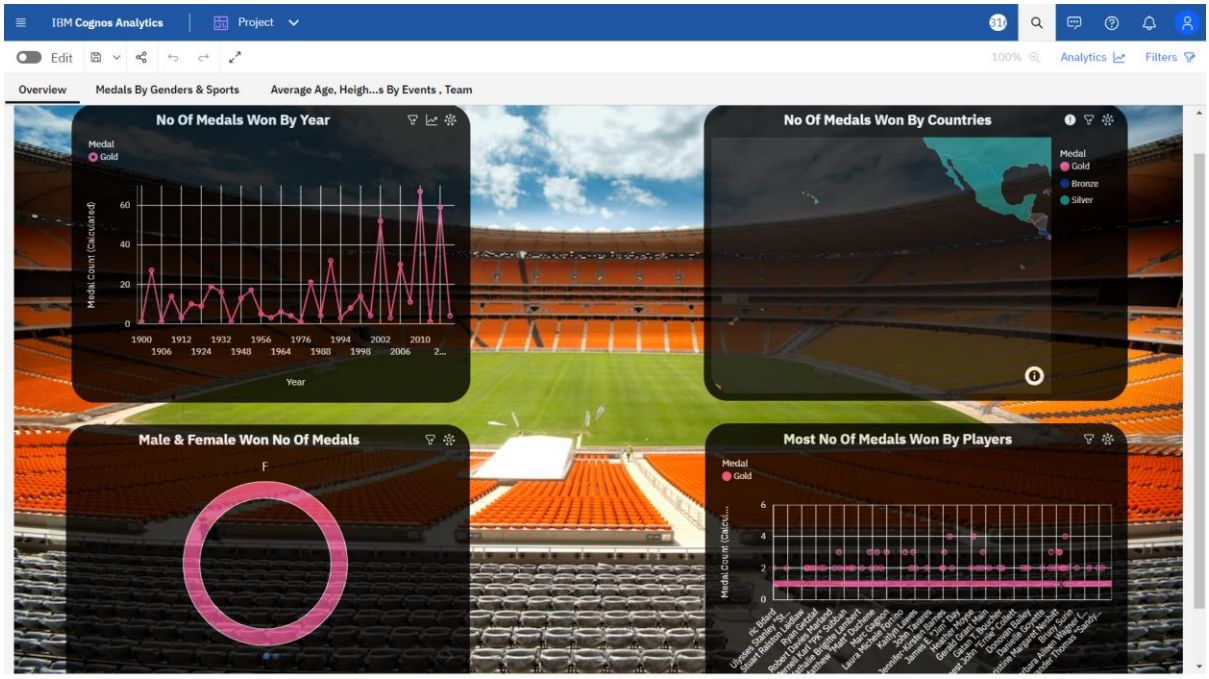

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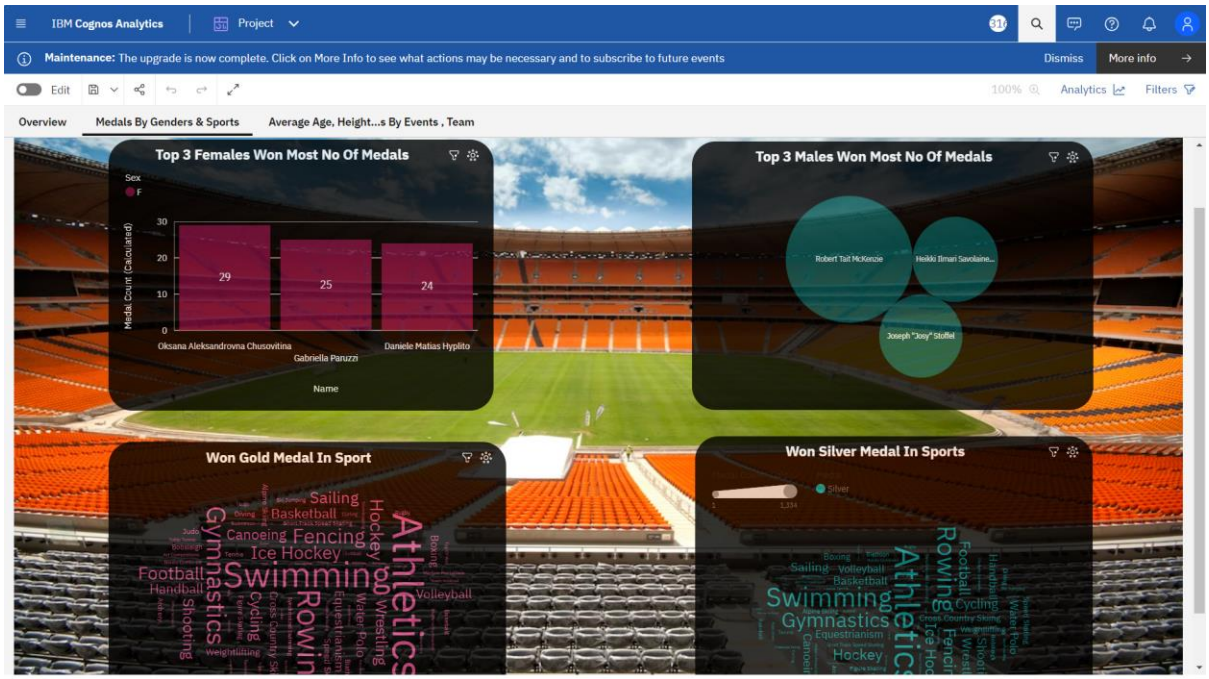

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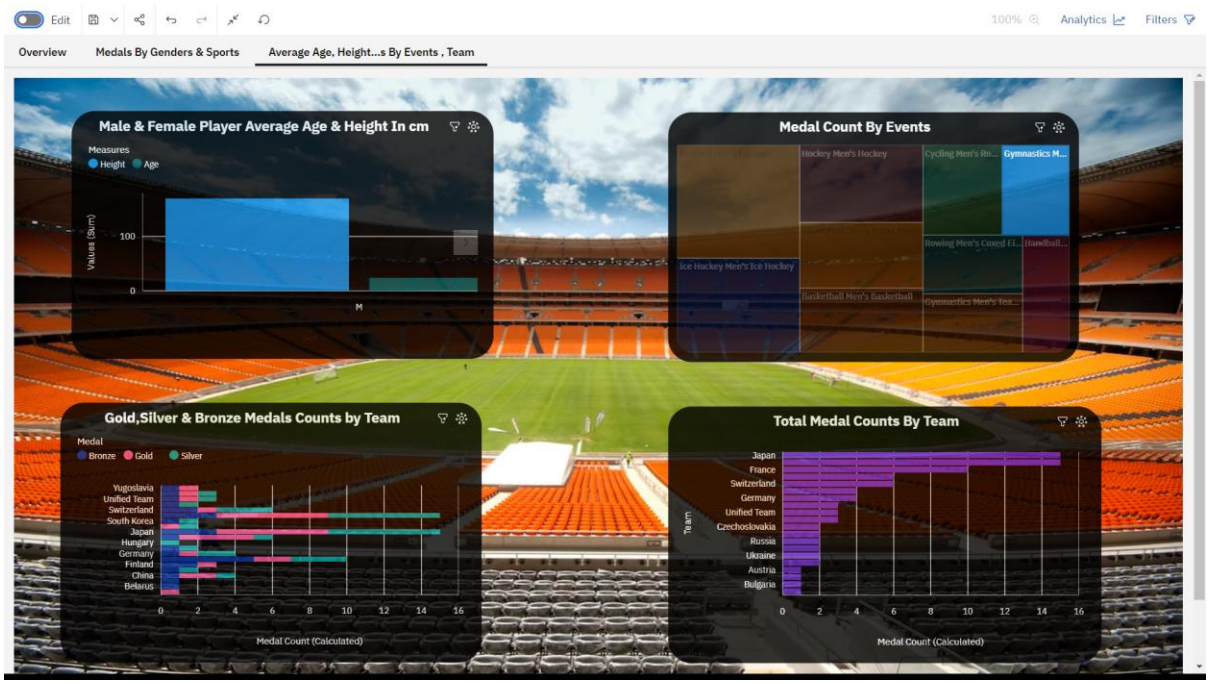

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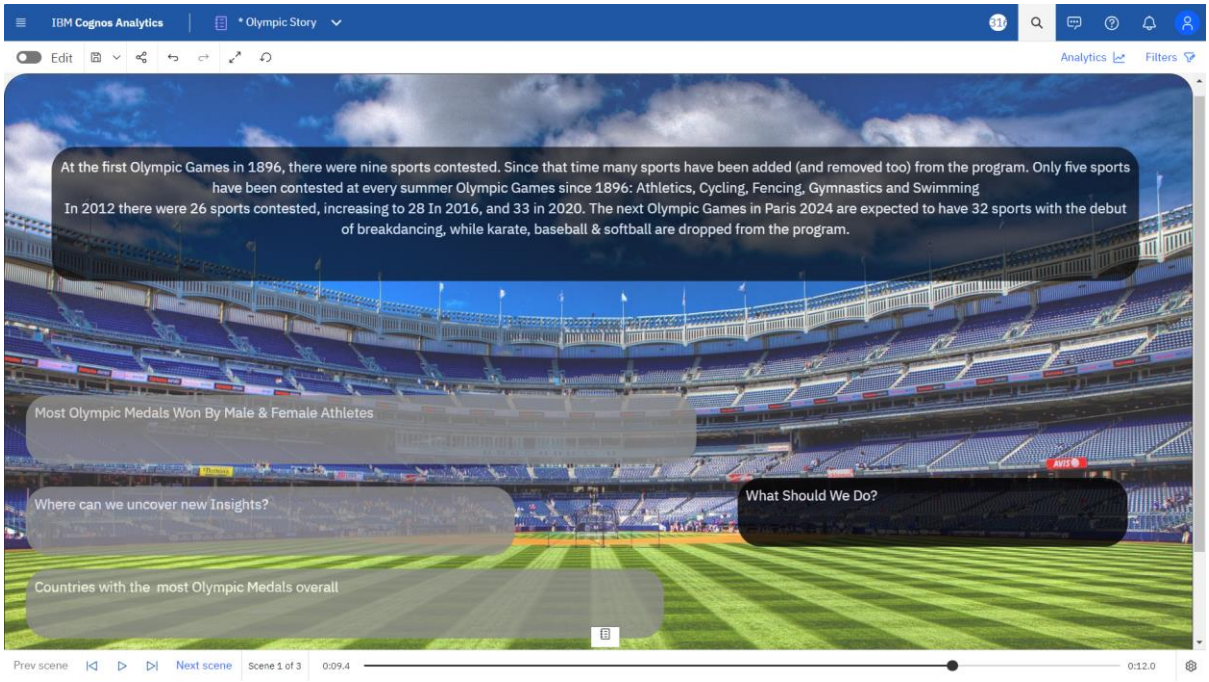

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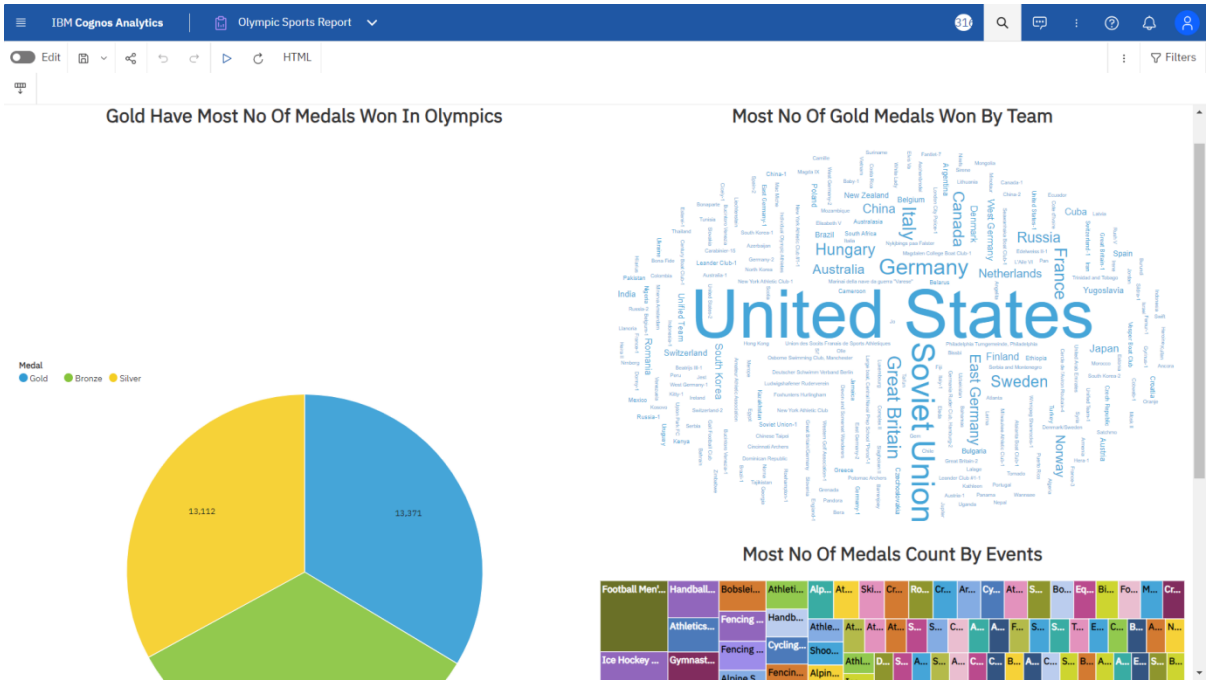
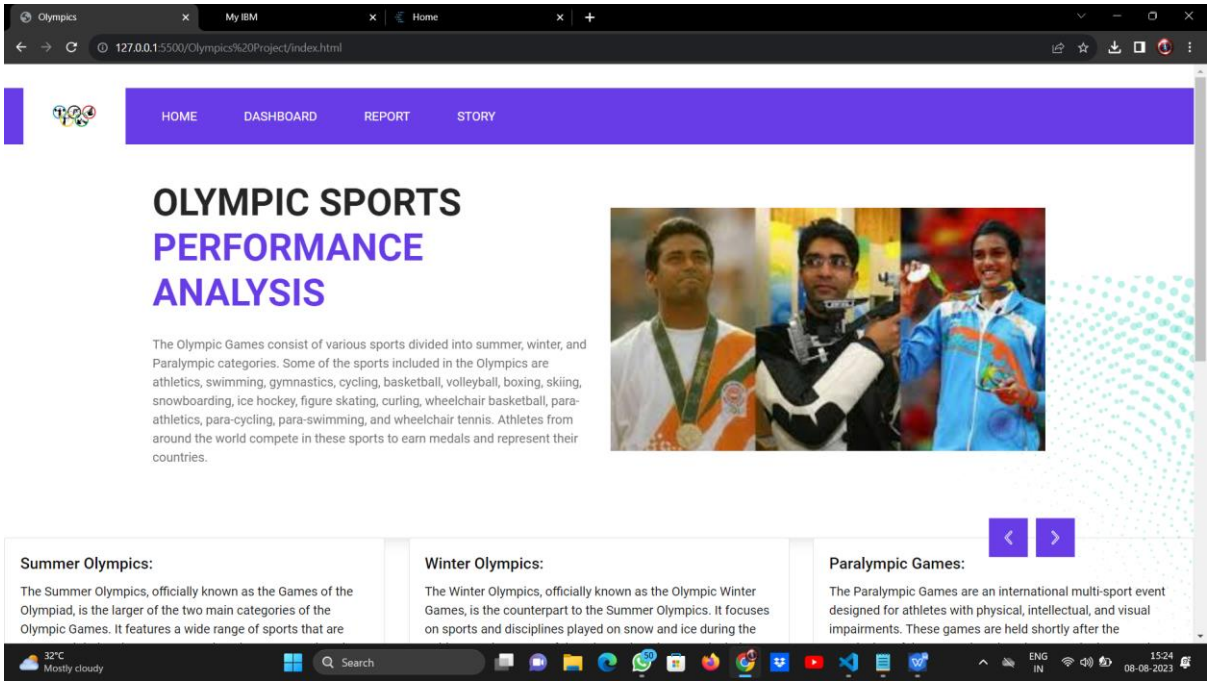


Report



Web Integration

CHAPTER 1

INTRODUCTION

The modern Olympic Games or Olympics are leading international sporting events featuring summer and winter sports competitions in which thousands of athletes from around the world participate in a variety of competitions. The Olympic Games are considered the world's foremost sports competition with more than 200 nations participating. The Olympic Games are held every four years, with the Summer and Winter Games alternating by occurring every four years but two years apart.

The evolution of the Olympic Movement during the 20th and 21st centuries has resulted in several changes to the Olympic Games. 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 Deaflympics and Special Olympics are also endorsed by the IOC. The IOC has had to adapt to a variety of economic, political, and technological advancements. As a result, the Olympics has shifted away from pure amateurism, as envisioned by Coubertin, to allowing participation of professional athletes. The growing importance of mass media created the issue of corporate sponsorship and commercialisation of the Games. World wars led to the cancellation of the 1916, 1940, and 1944 Games. Large boycotts during the Cold War limited participation in the 1980 and 1984 Games. The latter, however, attracted 140 National Olympic Committees, which was a record at the time.

The total number of events in the Olympics is 339 in 33 sports. And for every event there are winners. Therefore various data is generated. So, by using Cognos Analytics we will analyze this data and find the insights.

1.1 Specify the business problem

A problem statement is a clear and concise description of the issue or challenge that needs to be addressed. It should define the problem in a way that is understandable to stakeholders and provide a basis for developing a solution or course of action.

1.2 Business Requirements

The business requirements of Olympic sports include financial sustainability, branding and marketing, athlete development, fan engagement, global reach, and ethical and sustainable practices. These requirements involve securing funding, promoting the sport through social media and events, investing in athlete development, creating a compelling spectator experience, expanding the sport globally, and adhering to ethical and sustainable practices. These requirements are essential to ensure the success and growth of Olympic sports and their stakeholders, including the International Olympic Committee, national governing bodies, athletes, sponsors, and broadcasters.The ultimate goal is to gain insights and improve performance through data visualization techniques.

1.3 Literature Survey (Student Will Write)

A literature survey for Olympic sports involves reviewing academic articles, books, and other sources related to the history, governance, economics, athlete development, social and cultural impact, and technology and innovation in Olympic sports. The survey can provide a comprehensive understanding of the significance, challenges, and opportunities associated with Olympic sports.

1.4 Social Or Business Impact.

Social Impact: Can inspire individuals to participate in sports, promote a healthy lifestyle and encourage physical fitness.

Business Model/Impact: By conducting an analysis it can help businesses develop products and services that better meet the needs of athletes.

CHAPTER 2

2.0 Data Collection & Extraction From Database

Data collection is the process of gathering and measuring information on variables of interest, in an established systematic fashion that enables one to answer stated research questions, test hypotheses, and evaluate outcomes and generate insights from the data.

2.1 Collect The Dataset

Understand the data

Data contains all the meta information regarding the columns described in the CSV files. we have provided two CSV file:

- athlete_events.csv
- noc_regions.csv

Column Description for athlete_events.csv:

The file athlete_events.csv contains 271116 rows and 15 columns. Each row corresponds to an individual athlete competing in an individual Olympic event (athlete-events). The columns are:

- ID: Unique identifier for each athlete
- Name: Name of the athlete
- Sex: Gender of the athlete (M/F)
- Age: Age of the athlete at the time of the Olympic Games
- Height: Height of the athlete in centimeters
- Weight: Weight of the athlete in kilograms
- Team: Name of the country the athlete represents
- NOC: Three-letter code of the country the athlete represents
- Games: Year and season of the Olympic Games (e.g., "2000 Summer")
- Year: Year of the Olympic Games
- Season: Season of the Olympic Games (Summer/Winter)
- City: Name of the city where the Olympic Games were held
- Sport: Sport the athlete participated in
- Event: Specific event the athlete participated in
- Medal: Type of medal the athlete won (Gold/Silver/Bronze)

Column Description for noc_regions.csv:

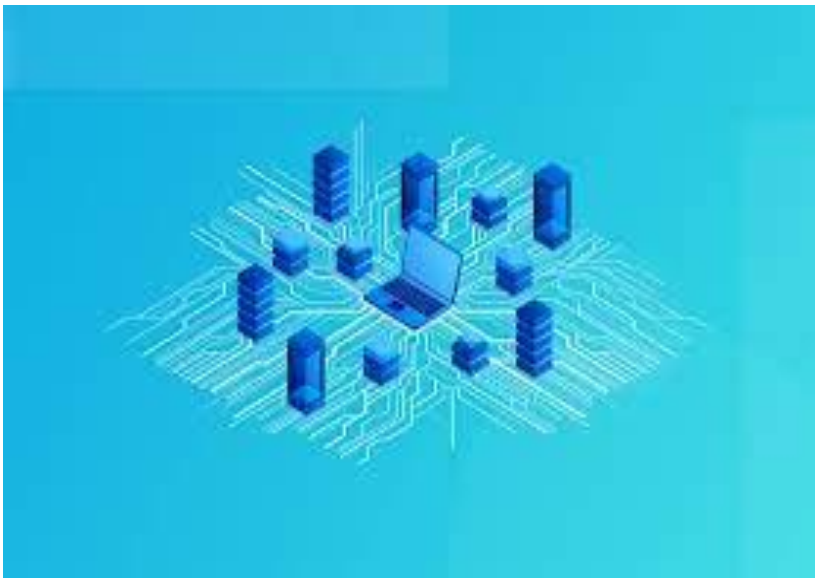
- NOC: Three-letter code of the National Olympic Committee
- Country: Name of the country represented by the NOC
- Notes: Additional notes about the NOC or country

2.2 Storing Data In DB2 & Perform SQL Operations

In this activity we will see hot to store data in DB2

2.3 Connect DB2 With Cognos

In this activity, we will seen how to connect IBM DB2 and cognos analytics



CHAPTER 3

3.0 Data Preparation

In this milestone, we will see how to prepare the data for building visualizations

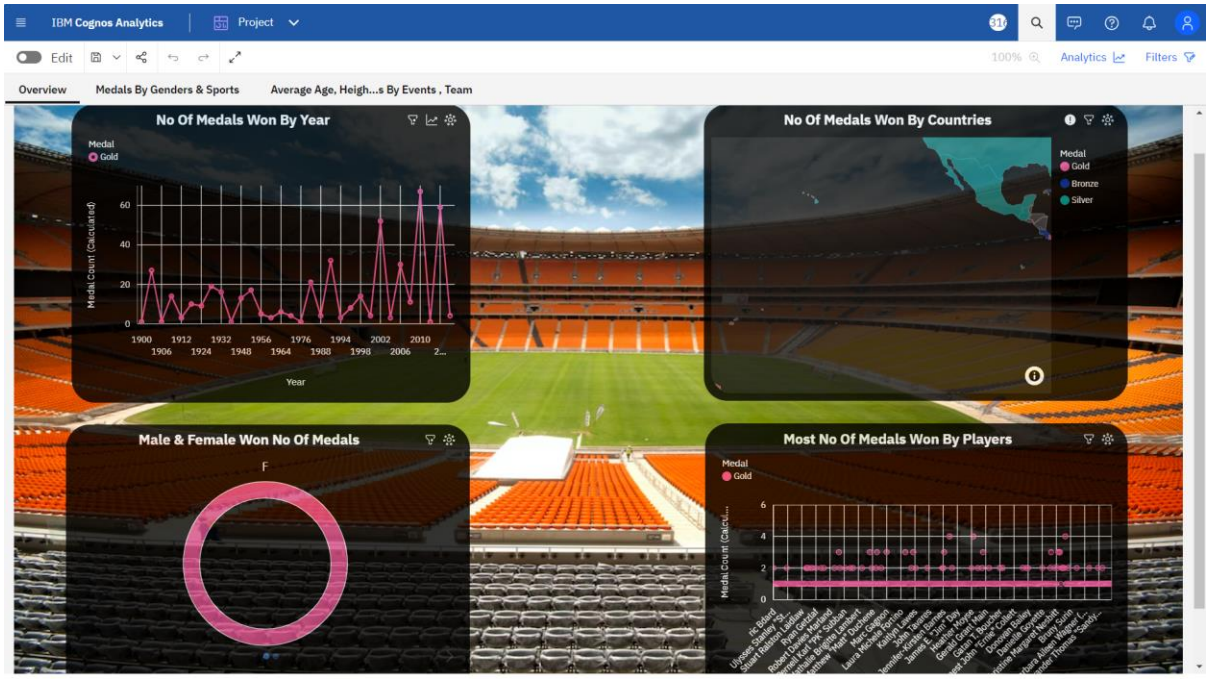
3.1 Prepare The Data For Visualization

Preparing the data for visualization involves cleaning the data to remove irrelevant or missing data, transforming the data into a format that can be easily visualized, exploring the data to identify patterns and trends, filtering the data to focus on specific subsets of data, preparing the data for visualization software, and ensuring the data is accurate and complete. This process helps to make the data easily understandable and ready for creating visualizations to gain insights into the performance and efficiency.

CHAPTER 4

4.0 Data Visualization

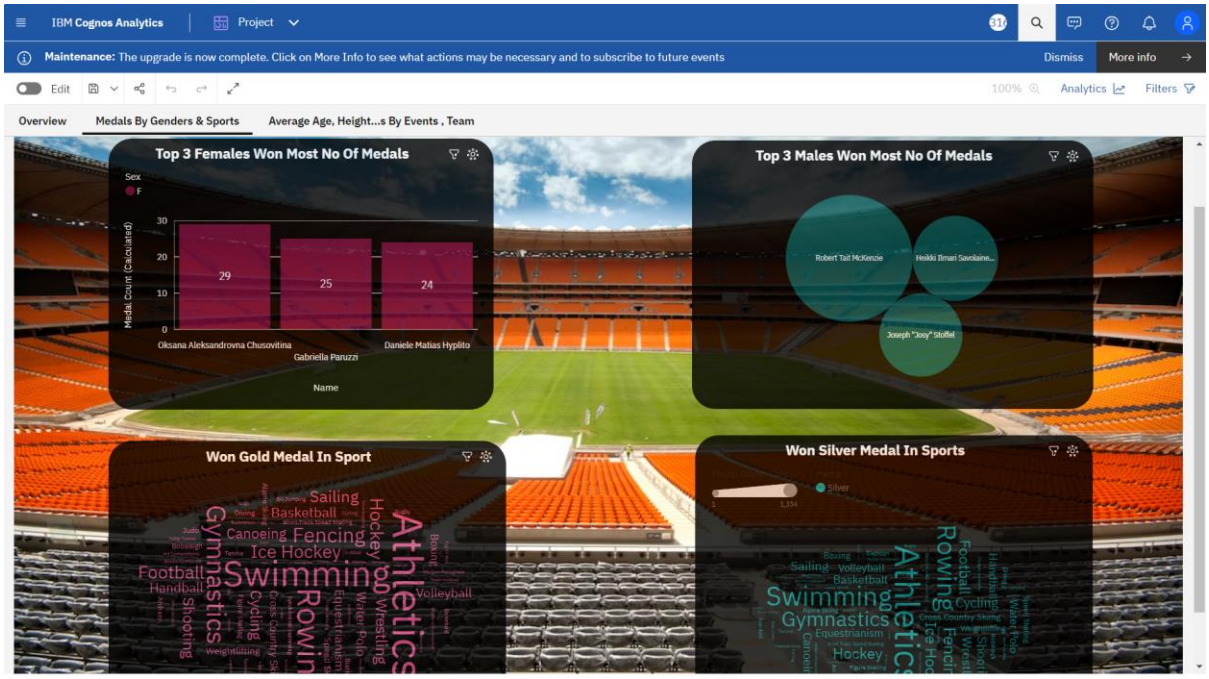
Data visualization is the process of creating graphical representations of data in order to help people understand and explore the information. The goal of data visualization is to make complex data sets more accessible, intuitive, and easier to interpret. By using visual elements such as charts, graphs, and maps, data visualizations can help people quickly identify patterns, trends, and outliers in the data.

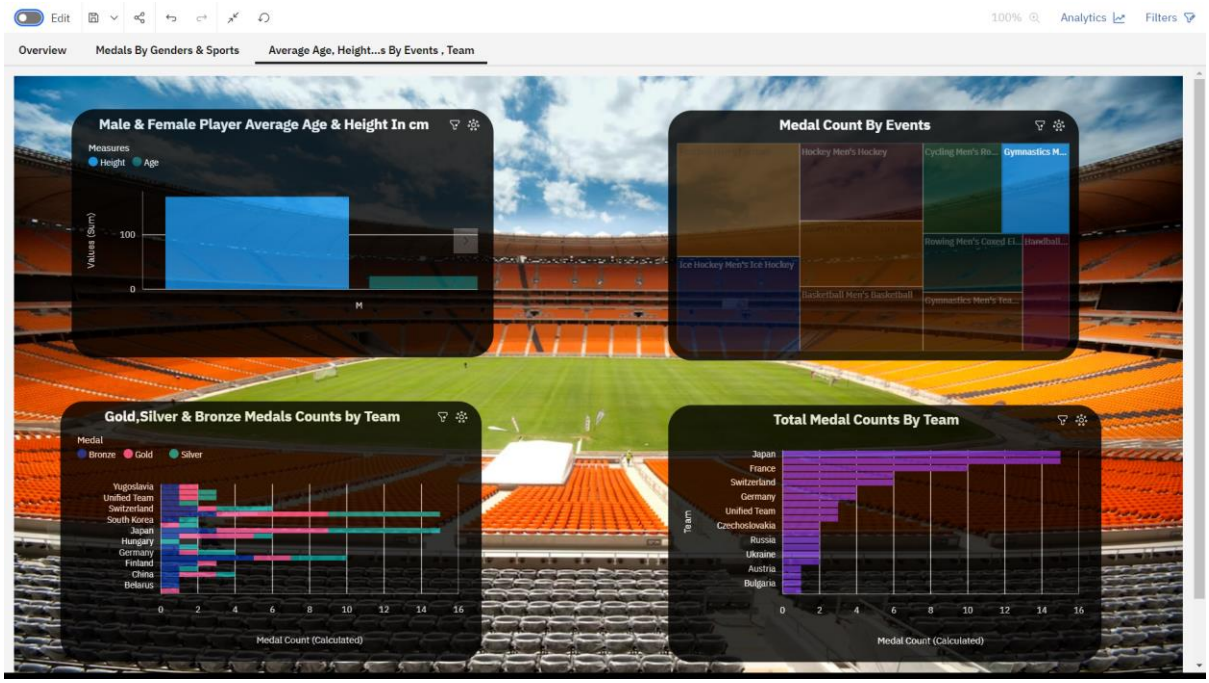


CHAPTER 5

5.0 Dashboard

A dashboard is a graphical user interface (GUI) that displays information and data in an organized, easy-to-read format. Dashboards are often used to provide real-time monitoring and analysis of data, and are typically designed for a specific purpose or use case. Dashboards can be used in a variety of settings, such as business, finance, manufacturing, healthcare, and many other industries. They can be used to track key performance indicators (KPIs), monitor performance metrics, and display data in the form of charts, graphs, and tables.


IBM Cognos Analytics
Project
Maintenance: The upgrade is now complete. Click on More Info to see what actions may be necessary and to subscribe to future events
Dismiss
More info
Edit
100%
Analytics
Filters
Overview
Medals By Genders & Sports
Average Age, Height...s By Events , Team
Top 3 Females Won Most No Of Medals
Sex
F
Medals Count (Calculated)
30
20
10
0
29
25
24
Oksana Aleksandrovna Chusovitina
Gabriella Paruzzi
Daniele Matias Hyplito
Name
Top 3 Males Won Most No Of Medals
Robert Tait McKenzie
Heikki Ilmari Savolaine...
Joseph "Josy" Stoffel
Won Gold Medal In Sport
Won Silver Medal In Sports
Silver


Edit
100%
Analytics
Filters
Overview
Medals By Genders & Sports
Average Age, Height...s By Events , Team
Male & Female Player Average Age & Height In cm
Measures
Height
Age
Values (Sum)
100
0
M
Medal Count By Events
Hockey Men's Hockey
Ice Hockey Men's Ice Hockey
Basketball Men's Basketball
Gold,Silver & Bronze Medals Counts by Team
Medal
Bronze
Gold
Silver
Yugoslavia
Unified Team
Switzerland
South Korea
Japan
Hungary
Germany
Finland
China
Belarus
0
2
4
6
8
10
12
14
16
Medal Count (Calculated)
Total Medal Counts By Team
Team
Japan
France
Switzerland
Germany
Unified Team
Czechoslovakia
Russia
Ukraine
Austria
Bulgaria
Medal Count (Calculated)

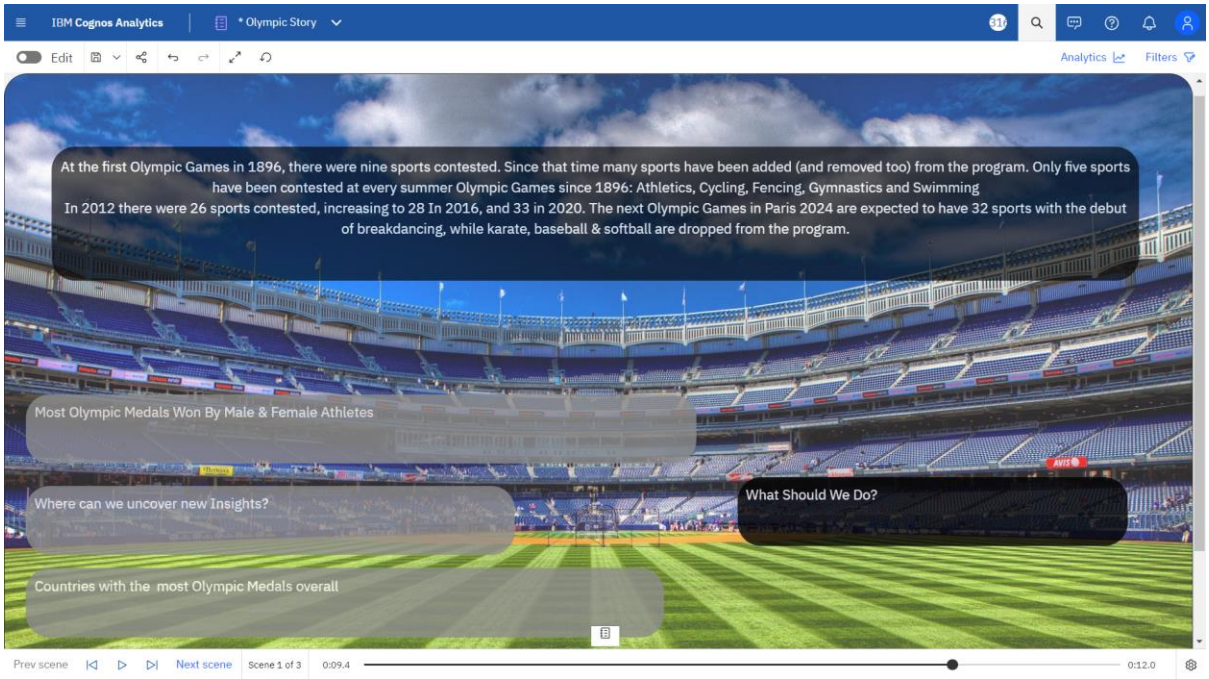
CHAPTER 6

6.0 Story

A data story is a way of presenting data and analysis in a narrative format, with the goal of making the information more engaging and easier to understand. A data story typically includes a clear introduction that sets the stage and explains the context for the data, a body that presents the data and analysis in a logical and systematic way, and a conclusion that summarizes the key findings and highlights their implications. Data stories can be told using a variety of mediums, such as reports, presentations, interactive visualizations, and videos.

6.1 No Of Scenes Of Story

The number of scenes in a storyboard for Data-Driven insights on Olympic Sports Participation and Performance will depend on the complexity of the analysis and the specific insights that are trying to be conveyed. A storyboard is a visual representation of the data analysis process and it breaks down the analysis into a series of steps or scenes.



Scene 1

Scene 2

Scene 3

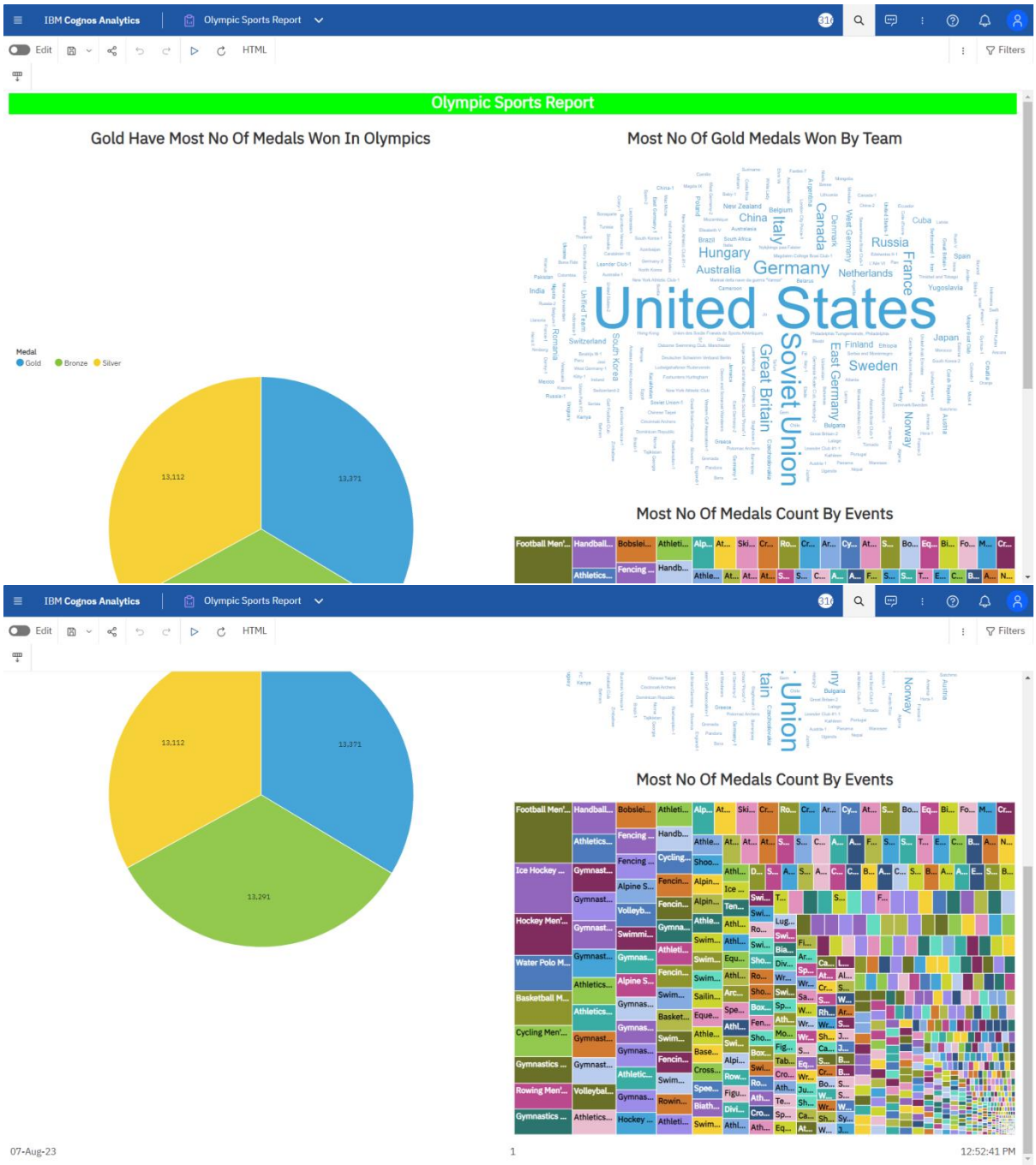
CHAPTER 7

7.0 Report

A report in data analytics typically involves analyzing and interpreting data to draw insights and conclusions that can inform business decisions or address research questions. The report usually includes a summary of the data analysis process, including the methods and tools used, as well as the findings and recommendations based on the analysis. The report should begin with an executive summary, which provides a brief overview of the main findings and recommendations. The introduction should provide background information on the problem or research question being addressed and the data sources used.

7.1 No.Of Visualization With Detail Information

When creating a report in cognos, it is often helpful to include visualizations to help communicate the findings of the analysis.



CHAPTER 8

8.0 Performance Testing

8.1 Amount Of Data Rendered To DB2

The amount of data that is rendered to a database depends on the size of the dataset and the capacity of the database to store and retrieve data

8.2 Utilization Of Data Filters

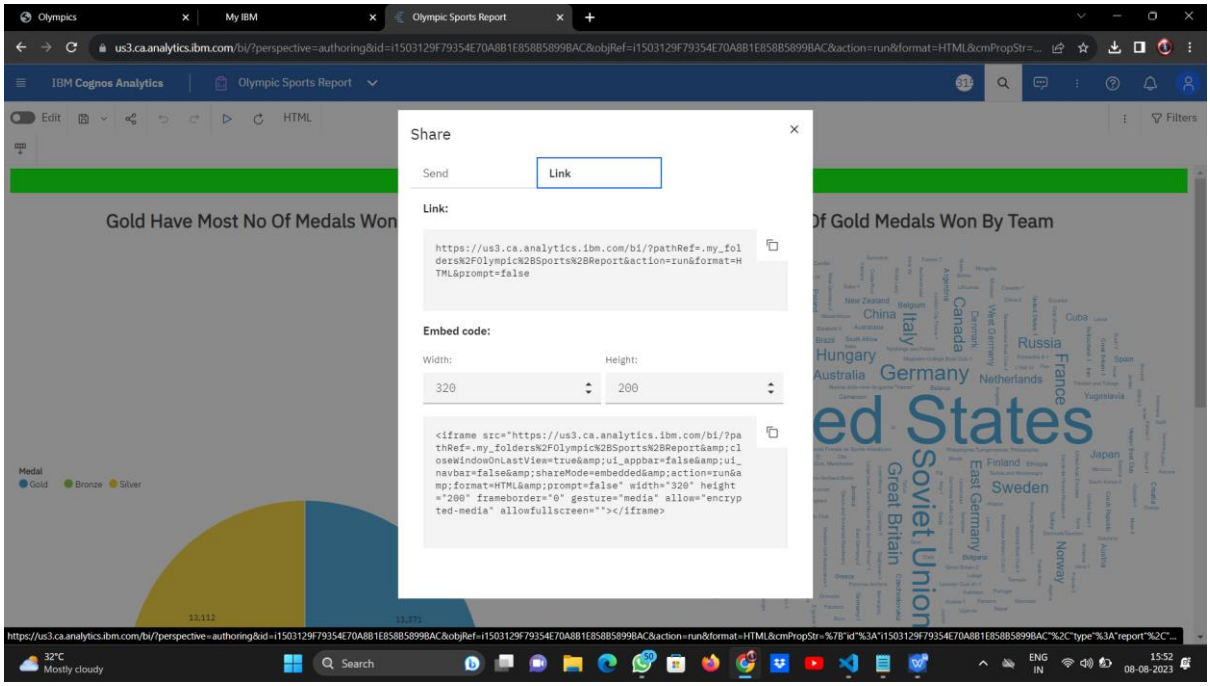
8.3 No Of Visualizations/ Graphs

- No Of Medals Won By Year
- No of Medals Won By Countries
- Male & Female Won No Of Medals
- Most No Of Medals Won By Player
- Top 3 Females Won Most No Of Medals
- Top 3 Males Won Most No Of Medals
- Won Gold Medals In Sports
- Won Silver Medals In Sports
- Male & Female Players Average Age & Height In Centimeters
- Medal Count By Events
- Gold, Silver & Bronze Medals Count by Team
- Total Medal Counts By Team

CHAPTER 9

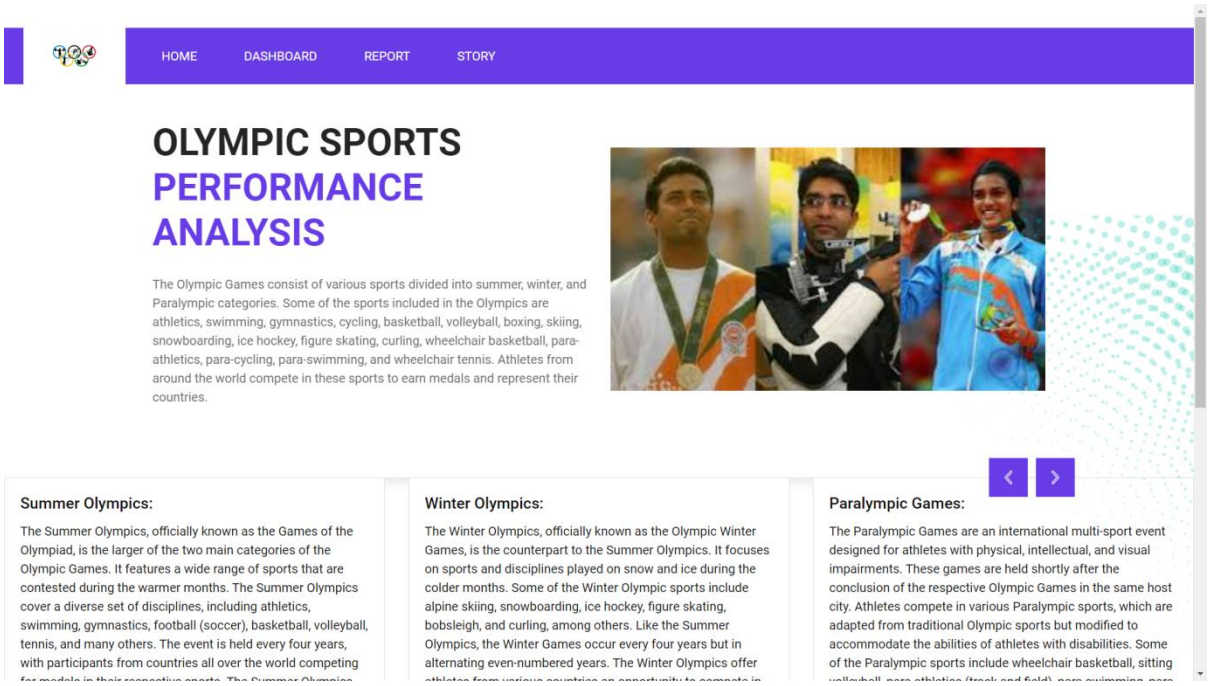
9.0 Web Integration

- Publishing helps us to track and monitor key performance metrics, to communicate results and progress. help a publisher stay informed, make better decisions, and communicate their performance to others.



9.1 Publishing dashboard, report & story.

- Step 1: Go to Dashboard, report & /story, click on share button on the top.
- Dashboard



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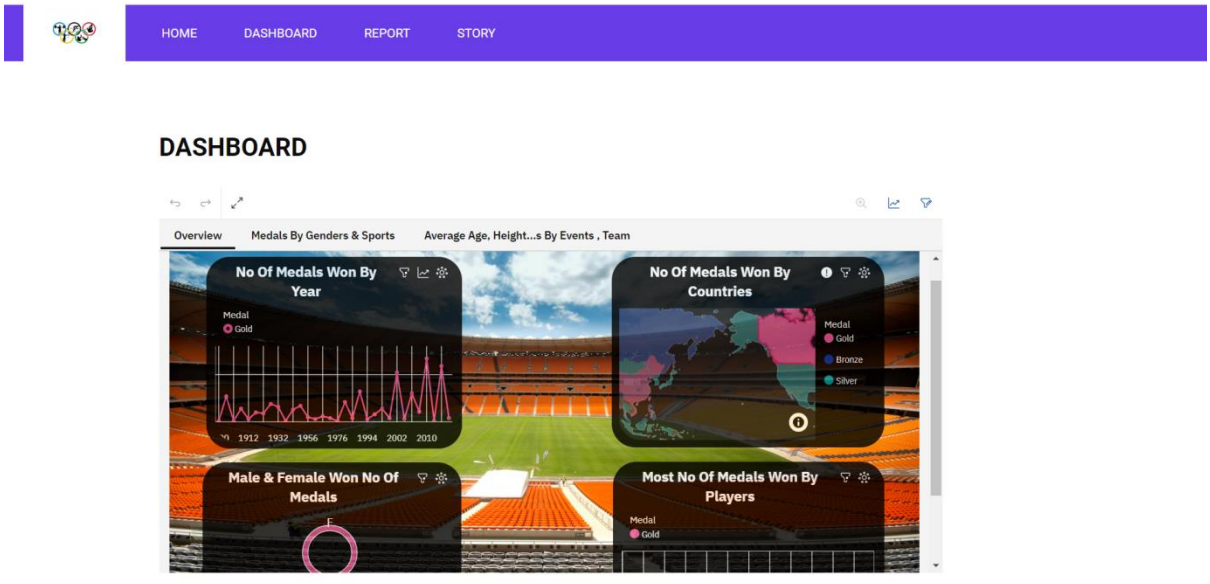
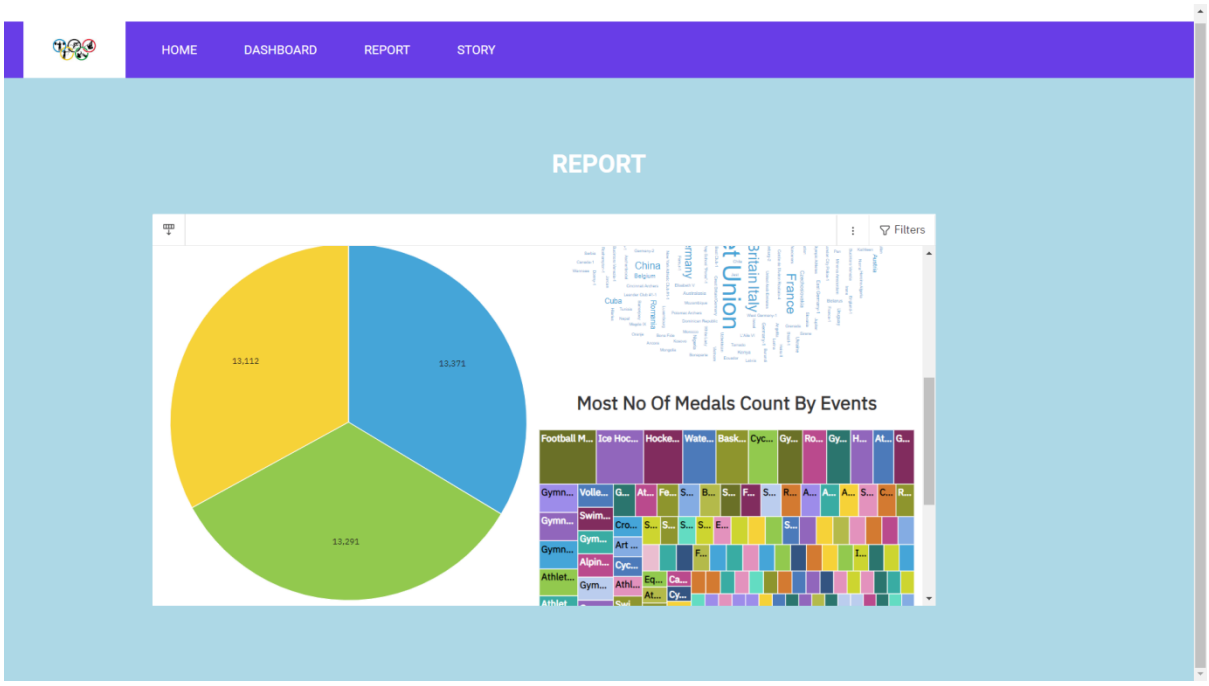
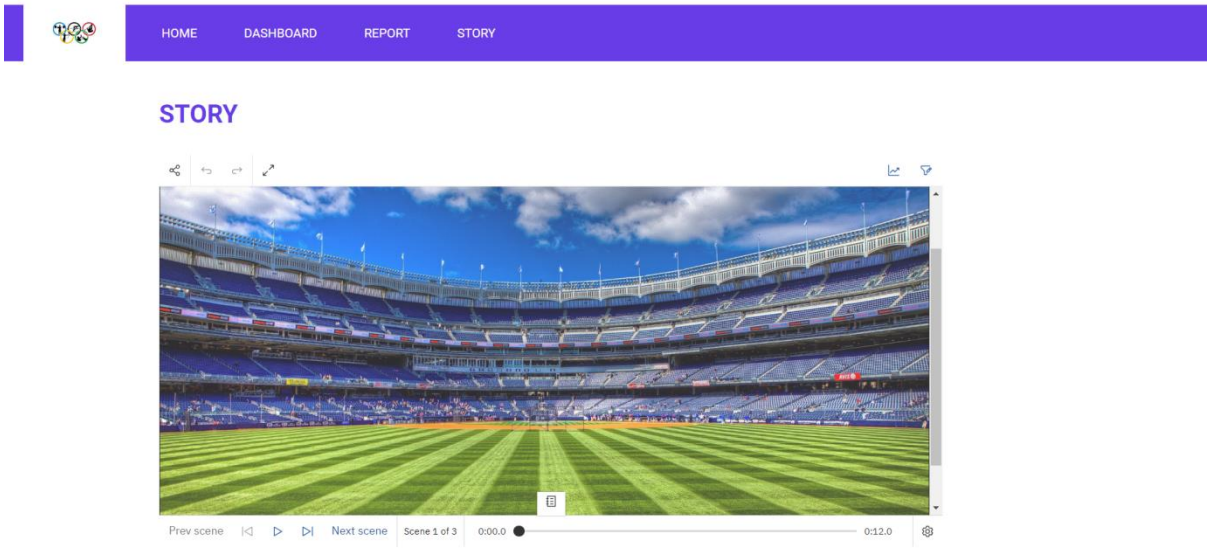


DASHBOARD



REPORT



STORY