PROJECT REPORT

Project Title :

Data – Driven Insights On Olympic Sports Participation And Performance

Team ID : LTVIP2023TMID00391

Team Size : 5

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1.INTRODUCTION

1.1 Overview

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.

This documentation project aims to provide comprehensive insights into Olympic sports participation and performance using data analytics. By leveraging data-driven methodologies, we analyze historical Olympic data to uncover trends, patterns, and key factors influencing athletes' performance in different sports. The documentation is designed for stakeholders, sports organizations, policymakers, and enthusiasts seeking evidence-based information to improve the understanding and management of Olympic sports.

Data Collection and Preprocessing

- Detailed explanation of the data sources, including official Olympic databases, historical records, and publicly available datasets.
- A step-by-step account of data preprocessing techniques, covering data cleaning, handling missing values, and data integration to ensure the dataset's quality and consistency.

Exploratory Data Analysis (EDA)

- Demographics Analysis: Visualizations and statistical summaries showcasing the distribution of athletes' gender, age,

and representation across countries over various Olympic editions.
- Medal Distribution and Trends: Graphs and charts illustrating the distribution of medals across sports, countries, and years, helping identify trends and dominant sporting nations.
- Host Country Impact: Analyzing the performance of host countries and investigating whether hosting the Olympics provides a home advantage for athletes.

Sports-Specific Performance Analysis

- Detailed breakdown of individual sports' performance metrics, including records, winning patterns, and relevant indicators, offering insights into training strategies and performance benchmarks.
- Comparison of sports' popularity and participation levels over time to understand the evolution of Olympic events.

Predictive Analytics (Optional)

- If applicable, predictive models developed to forecast potential trends in sports participation and performance for future Olympic Games, with a focus on machine learning algorithms and evaluation metrics used.

Key Findings and Insights

- A comprehensive summary of the key findings and insights obtained from the data analysis, highlighting crucial factors that contribute to Olympic sports success.

1.2 Purpose

The main objective of this study is to analyse the various factors mentioned above which plays a vital role in the evolution of the

Olympic Games over the years. The Analysis will include the visualisation and explanation of the change in trends of the various factors over the years which will help to predict the information of future Olympic Games. As the Olympic Games are one of the most important sporting events across the world, each country and each player tries to give their best performance in the event. To improve their performance, every country should perform such an Analysis which would help them in the improvement of their policies and strategies by providing current statistics to them.

2.LITERATURE SURVEY

2.1 Existing problem

Building Olympic Data Analysis Web Application for analyzing data over the years which helps athletes in widening their scope of winning a medal and might be useful for further predictions. The 2022 Winter Olympics took place between the 4 and 20 February 2022 and were hosted by in China in the capital city of Beijing. The country selected was the subject of various concerns and controversies about their cost, environmental impact, censorship, espionage, COVID-19, sportswashing, and human rights issues .

The Olympics are a financial drain on host cities. The Olympics force host cities to create expensive infrastructure and buildings that fall into disuse. The Olympics displace and burden residents of the host country .

2.2 Proposed solution

Increase the number of facilities which people can use for pursuing sports, and increase the accessibility and quality of the existing infrastructure. There are a lot of sports for which you just

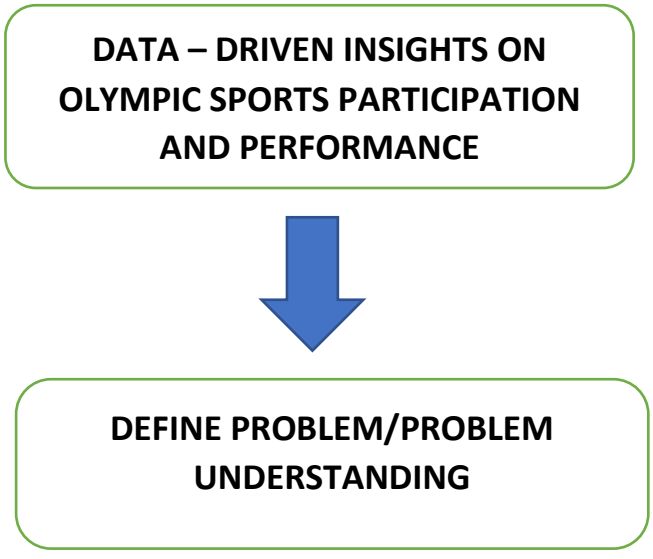
need some open space and equipment, but to pursue any sport in an organized manner, one needs proper facilities to play.

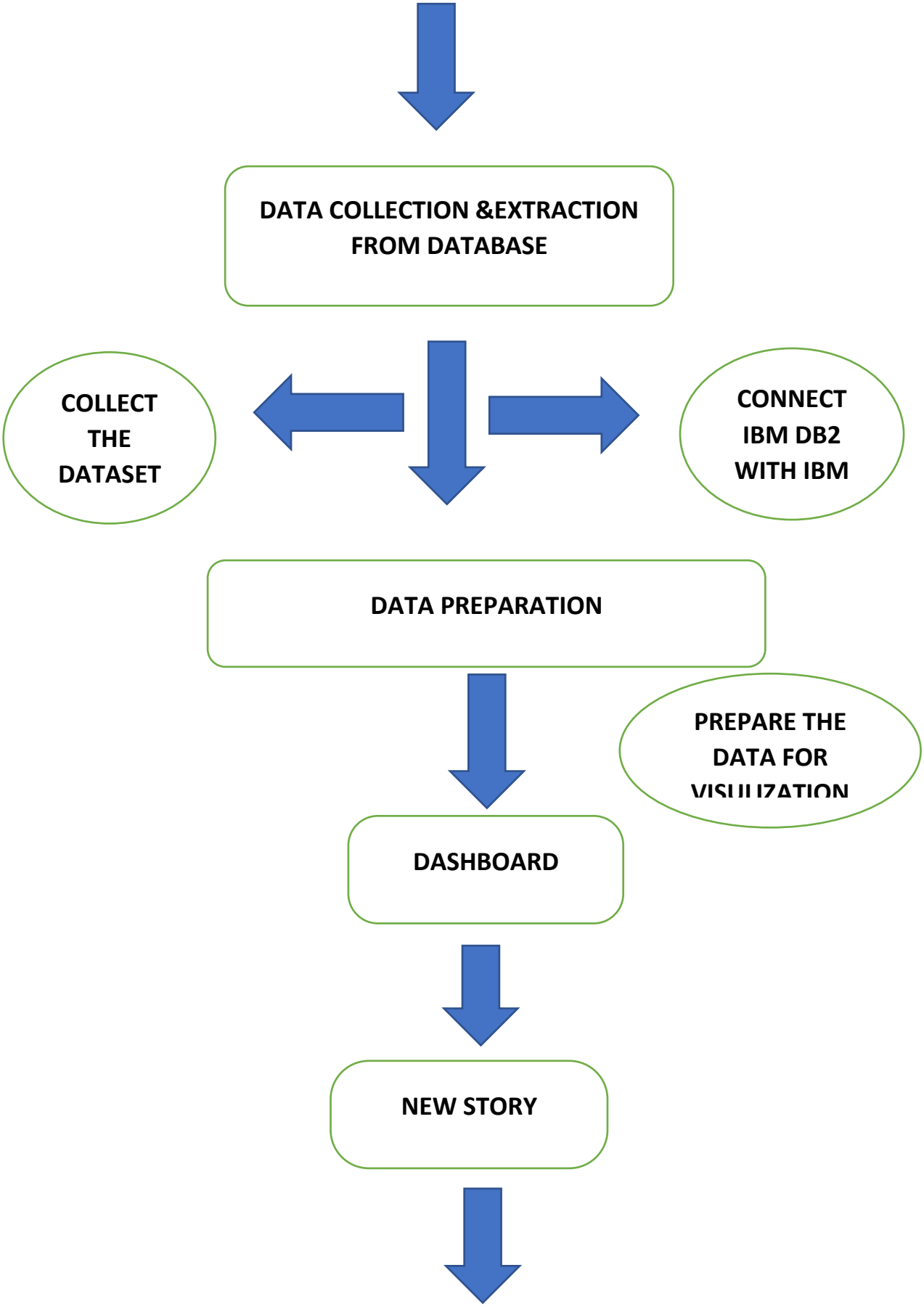
The best way to develop sports at the grassroots level is to integrate it as a goal for schools to pursue. The combination which schools possess is priceless – infrastructure with a structured group of children going through it. Most schools have an open field, a lot of them have at least a basketball court. And they have a couple of hours a week which they can dedicate to sports for the kids. According to the next five year plan, it's expected that sports in schools will be taken more seriously at the school level, thus enabling the development of young talent. Initiatives such as marks for sports come to mind too. There is a world of untapped potential in schools, we just need to tap in to it.

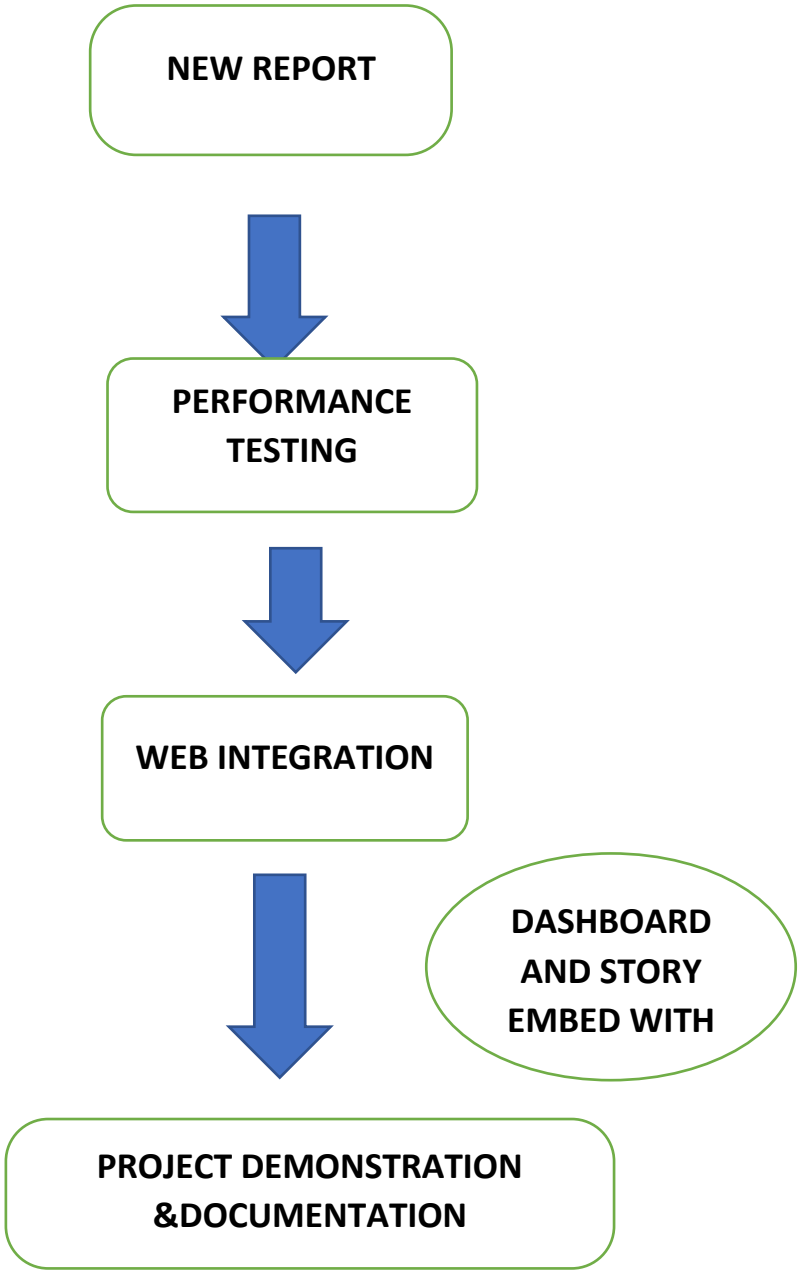
Increase the number of facilities which people can use for pursuing sports, and increase the accessibility and quality of the existing infrastructure. There are a lot of sports for which you just need some open space and equipment, but to pursue any sport in an organized manner, one needs proper facilities to play. Elite athletes also require proper facilities to train and push their game to the next level.

3.THEORITICAL ANALYSIS

3.1 Block diagram




DATA COLLECTION &EXTRACTION FROM DATABASE
COLLECT THE DATASET
CONNECT IBM DB2 WITH IBM
DATA PREPARATION
PREPARE THE DATA FOR
DASHBOARD
NEW STORY



3.2 Hardware/Software designing

Software Requirements:

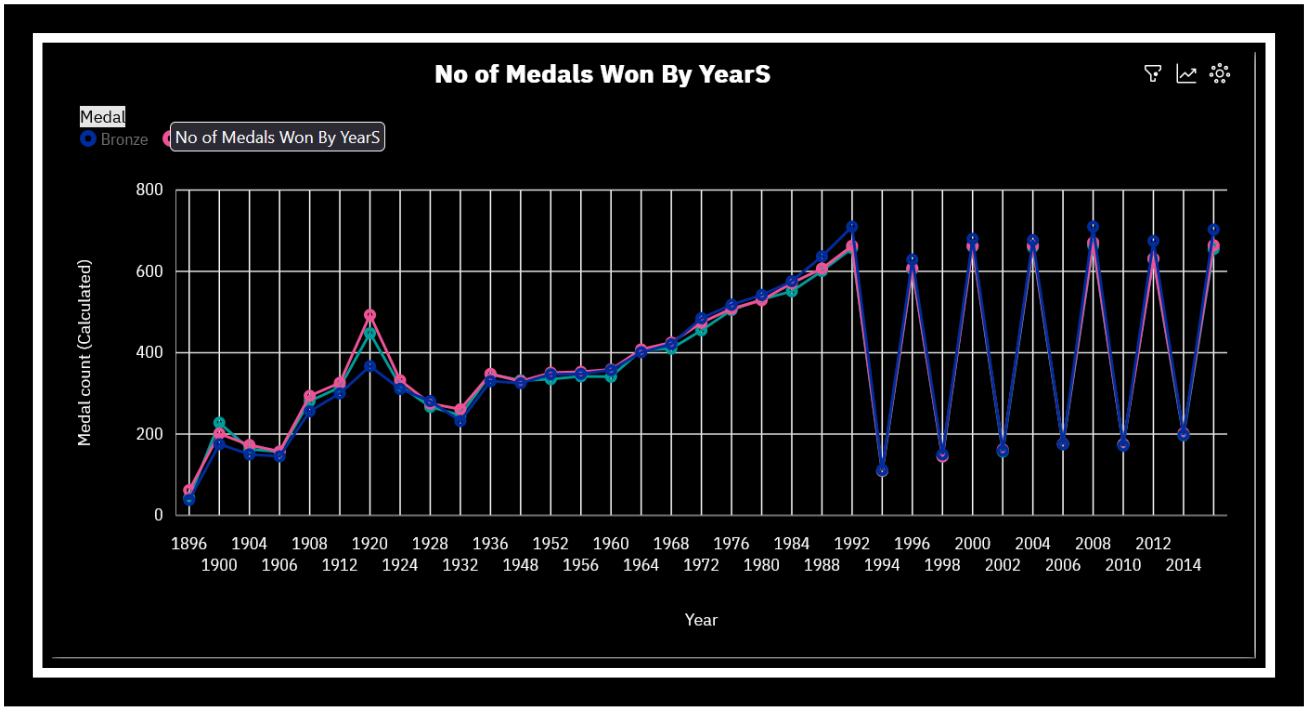
- IBM cognos analytics Tool
- Flask
- Integrated Development Environment (IDE)-Spyder

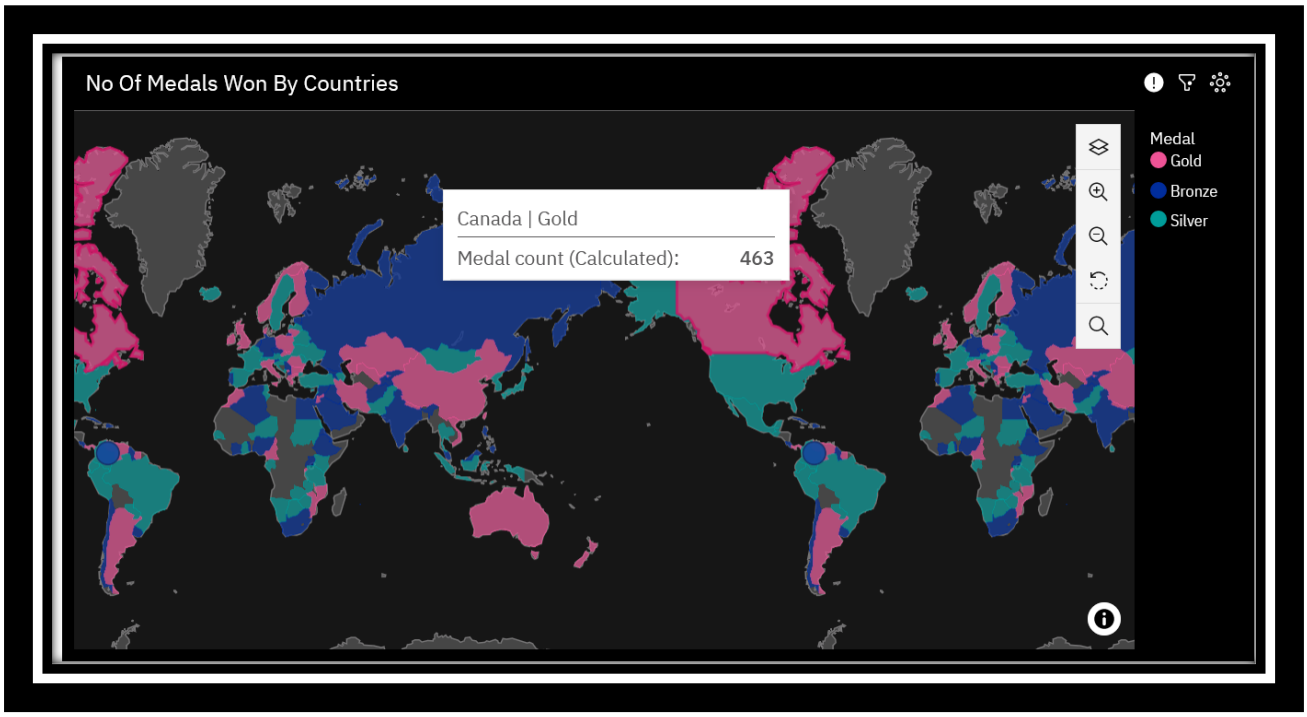
Hardware Requirements:

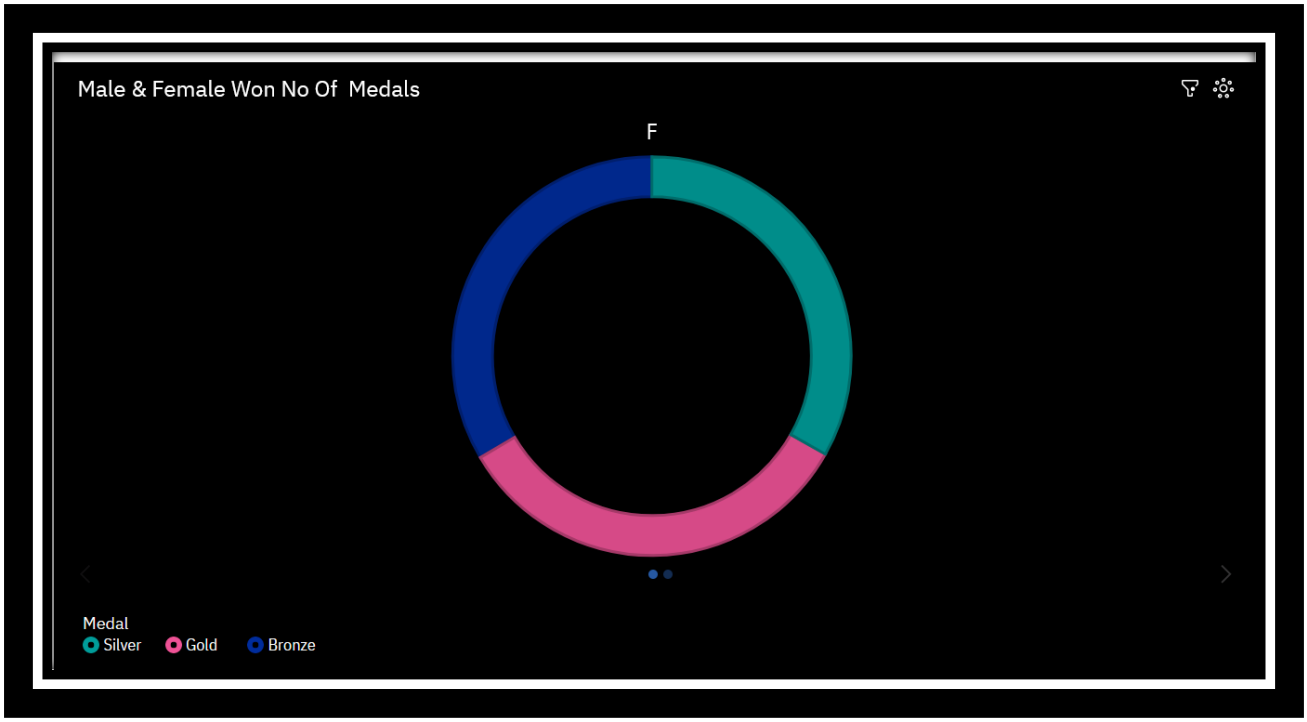
- Minimum System Requirements (RAM-4GB, Quad core

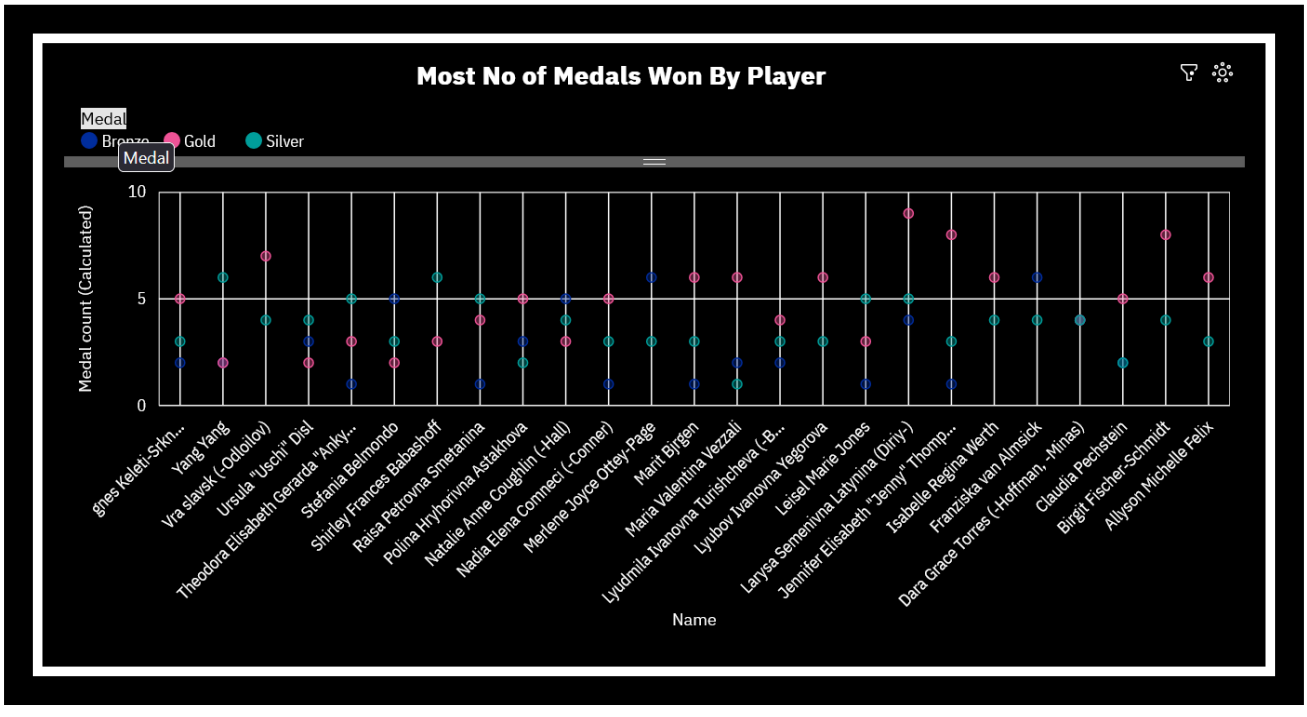
Processor Or above).

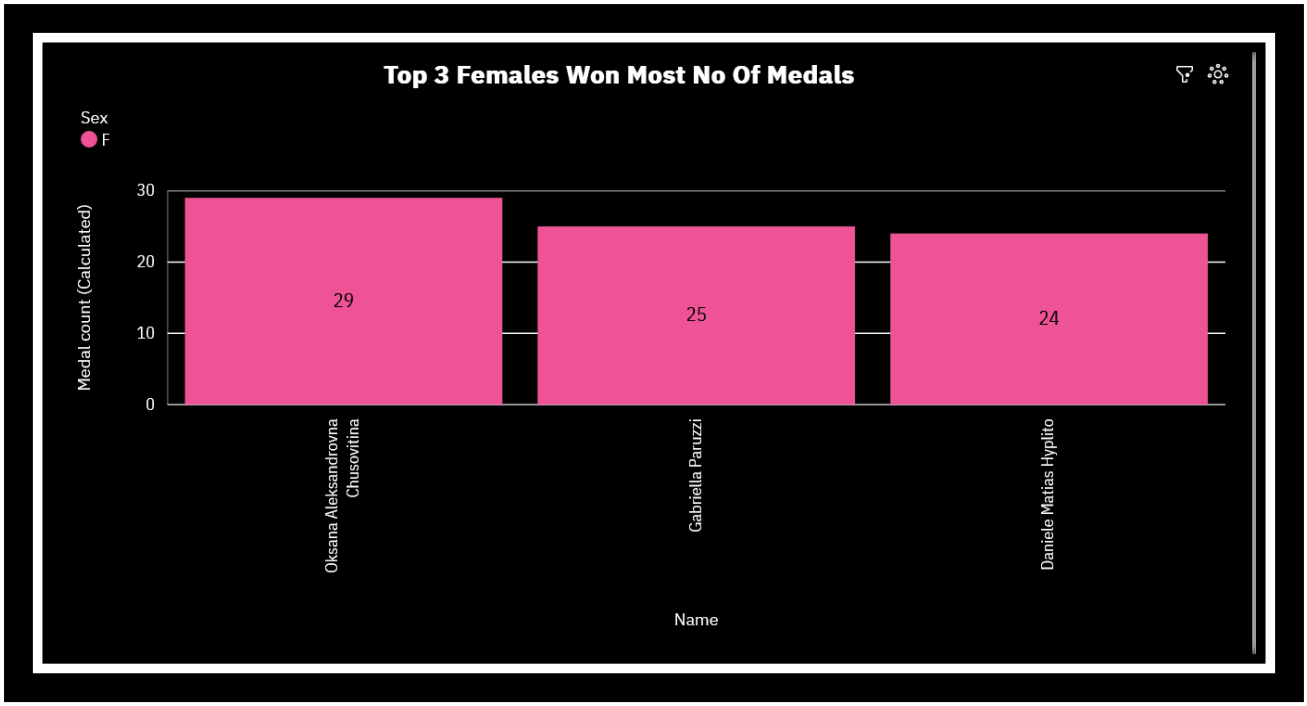
4.RESULT

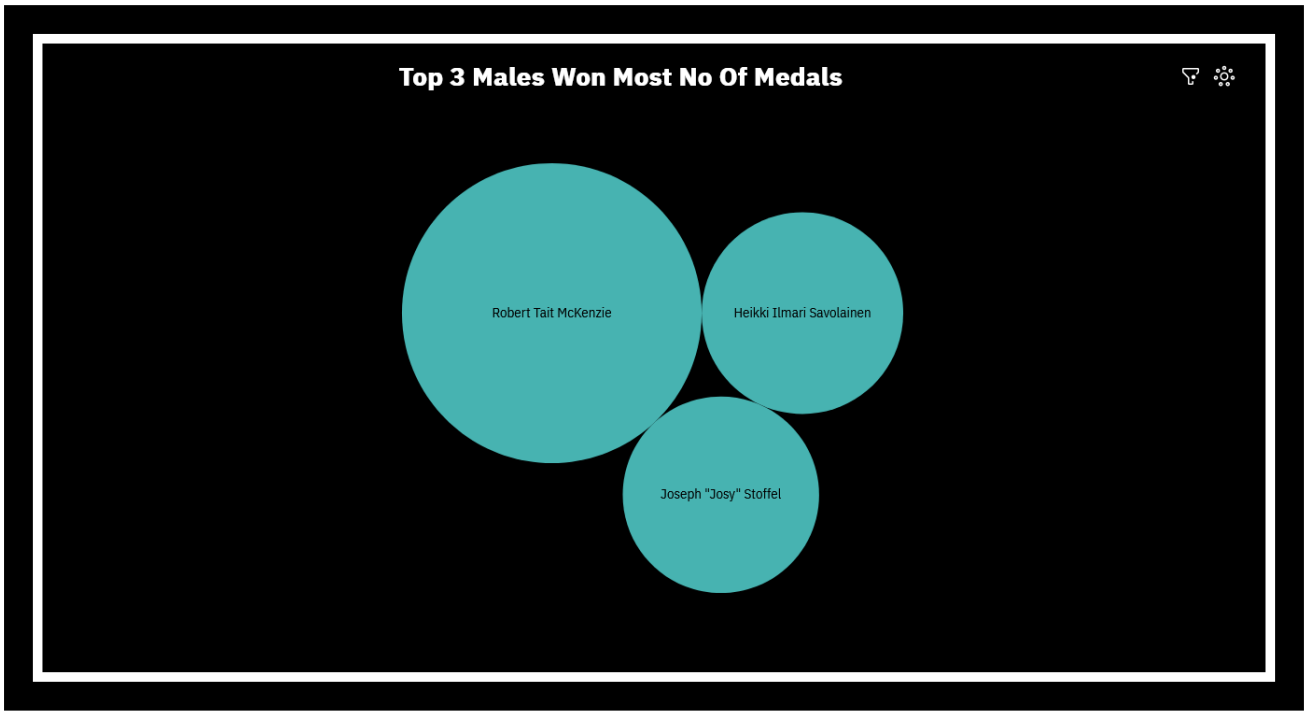





Male & Female Won No Of Medals
F
Medal
Silver
Gold
Bronze

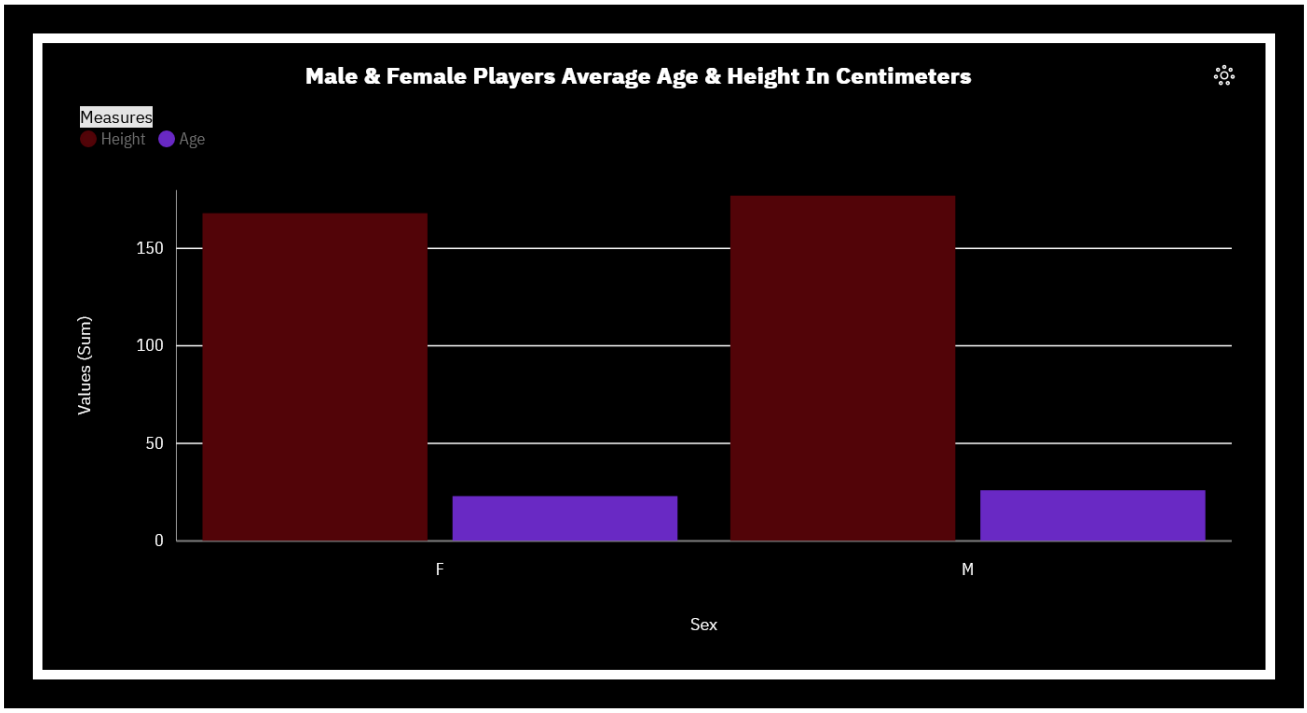

Most No of Medals Won By Player
Medal
Gold
Silver
Medal
10
5
0
Medal count (Calculated)
gnes Keleti-Srkn...
Yang Yang
Vra slavsk (-Odlolov)
Ursula "Uschi" Disl
Theodora Elisabeth Gerarda "Anky...
Stefania Belmondo
Shirley Frances Babashoff
Raisa Petrovna Smetanina
Polina Hryhorivna Astakhova
Natalie Anne Coughlin (-Hall)
Nadia Elena Comneci (-Conner)
Merlene Joyce Ottey-Page
Mark Birgen
Maria Valentina Vezzali
Lyudmila Ivanovna Turishcheva (-B...
Lyubov Ivanovna Yegorova
Leisel Marie Jones
Larysa Semenivna Latynina (Diriy-)
Jennifer Elisabeth "Jenny" Thomp...
Isabelle Regina Werth
Franziska van Almsick
Dara Grace Torres (-Hoffman, -Minas)
Claudia Pechstein
Birgit Fischer-Schmidt
Allyson Michelle Felix
Name

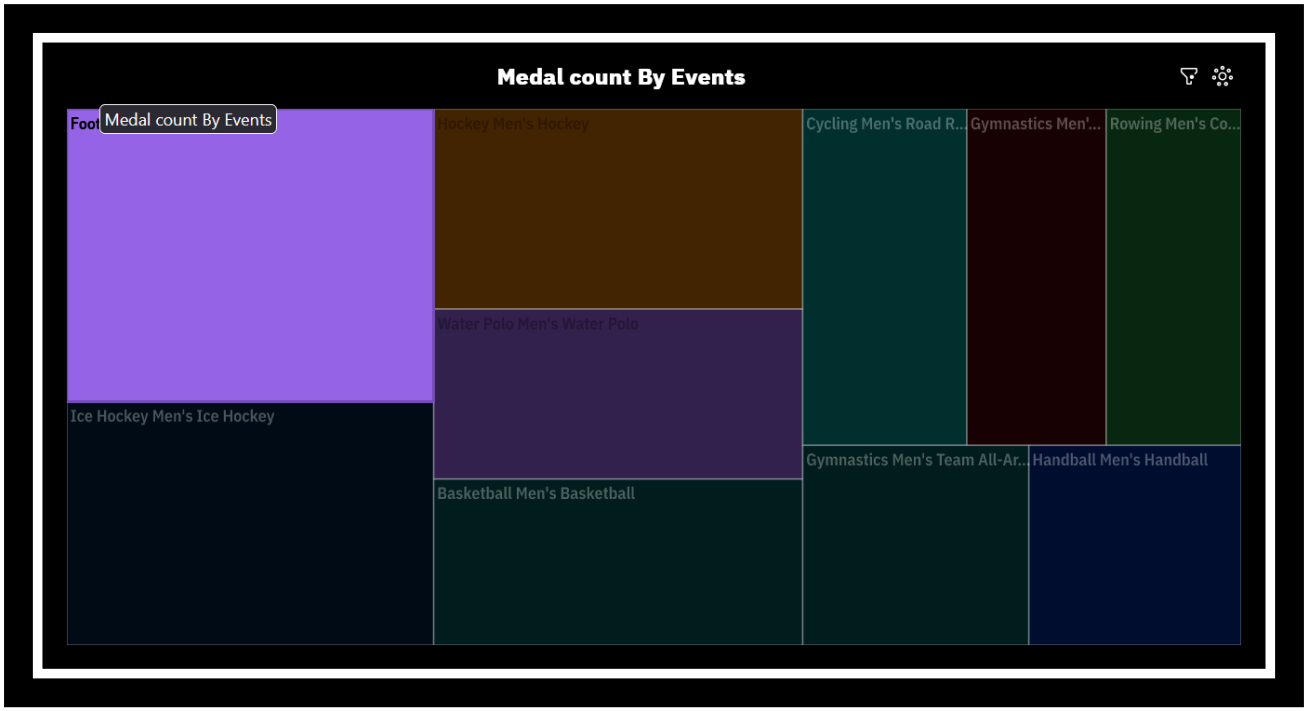

Top 3 Females Won Most No Of Medals
Sex
F
Medal count (Calculated)
30
20
10
0
29
25
24
Oksana Aleksandrovna Chusovitina
Gabriella Paruzzi
Daniele Matias Hyplito
Name

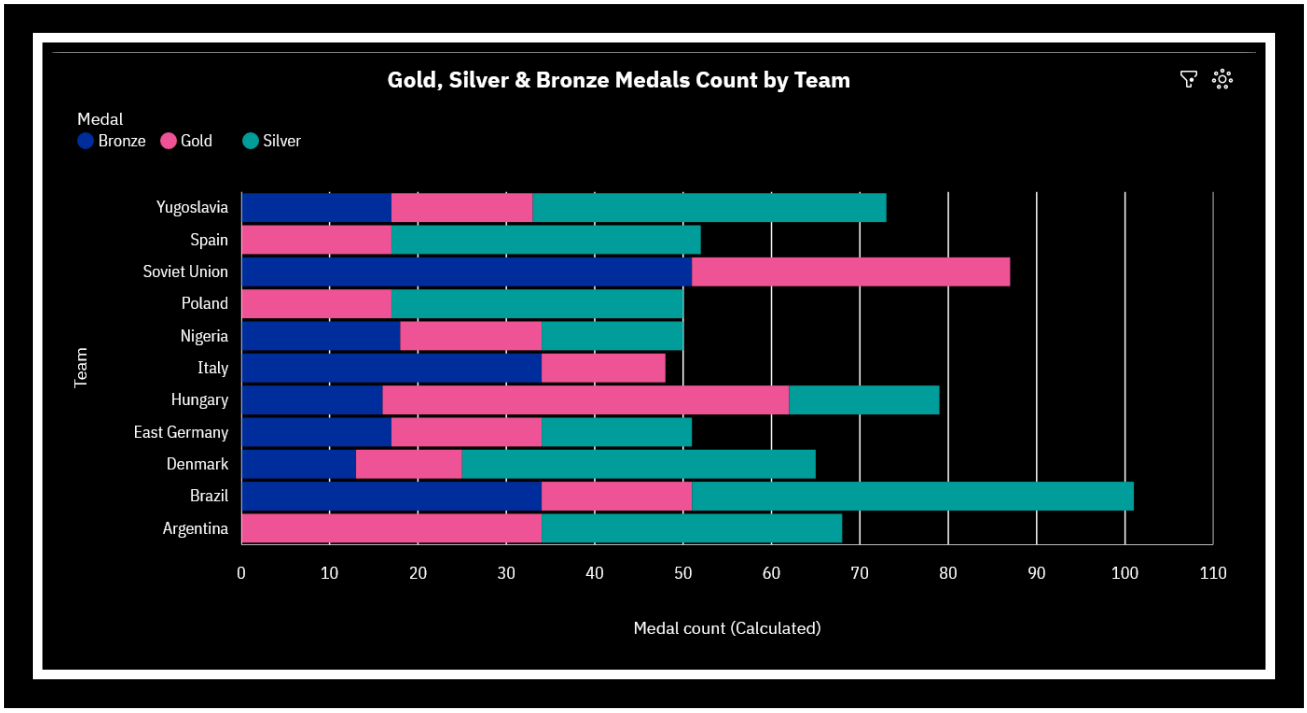

Top 3 Males Won Most No Of Medals
Robert Tait McKenzie
Heikki Ilmari Savolainen
Joseph "Josy" Stoffel

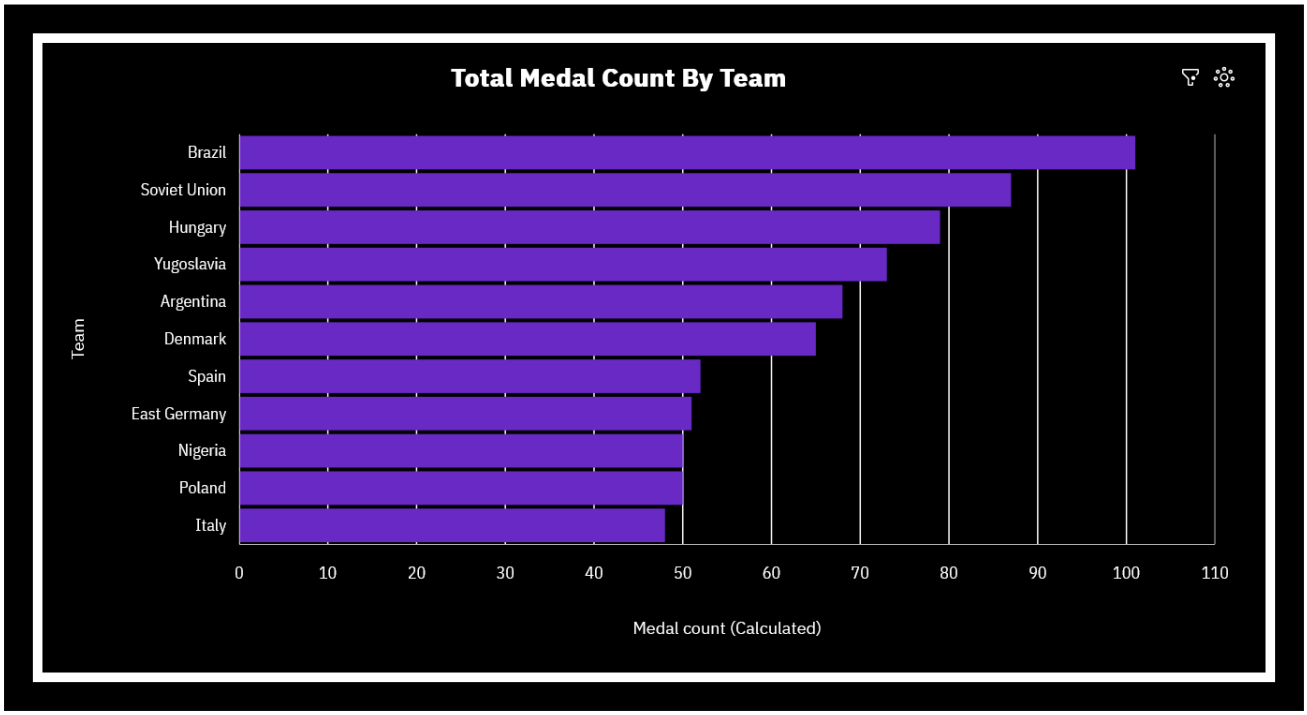
Won Gold Medal In Sports
Athletics
Swimming
Gymnastics
Rowing
Shooting
Sailing
Football
Fencing
Volleyball
Canoeing
Ice Hockey
Basketball
Handball
Hockey
Wrestling
Cycling
Boxing
Equestrianism
Water Polo
Cross Country Skiing
Speed Skating
Weightlifting
Judo
Biathlon
Alpine Skiing
Figure Skating
Rugby
Ski Jumping
Modern Pentathlon
Tennis
Art Competitions
Badminton
Softball
Archery
Short Track Speed Skating
Bobsleigh
Diving
Table Tennis
Baseball
Synchronized Swimming
Rhythmic Gymnastics
Snowboarding
Nordic Combined
Freestyle Skiing
Taekwondo
Tug-Of-War
Jeu De Paume
Trampolining
Military Ski Patrol
Roque
Polo
Alpinism
Curling
Golf
Aeronautics
Beach Volleyball
Cricket
Croquet
Lacrosse
Triathlon
Racquets
Motorboating
Skeleton
Rugby Sevens
Luge

Won Silver Medals In Sports
Won Silver Medals In Sports
Athletics
Swimming
Gymnastics
Rowing
Sailing
Volleyball
Basketball
Canoeing
Boxing
Figure Skating
Ice Hockey
Fencing
Football
Water Polo
Cross Country Skiing
Hockey
Wrestling
Equestrianism
Cycling
Weightlifting
Handball
Shooting
Speed Skating
Biathlon
Ski Jumping
Alpine Skiing
Archery
Tennis
Rugby
Table Tennis
Nordic Combined
Judo
Synchronized Swimming
Art Competitions
Cricket
Badminton
Softball
Triathlon
Racquets
Baseball
Luge
Modern Pentathlon
Curling
Diving
Polo
Golf
Jeu De Paume
Lacrosse
Freestyle Skiing
Rhythmic Gymnastics
Snowboarding
Trampolining
Tug-Of-War
Rugby Sevens
Military Ski Patrol
Roque
Taekwondo
Bobsleigh
Skeleton
Croquet
Beach Volleyball


Male & Female Players Average Age & Height In Centimeters
Measures
Height
Age
150
100
50
0
Values (Sum)
F
M
Sex


Medal count By Events
Medal count By Events
Foot
Hockey Men's Hockey
Cycling Men's Road R...
Gymnastics Men'...
Rowing Men's Co...
Water Polo Men's Water Polo
Ice Hockey Men's Ice Hockey
Gymnastics Men's Team All-Ar...
Handball Men's Handball
Basketball Men's Basketball


Gold, Silver & Bronze Medals Count by Team
Medal
Bronze
Gold
Silver
Team
Yugoslavia
Spain
Soviet Union
Poland
Nigeria
Italy
Hungary
East Germany
Denmark
Brazil
Argentina
0
10
20
30
40
50
60
70
80
90
100
110
Medal count (Calculated)

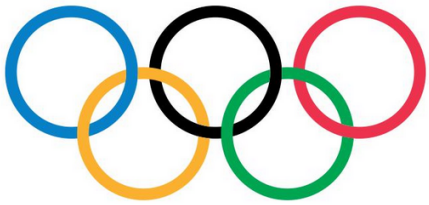

Total Medal Count By Team
Team
Brazil
Soviet Union
Hungary
Yugoslavia
Argentina
Denmark
Spain
East Germany
Nigeria
Poland
Italy
0
10
20
30
40
50
60
70
80
90
100
110
Medal count (Calculated)

Olympic

Home Dashboard Story Report

Olympic Sports Performance Analysis

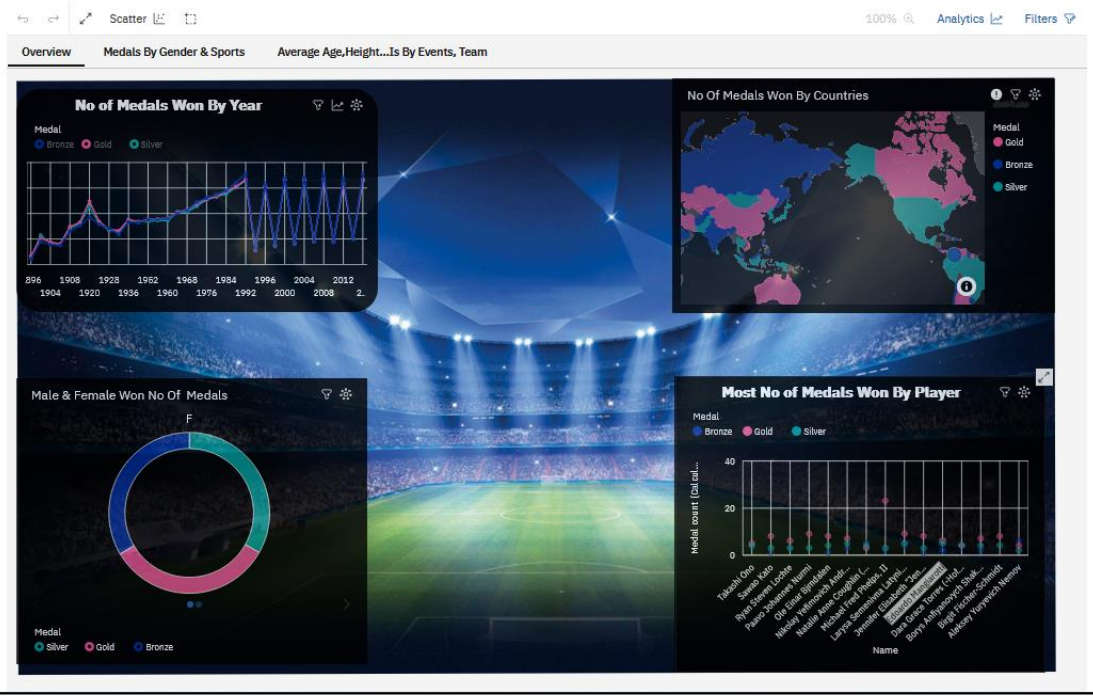
The Olympic Games are an international sports festival, held every four years. The ultimate goals are to cultivate human beings, through sport, and contribute to world peace. Summer Games and Winter Games are held separately. In 2012, the commemorative XXX Olympic Games were held in London, with athletes from 204 countries and regions participating in 26 sports, with a total of 302 separate events.



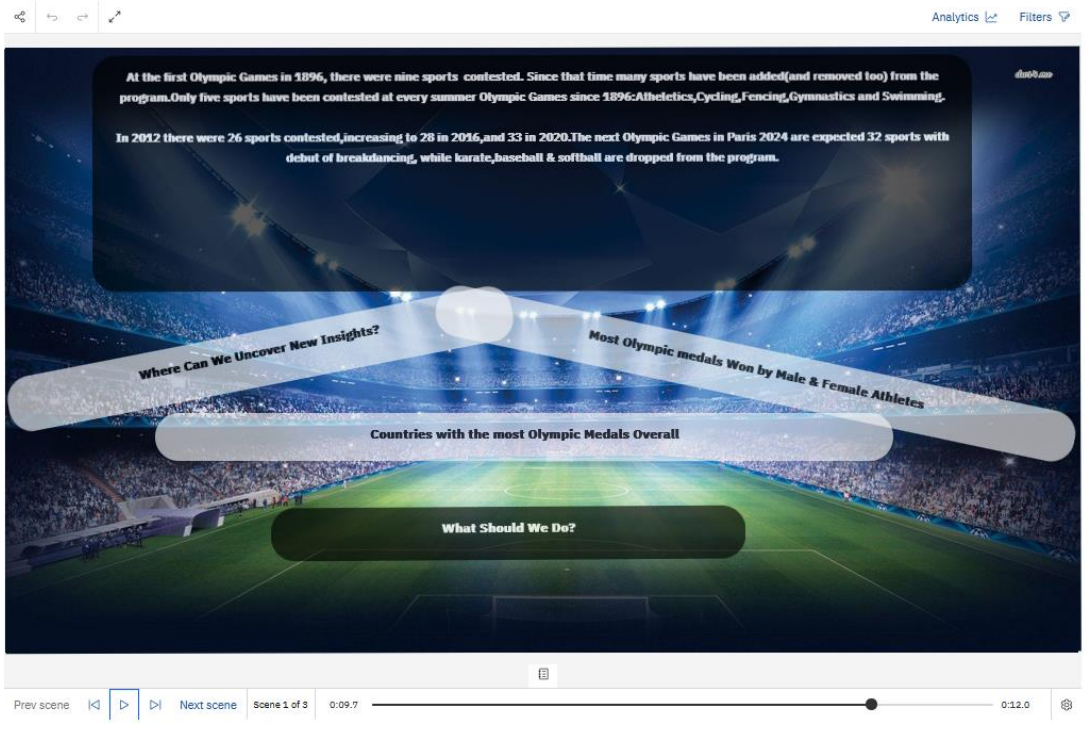
Welcome to Olympic Sports Analysis

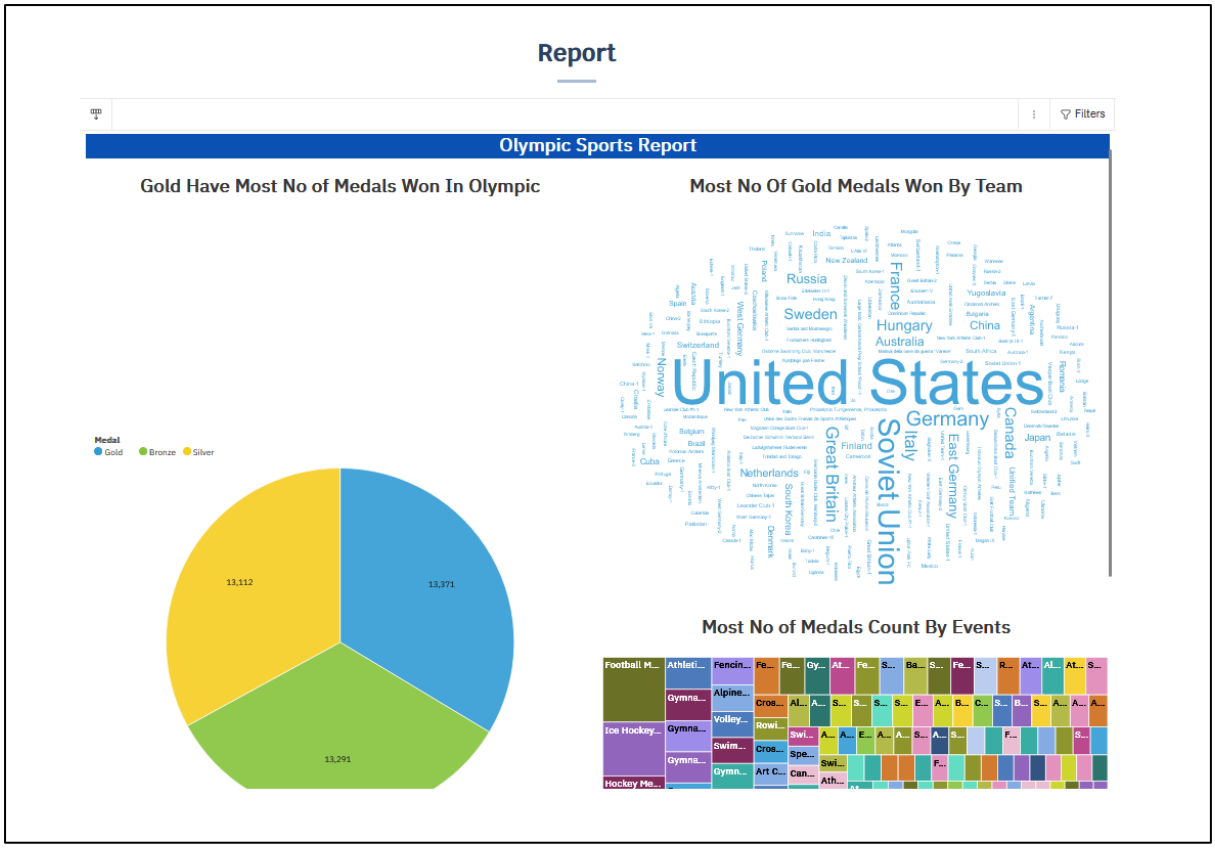
The list of Olympic sports has changed considerably during the course of Olympic history, and has gradually increased over time. The only summer sports that have never been absent from the Olympic program are athletics, aquatics (the discipline of swimming has been in every Olympics), cycling, fencing, and gymnastics (the discipline of artistic gymnastics has been in every Olympics). The only winter sports that were included in all Winter Olympic Games are skiing (only nordic skiing), skating (figure skating and speed skating), and ice hockey. Figure skating and ice hockey were also included in the Summer Olympics before the Winter Olympics were introduced in 1924.

Dashboard



Story





Project Demonstration Video:

https://drive.google.com/file/d/1OpU5SSTjnuR6KTM7y0gkgDlTah3cNMwD/view?usp=drive_link

5.ADVANTAGES & DISADVANTAGES

Advantages

- **Physical Fitness and Health**: One of the most obvious many advantages to playing sports is the positive impact on physical fitness and overweight reduction. Regular participation in sports promotes cardiovascular health, improves endurance, builds strength, and enhances overall physical conditioning. Additionally, engaging in

sports activities helps reduce the risk of chronic illnesses such as obesity, diabetes, and heart disease.

- **Teamwork and Cooperation**: Team sports provide an excellent platform for learning valuable skills in teamwork and cooperation. Being part of a team teaches individuals how to work together, communicate effectively, and solve problems collectively. These skills are transferable to various aspects of life, including school, work, and personal relationships.
- **Self-Discipline and Perseverance**: Playing sports requires dedication, hard work, discipline, and perseverance. Athletes must adhere to training schedules, maintain a healthy lifestyle, and push themselves to improve in a great way. Through sports, individuals learn the beneficial importance of setting goals, working hard, and overcoming challenges, which can contribute to personal growth and success in other areas of life.
- **Mental Well-being**: Sports not only benefit physical health but also contribute to mental well-being. Regular physical activity releases endorphins, which elevate mood and reduce stress levels. Engaging in sports can serve as a positive outlet for managing stress, improving self-esteem, and combating symptoms of depression and anxiety.
- **Social Skills and Relationships**: Participating in sports allows individuals to develop social skills and build relationships with teammates, coaches, and opponents. Sports provide opportunities to meet new people, make friends, and develop a sense of camaraderie. These social interactions can contribute to an individual's overall social development and help create lasting connections

Disadvantages

- **Risk of Injury**: Sports, especially contact sports, carry a certain risk of injury and get hurt. While precautions are taken to minimize injuries, accidents can still occur. Sprains, fractures, concussions, and other injuries can happen during sports activities, requiring medical attention and potentially affecting an athlete's performance or long-term health. Sports can cause certain affections if not well played.

- **Time and Commitment**: Playing a sport demands a significant amount of time and commitment. Athletes must dedicate hours to training, attending practices, and competing in games or matches. Balancing sports with other responsibilities, such as academics or work, can be challenging and may lead to added stress and reduced free time.
- **Pressure and Expectations**: The competitive nature of sports can create pressure and high expectations, especially in individual sports or at professional levels. Athletes may feel the need to constantly perform at their best and face intense scrutiny from coaches, teammates, and spectators. This pressure can lead to stress, burnout, and a negative impact on an athlete's mental well-being.
- **Inequality and Exclusion**: Sports can sometimes perpetuate inequalities and exclusion. Certain sports may require expensive equipment or facilities, limiting access for individuals from lower socioeconomic backgrounds. Additionally, gender biases and lack of inclusivity in certain sports can prevent equal opportunities for participation and success.

6. APPLICATIONS

The goal of the Olympic Movement is to contribute to building a peaceful and better world by educating youth through sport practiced without discrimination of any kind and in the Olympic spirit, which requires mutual understanding with a spirit of friendship, solidarity and fair play.

The original values of Olympism as expressed in the Olympic Charter were to “encourage effort”, “preserve human dignity” and “develop harmony”.

Over time, they have evolved and are now expressed in more contemporary terms as:

- Striving for excellence and encouraging people to be the best they can be.

- Celebrating friendship, which is quite unique to the Olympic Games – an event that brings people together every few years.
- Demonstrating respect in many different manners: respect towards yourself, the rules, your opponents, the environment, the public, etc.

7.CONCLUSION

The Olympic Games are a global sports event that has been held every four years since 1896. In this study, we analyzed data from the Olympic Games over the past century to understand patterns and trends in the medal counts, individual athlete performance, and news coverage.

Our results show that the medal counts have changed over time, with some countries becoming more dominant. In the country-wise analysis, we observed that the performance of countries varies over time and is heavily influenced by the sports they participate in. In the athlete-wise analysis, we found that individual performance of athletes is not always correlated with the overall success of their country. This study provides a comprehensive analysis of Olympic data and offers insights into the historical development of the Olympic Games, as well as giving context to how different nations have performed over the years.

Our findings have implications for researchers, sports organizations and policymakers who are interested in understanding the dynamics of Olympic Games and the nations that participate in it. We believe that this study will make a valuable contribution to the existing literature on Olympic data analysis and we hope that our results will inspire future research in this field. Furthermore, this research can inform policy makers about the strengths and

weaknesses of their countries in sport and also for sport organizations on how to prepare for future Olympics.

8.FUTURE SCOPE

Our Project contains some imperfections and weakness. We plan to overcome some of these weaknesses in future ans see these limitations as future scope. These are:

● No Prediction is done - We have used the data related to Olympics and analyzed it thoroughly but have not predicted anything. So we can feed this analyzed data to Machine Learning Algorithms to Predictive something related to the same.

● We have only added information regarding Olympics in Sports Snooze, other major sporting events like Common wealth games, Asian games etc can be made a part of Sports Snooze.

● We can update live scores during the events itself, addition of text commentary feature etc.