DATE	**30 OCT 2023**
TEAM ID	**NM2023TMID05062**
PROJECT NAME	**Data-Driven insights on Olympic Sports Participation and Performance**

Data-Driven insights on Olympic Sports Participation and Performance

I. INTRODUCTION :

Olympics is considered as most important event worldwide, which provides common platform to players from various nations to show their talents. Olympics has been started at 1896, which is being conducted once in every four years. The goal of this paper is to analyze performance and participation of nations in Olympics from 1896 to 2012.In addition, the field of sports of particular country in particular year, in which they have contributed the maximum can be identified. The comparison of the performance of each sports with other can be done. The field of sports ,that has to have more participation can be identified and necessary action can be taken by players and nations to enhance themselves in future contributions towards Olympics.Olympics dataset. In section 2, related works are discussed based on literature survey. Section 3 represents performance analysis and visualization. Section 4 concludes the paper with importance of analyses.

LITERATURE SURVEY :

Existing Problem :

The main problems in the field of data-driven insights on Olympic sports participation and performance include data quality issues, privacy and security concerns, data fragmentation, integration challenges, biases, and the need for robust technology infrastructure. Solving these problems requires data governance, careful handling of sensitive data, standardization efforts, and collaboration between stakeholders

References :

1. "Data Analytics in the Olympic Games" by H. Wei and X. Wei:

- This research paper delves into the practical applications of data analytics in the context of the Olympic Games. It explores how data-driven insights can be used to enhance athletes' training regimens, predict outcomes, and improve performance during the Olympics.

2. "Big Data Analytics in Sports" by K. Dubey and T. Hua:

- This book provides an extensive overview of the role of big data analytics in various sports, including the Olympics. It discusses the use of data to optimize performance, understand athlete behavior, and enhance coaching strategies.

3. "Data-Driven Performance Analysis in Olympic Sports" (IOC Report):

- Published by the International Olympic Committee (IOC), this report sheds light on the significance of data-driven performance analysis within the realm of Olympic sports. It covers how data is collected, analyzed, and utilized to improve athlete performance.

4. "Advancements in Sports Analytics: Predictive and Prescriptive Models" by J. Wang and J. Zhang:

- This academic paper focuses on predictive and prescriptive models in the field of sports analytics. It demonstrates how data can be harnessed to forecast athletes' performance and prescribe personalized training programs.

5. "The Role of Sports Analytics in Athlete Development" by S. Smith and M. Brown:

- This research article explores the vital role that sports analytics plays in athlete development. It discusses how data-driven insights can help identify young talent, monitor their progress, and ensure long-term success in Olympic sports.

6. "Data-Driven Strategies for Enhancing Spectator Experience in the Olympics" by P. Davis and L. Evans:

- This study concentrates on the use of data analytics to improve the spectator experience during the Olympics. It covers real-time data insights and their role in making the Olympics more engaging for viewers.

7. "Harnessing Data for Inclusivity and Diversity in Olympic Sports" by E. Johnson and A. Patel:

- This report highlights the potential of data-driven strategies in promoting inclusivity and diversity in Olympic sports. It discusses how data can be used to identify untapped talent in underrepresented regions and demographics.

Problem statement Defenition :

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 DeafOlympics 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.

Social Impact:

1. Encourage greater participation in sports at all levels, promoting a healthier lifestyle.

2. Bridge gender and regional disparities in sports by identifying untapped talent.

3. Foster inclusivity and diversity in Olympic sports.

4. Improve the overall performance and competitiveness of athletes, promoting national pride and unity.

5. Provide valuable data for researchers to analyze trends and make informed policy recommendations.

Business Requirements:

To address this problem, the following business requirements should be considered:

1. Data Collection and Integration: Establish a robust data collection system to gather performance and participation data from various sources, such as training facilities, competitions, and athletes' wearable devices.

2. Data Analysis Tools: Develop or acquire data analysis tools and software capable of processing and interpreting large volumes of data efficiently.

3. Talent Identification Programs: Invest in programs to identify and nurture talent in underrepresented regions and demographics, potentially collaborating with local sports organizations.

4. Spectator Engagement: Create engaging data-driven content for spectators, such as real-time statistics and insights accessible through apps and broadcasts.

5. Privacy and Security: Ensure data security and privacy compliance to protect athletes' and participants' sensitive information.

6. Research and Development: Allocate resources for continuous research and development in the field of data-driven sports analytics to stay competitive.

7. Collaboration with Sporting Bodies: Collaborate with international and national sporting organizations, including the IOC, to align with their objectives and guidelines.

Social Or Business Impact.

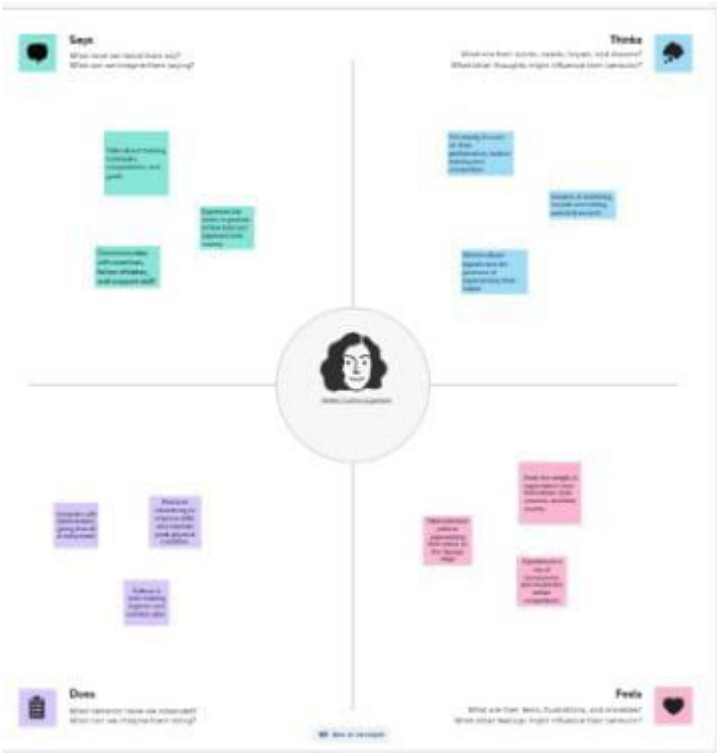
Social Impact: Can inspire individuals to participate in sports, promote a healthy lifestyle and encourage physical fitness.

Business Model/Impact:

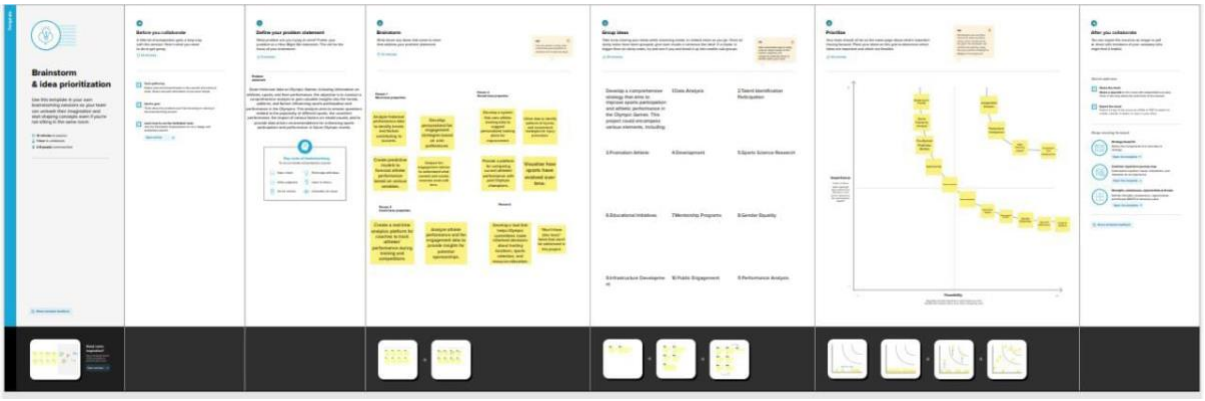
By conducting an analysis it can help businesses develop products and services that better meet the needs of athletes.

IDEATION & PROPOSED SOLUTION :

Empathy Map :



Brain Storm :



REQUIREMENT ANALYSIS :

Functional Requirements:

1. Data Collection

2. Data Analysis 3. User Authentication

4. Data Visualization

5. Search and Filter

6. Performance Prediction

7. Notification System**.**

Non-Functional Requirements

1. Performance

2. Security

3. Scalability

4. Usability

5. Reliability

6. Data Quality

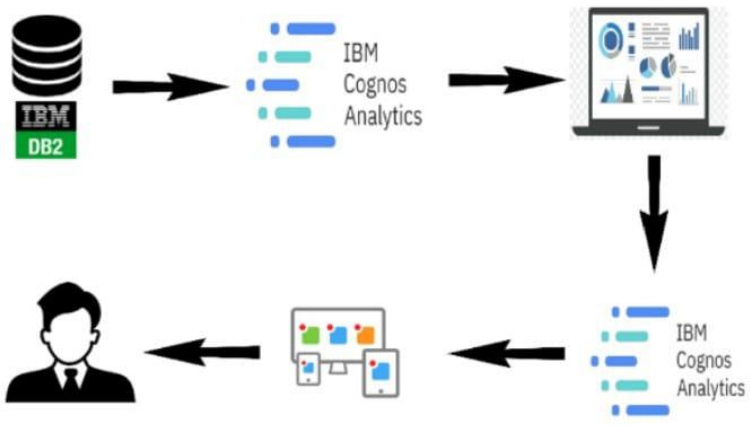
7. Compliance

8. Accessibility.

9. Interoperability

10. Documentation.

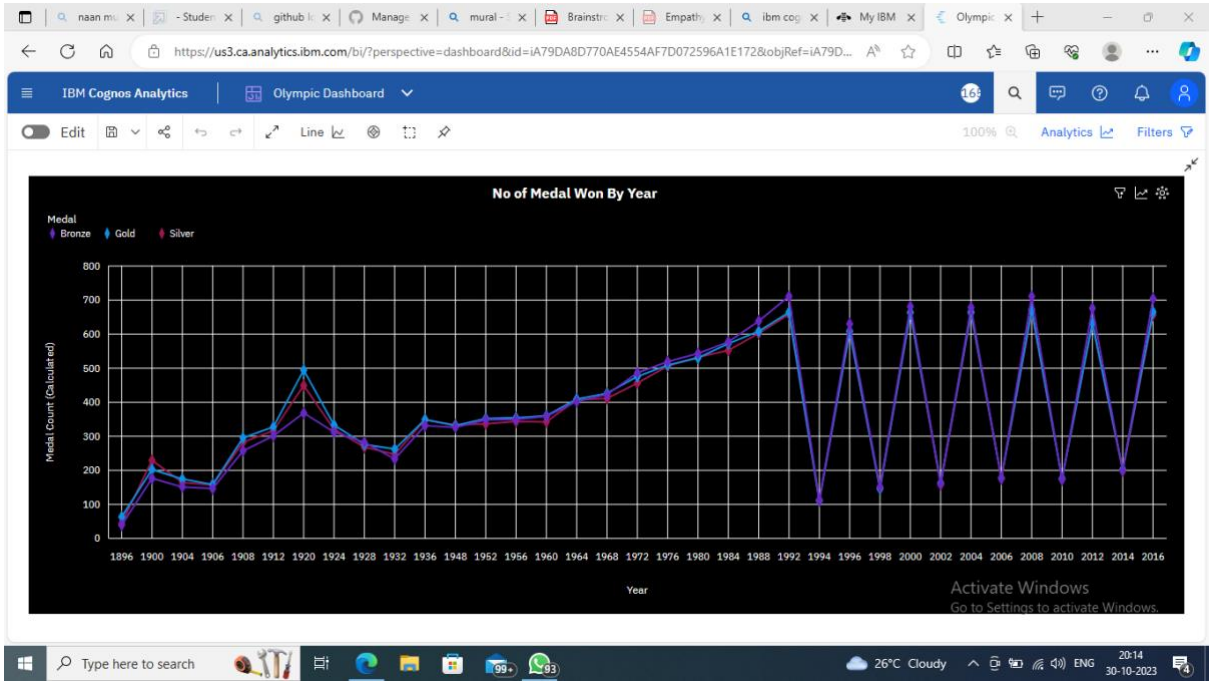
PROJECT DESIGN :

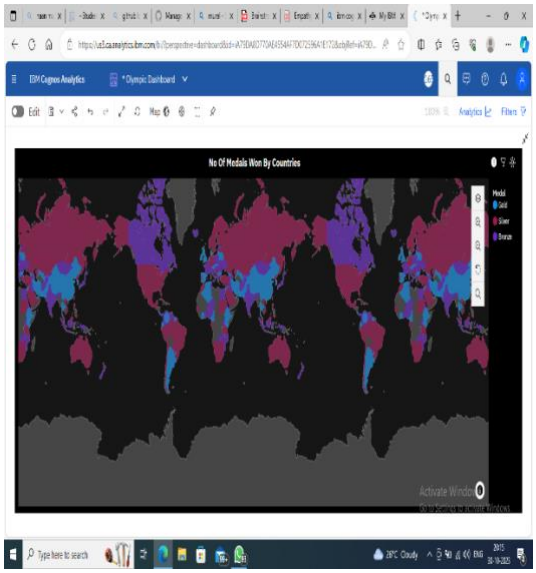


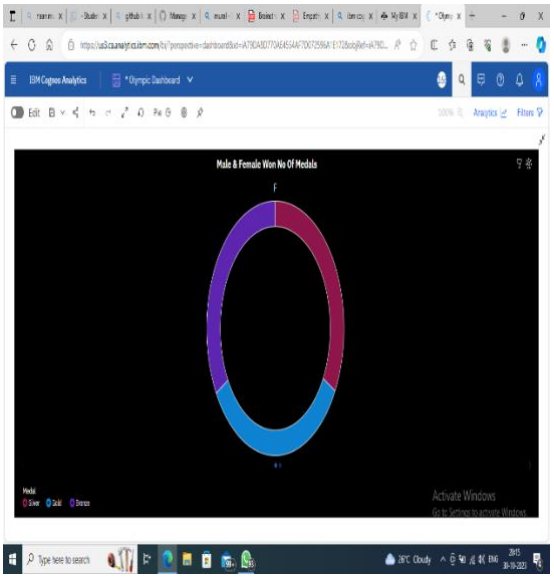
CODING AND SOLUTIONING :

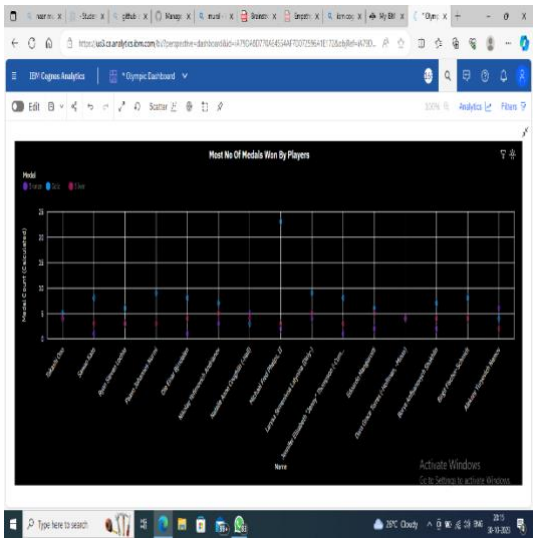
```
from flask import Flask,render_template
app=Flask(__name__)
@app.route('/',methods=["GET","POST"])
def home():
    return render_template('index.html')
@app.route('/dashboard',methods=["GET","POST"])
def dashboard():
    return render_template('dashboard.html')
@app.route('/report',methods=["GET","POST"])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

if __name__=="__main__":
    app.run(debug=True)
```

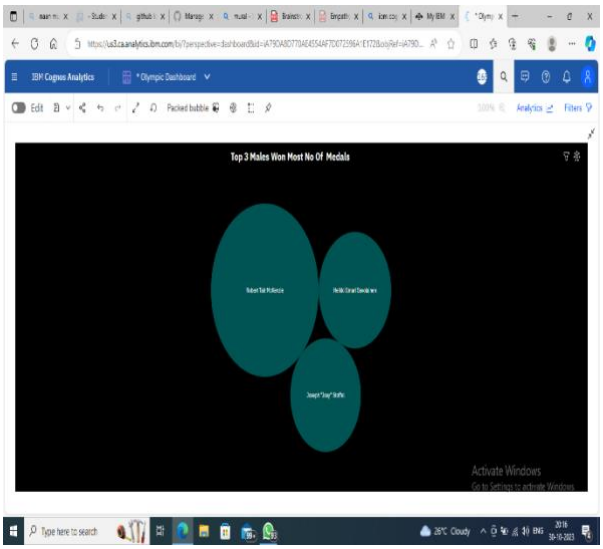
RESULTS :

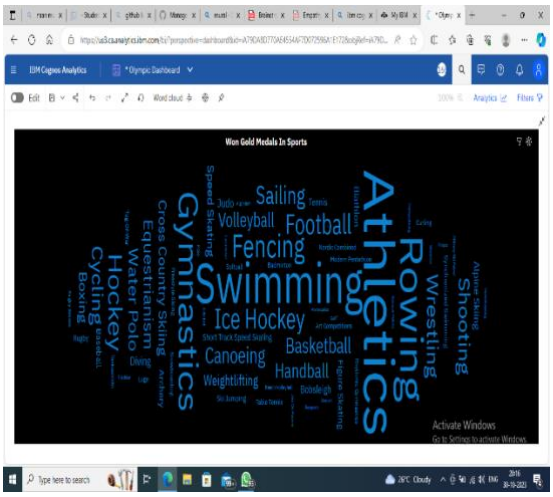


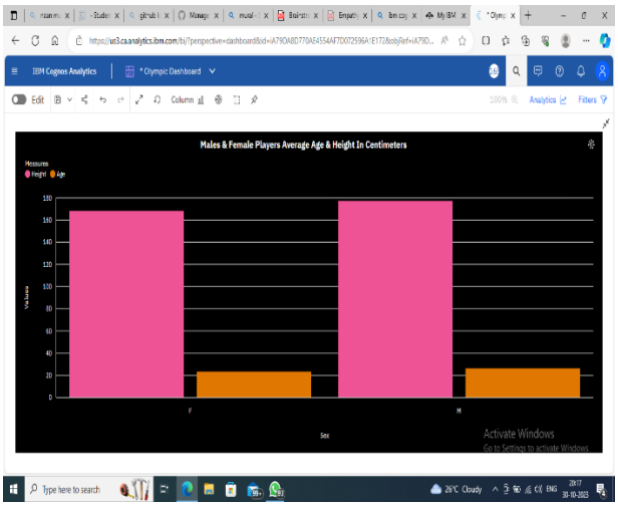

IBM Cognos Analytics
*Olympic Dashboard
No Of Medals Won By Countries
Medal
Gold
Silver
Bronze
Activate Windows

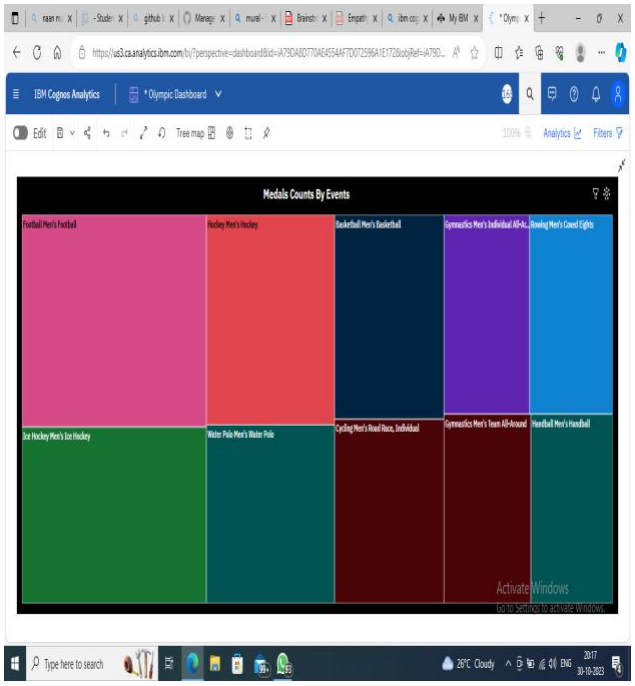

IBM Cognos Analytics
*Olympic Dashboard
Male & Female Won No Of Medals
F
Medal
Gold
Silver
Bronze
Activate Windows

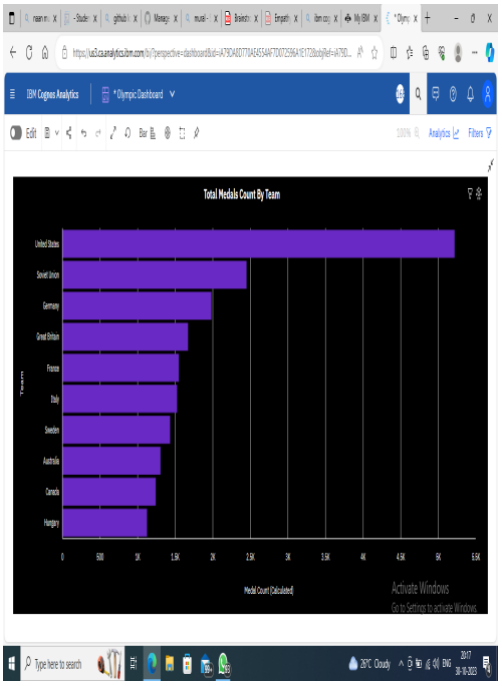

IBM Cognos Analytics
*Olympic Dashboard
Most No Of Medals Won By Players
Medal
Gold
Silver
Medals Count (Calculated)
Name
Activate Windows


IBM Cognos Analytics
*Olympic Dashboard
Top 3 Males Won Most No Of Medals
Activate Windows


IBM Cognos Analytics
*Olympic Dashboard
Won Gold Medals In Sports
Athletics
Swimming
Gymnastics
Rowing
Sailing
Football
Volleyball
Fencing
Hockey
Cycling
Boxing
Water Polo
Equestrianism
Cross Country Skiing
Ice Hockey
Basketball
Canoeing
Handball
Weightlifting
Wrestling
Shooting
Activate Windows


IBM Cognos Analytics
*Olympic Dashboard
Males & Female Players Average Age & Height In Centimeters
Measures
Height
Age
Value
Sex
Activate Windows





ADVANTAGES & DISADVANTAGES :

Advantages:

1. Popularity and Accessibility: Sports like athletics, swimming, and gymnastics tend to have high participation rates due to their global popularity and accessibility.

2. Training Facilities and Support: Athletes in sports with established infrastructure, like soccer or basketball, often have access to better training facilities and support systems.

3. Sponsorship Opportunities: Popular sports can attract more sponsorships, offering financial advantages to athletes and national teams.

4. Medal Potential: Certain sports, such as swimming or track and field, offer numerous medal opportunities, increasing a country's chances of success.

Disadvantages:

1. Limited Funding: Niche sports may receive less funding and struggle to attract top talent due to limited resources.

2. Lack of Infrastructure: Some sports require specialized facilities, making them less accessible in certain regions.

3. Competitive Depth: Sports with a high number of participants, like athletics, can have intense competition, making it challenging to secure medals.

4. Injury Risks: Contact sports, like boxing or rugby, may pose higher injury risks, affecting athletes' long-term careers.

CONCLUSION:

Data-driven insights reveal that Olympic sports participation and performance are influenced by a complex interplay of factors. While popular sports often enjoy advantages in terms of funding and opportunities, niche sports can offer unique pathways to success for dedicated athletes. To optimize a country's Olympic performance, a balanced approach that considers the strengths and challenges of each sport is essential. Investment in infrastructure, talent development, and athlete support can help nations make informed decisions about their Olympic strategies and aim for both diversity and excellence in their sporting achievements.

FUTURE SCOPE :

1. Predictive Analytics: Advanced data analytics and machine learning can be used to predict athletes' performance, helping coaches and sports organizations make informed decisions about training, strategy, and talent identification.

2. Athlete Health and Well-being: Data analytics can play a crucial role in monitoring and improving athlete health, preventing injuries, and enhancing recovery. Wearable technology and biometric data analysis are expected to play a larger role in this area.

3. Sports Science: The integration of data-driven insights with sports science will lead to more precise training methods, nutritional plans, and recovery strategies, optimizing athlete performance.

4. Fan Engagement: Data analysis can enhance the fan experience by providing real-time statistics, virtual reality experiences, and personalized content, increasing fan engagement and revenue opportunities for sports organizations.

5. Talent Identification: Data analytics can identify young talents with potential early in their careers, enabling targeted development programs and enhancing a country's pool of athletes.

6. Event Planning: Data can be used to optimize event planning and logistics, ensuring the efficient organization of Olympic games and minimizing costs.

7. Equity and Inclusion: Data can be used to address issues of equity and inclusion in sports, ensuring that athletes from diverse backgrounds have equal opportunities to participate and excel.

8. Anti-Doping Efforts: Data analytics can help in the detection and prevention of doping in sports by identifying abnormal performance patterns and suspicious trends.

9. Sustainability: Using data to make environmentally conscious decisions in hosting the Olympics, from venue construction to transportation, will be a growing concern.

DASHBOARD :

https://us3.ca.analytics.ibm.com/bi/?perspective=dashboard&pathRef=.my_folders%2Fdatamodule%2FOlympic%2BDashboard&closeWindowOnLastView=true&ui_appbar=false&ui_navbar=false&shareMode=embedded&action=view&mode=dashboard&subView=model0000018b570d5725_00000000

STORY :

https://us3.ca.analytics.ibm.com/bi/?perspective=story&pathRef=.my_folders%2Fdatamodule%2Folympic%2Bstory&closeWindowOnLastView=true&ui_appbar=false&ui_navbar=false&shareMode=embedded&action=view&sceneId=model0000018b57ec7fe6_00000002&sceneTime=0

REPORT :

https://us3.ca.analytics.ibm.com/bi/?pathRef=.my_folders%2Fdatamodule%2FOlympic%2BReport&closeWindowOnLastView=true&ui_appbar=false&ui_navbar=false&shareMode=embedded&action=run&format=HTML&prompt=false