A Mini Project Synopsis on

Sports Data Analytics Platform Using Tableau

S.E. – Computer Science and Engineering-Data Science

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CERTIFICATE

This to certify that the Mini Project report on Sports Data Analytics Platform Using Tableau has been submitted by Mustafa Shaikh (21107045), Sumit Shahu (21107004), Ankit Purohit (21107020) and Pravesh Yadav (21107057) who are a Bonafede students of A. P. Shah Institute of Technology, Thane, Mumbai, as a partial fulfilment of the requirement for the degree in Computer Science and Engineering(Data Science), during the academic year 2022-2023 in the satisfactory manner as per the curriculum laid down by University of Mumbai.

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CHAPTER 1

Introduction

The Project Sports Data Analytics Platform Using Tableau is a powerful tool that provides users with a visual representation of complex data from various sports events. The platform collects data from multiple sources, including sensors, cameras, and manual input, and transforms it into easy-to-understand visualizations that help teams and analysts gain insights and make better decisions.

Tableau is a data visualization software that helps users to connect, visualize, and share data in a more accessible way. Tableau's intuitive interface and drag-and-drop functionality make it easy to create interactive dashboards, charts, and maps that allow users to analyze data and discover patterns and insights.

The Sports Data Analytics Platform Using Tableau can be used for various purposes, such as player performance analysis, team strategy development, and audience engagement. The platform can analyze various types of data, including player statistics, game footage, and social media interactions. By leveraging the power of Tableau, users can quickly identify patterns and trends, create predictive models, and generate actionable insights that can help them optimize their performance and achieve their goals.

In summary, the Sports Data Analytics Platform Using Tableau is an innovative solution that helps sports teams and organizations make data-driven decisions. By leveraging Tableau's advanced data visualization capabilities, users can turn complex data into actionable insights, gain a competitive edge, and drive success.

1.1. Purpose:

The purpose of the Sports Data Analytics Platform Using Tableau is to provide sports teams and organizations with a powerful tool that can help them make data-driven decisions. The platform collects and analyzes data from multiple sources and transforms it into easy-to-understand visualizations that enable users to gain insights and optimize their performance.

The primary purpose of the platform is to help teams and organizations improve their performance by providing them with a deeper understanding of player and team performance, identifying areas of strength and weakness, and developing effective strategies to optimize their performance.

The platform also helps sports teams and organizations to engage with their audience more effectively. By analyzing social media interactions, the platform can help teams to understand their fans' preferences and behavior, develop more personalized marketing campaigns, and improve their overall engagement.

1.2 Objectives:

The main objectives is to provide teams and organizations with a comprehensive overview of their performance: The platform aims to provide a holistic view of team and player performance by collecting and analyzing data from multiple sources. This helps teams to identify areas of strength and weakness and develop effective strategies to improve their performance.

1. To help teams and organizations make data-driven decisions: By providing users with easy-to-understand visualizations, the platform aims to help teams make informed decisions based on data insights rather than intuition or guesswork.
2. To improve team and player performance: The platform aims to provide teams and organizations with the tools they need to optimize their performance by identifying areas that need improvement, developing effective strategies, and monitoring progress over time.
3. To enhance audience engagement: By analyzing social media interactions and other audience engagement metrics, the platform aims to help teams and organizations better understand their fans' preferences and behavior, develop more personalized marketing campaigns, and improve overall engagement.

1.3. Scope:

The scope of the Sports Data Analytics Platform Using Tableau is wide-ranging and can be applied to various areas within sports organizations. The platform can collect and analyze data from multiple sources, including player performance data, game footage, and social media interactions. The scope of the platform includes:

1. Performance Analysis: The platform can be used to analyze player performance data and identify areas of strength and weakness. This includes analyzing individual player statistics, tracking team performance over time, and comparing performance against league averages.
2. Strategy Development: The platform can be used to develop effective strategies for improving team performance. This includes identifying areas that need improvement, developing customized training programs, and creating game plans tailored to the team's strengths and weaknesses.
3. Audience Engagement: The platform can be used to analyze social media interactions and other audience engagement metrics to better understand fan behavior and preferences. This includes analyzing engagement trends, identifying popular content, and developing personalized marketing campaigns.
4. Injury Prevention: The platform can be used to monitor player workload and track injury risk factors to help prevent injuries and ensure player health and safety.
5. Talent Identification: The platform can be used to identify and track up-and-coming talent and assess their potential to join the team.

CHAPTER 2

Problem Definition

The Sports Data Analytics Platform Using Tableau aims to solve several problems that sports teams and organizations face, including:

1. Limited access to data: Many sports teams and organizations have limited access to data, making it challenging to make data-driven decisions. The platform aims to solve this problem by collecting and analyzing data from multiple sources and transforming it into easy-to-understand visualizations.
2. Manual data analysis: Manual data analysis is time-consuming and prone to errors. The platform aims to solve this problem by automating the collection and analysis of data, thereby reducing manual effort and increasing efficiency.
3. Lack of actionable insights: Even with access to data, many teams struggle to derive actionable insights that can help them make informed decisions. The platform aims to solve this problem by providing users with easy-to-understand visualizations that help them identify trends and patterns and develop effective strategies.
4. Inefficient operations: Many sports organizations struggle with inefficiencies in their operations, leading to wasted resources and missed opportunities. The platform aims to solve this problem by providing teams and organizations with the tools they need to optimize their operations and make the most of their resources.
5. Limited engagement with fans: Many sports organizations struggle to engage with their fans effectively, leading to a lack of support and missed revenue opportunities. The platform aims to solve this problem by analyzing social media interactions and other audience engagement metrics, helping teams to better understand their fans' preferences and behavior and develop more personalized marketing campaigns.

Overall, the Sports Data Analytics Platform Using Tableau aims to solve several problems that sports teams and organizations face, helping them to make data-driven decisions, optimize their operations, and engage with their audience more effectively.

CHAPTER 3

Proposed System

The proposed system for the Sports Data Analytics Platform Using Tableau would include the following components:

1. Data Collection: The system would collect data from various sources, including player performance data, game footage, and social media interactions. This would involve integrating with existing data sources and APIs and potentially using data scraping techniques to collect data from external sources.
2. Data Storage and Processing: The system would store and process the collected data using a cloud-based data storage solution, such as Amazon S3 or Microsoft Azure. The system would use data processing tools, such as Apache Spark or Hadoop, to clean, transform, and analyze the data.
3. Data Visualization: The system would use Tableau to create interactive and customizable visualizations, including dashboards and reports, that enable users to explore the data and gain insights. The visualizations would be customized to meet the specific needs and requirements of each user.
4. Machine Learning: The system would leverage machine learning algorithms to identify patterns and trends in the data and provide predictive analytics. This would enable teams to make informed decisions based on future performance and identify areas where they can improve.

3.1 Features and Functionality:

The Sports Data Analytics Platform Using Tableau would include the following features and functionality:

1. Data Collection: The platform would collect data from various sources, such as player performance data, game footage, and social media interactions, and store it in a centralized database.
2. Data Processing: The platform would use data processing tools, such as Apache Spark or Hadoop, to clean, transform, and analyze the data.

3. Data Visualization: The platform would use Tableau to create interactive and customizable visualizations, such as dashboards and reports, that allow users to explore the data and gain insights.
4. Performance Analysis: The platform would enable teams to analyze player performance data and identify areas of strength and weakness. This includes analyzing individual player statistics, tracking team performance over time, and comparing performance against league averages.
5. Strategy Development: The platform would enable teams to develop effective strategies for improving team performance. This includes identifying areas that need improvement, developing customized training programs, and creating game plans tailored to the team's strengths and weaknesses.
6. Audience Engagement: The platform would enable teams to analyze social media interactions and other audience engagement metrics to better understand fan behavior and preferences. This includes analyzing engagement trends, identifying popular content, and developing personalized marketing campaigns.
7. Injury Prevention: The platform would enable teams to monitor player workload and track injury risk factors to help prevent injuries and ensure player health and safety.
8. Talent Identification: The platform would enable teams to identify and track up-and-coming talent and assess their potential to join the team.
9. League Comparison: The platform would enable teams to compare their performance against league averages and identify areas where they can improve to stay competitive.
10. Machine Learning: The platform would leverage machine learning algorithms to identify patterns and trends in the data and provide predictive analytics. This would enable teams to make informed decisions based on future performance and identify areas where they can improve.
11. User Management: The platform would have a user management component that would allow teams and organizations to control access to data and visualizations. Users would be able to create custom dashboards and reports that are tailored to their specific needs.
12. Integration with other systems: The platform would integrate with other systems, such as CRM or marketing automation platforms, to provide a complete view of the organization's operations.

Overall, the Sports Data Analytics Platform Using Tableau would provide teams and organizations with a comprehensive, data-driven approach to improving their performance and engaging with their audience. The platform would be highly customizable, allowing users to create custom visualizations and reports that meet their specific needs and requirements.

CHAPTER 4

Project Outcomes

The Sports Data Analytics Platform Using Tableau is expected to deliver the following outcomes:

1. Improved Performance: The platform would enable teams to analyze player performance data and develop effective strategies for improving team performance. This would help teams to stay competitive and increase their chances of winning games and championships.
2. Enhanced Audience Engagement: The platform would enable teams to better understand fan behavior and preferences and develop personalized marketing campaigns. This would help teams to build stronger relationships with their audience and increase their fan base.
3. Better Player Health and Safety: The platform would enable teams to monitor player workload and track injury risk factors to help prevent injuries and ensure player health and safety. This would help to reduce the number of injuries and keep players healthy and fit.
4. Improved Talent Identification: The platform would enable teams to identify up-and-coming talent and assess their potential to join the team. This would help teams to recruit and retain top talent and stay competitive.
5. Enhanced Decision Making: The platform would provide teams and organizations with a data-driven approach to decision making. This would help to ensure that decisions are based on accurate and up-to-date information and lead to better outcomes.
6. Increased Efficiency: The platform would automate many of the data processing and analysis tasks, reducing the time and effort required to perform these tasks manually. This would help teams to be more efficient and effective in their operations.

Overall, the Sports Data Analytics Platform Using Tableau would help teams and organizations to make better decisions, improve their performance, and engage more effectively with their audience. This would help them to stay competitive and achieve their goals.

CHAPTER 5

Software Requirements

The following software requirements are necessary for the Sports Data Analytics Platform Using Tableau:

1. Tableau: Tableau is a data visualization and analytics software that allows users to create interactive and customizable visualizations. It is the core software used in the platform.
2. Database Management System: A database management system (DBMS) is required to store and manage the data collected by the platform. Popular options include MySQL, Oracle, and Microsoft SQL Server.
3. Data Processing Tools: Data processing tools, such as Apache Spark or Hadoop, are required to clean, transform, and analyze the data collected by the platform.
4. Machine Learning Libraries: Machine learning libraries, such as scikit-learn or TensorFlow, are required to perform predictive analytics and identify patterns and trends in the data.
5. Web Development Framework: A web development framework, such as Django or Flask, is required to build the platform's user interface and manage user interactions.
6. Cloud Platform: A cloud platform, such as Amazon Web Services or Microsoft Azure, is recommended to host the platform and manage data storage and processing.
7. API Integration: The platform should have the ability to integrate with other systems, such as social media platforms, marketing automation platforms, and customer relationship management (CRM) systems, to provide a complete view of the organization's operations.
8. Security and Authentication: The platform should have robust security features to protect the data and ensure user privacy. It should also have an authentication system to control access to data and visualizations.
9. Collaboration Tools: The platform should include collaboration tools, such as commenting and sharing features, to allow users to work together and share insights.

CHAPTER 6

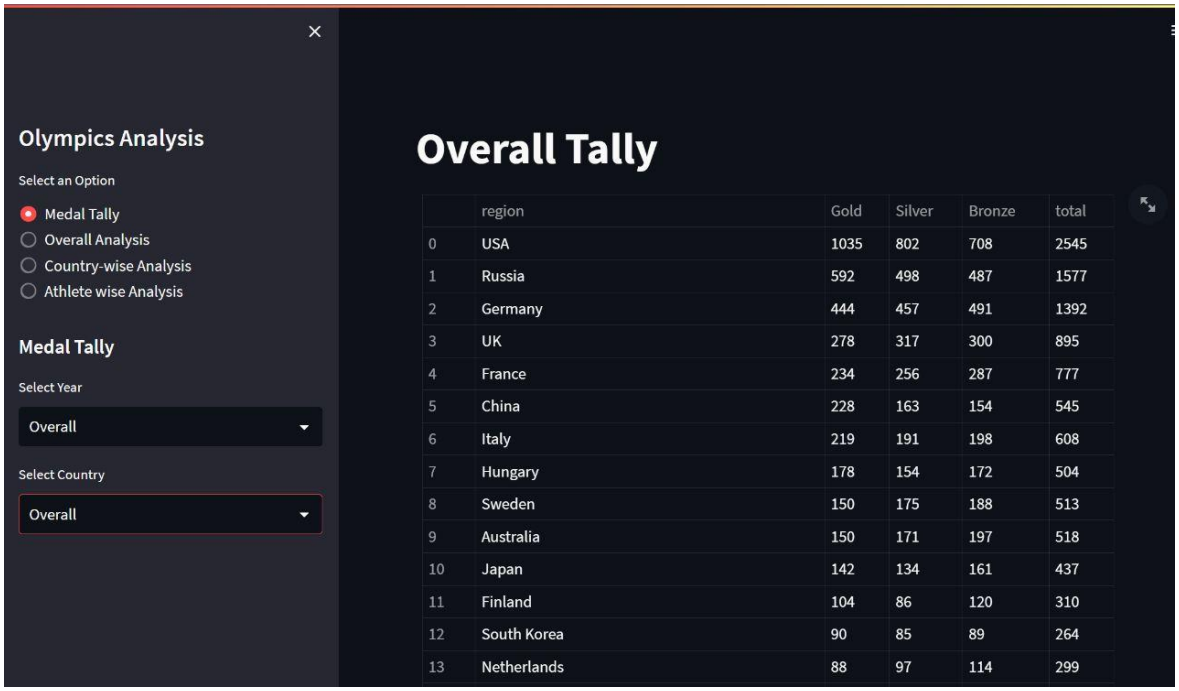
Project Design

The design of the Sports Data Analytics Platform Using Tableau can be broken down into several components, including data collection, data processing, data analysis, data visualization, and user interface design. Here is a brief overview of each component:

1. Data Collection: The first step in building the platform is to identify the data sources and collect the relevant data. This may include data from sensors, wearables, social media, and other sources. The data should be collected in a structured format and stored in a database for further processing and analysis.
2. Data Processing: Once the data has been collected, it needs to be cleaned, transformed, and prepared for analysis. This may involve tasks such as removing duplicates, filling in missing values, and normalizing data. Data processing tools, such as Apache Spark or Hadoop, can be used to automate these tasks.
3. Data Analysis: After the data has been processed, it can be analyzed using machine learning algorithms and statistical methods. This may involve tasks such as clustering, classification, and regression analysis. Machine learning libraries, such as scikit-learn or TensorFlow, can be used to perform these tasks.
4. Data Visualization: Once the data has been analyzed, it needs to be presented in a visual format that is easy to understand and interpret. Tableau is used for creating interactive and customizable visualizations that can be easily shared with others.
5. User Interface Design: The user interface design is critical to the success of the platform. The design should be intuitive and user-friendly, allowing users to easily navigate through the data and visualizations. A web development framework, such as Django or Flask, can be used to build the platform's user interface.
6. Integration and Deployment: The final step is to integrate the various components of the platform and deploy it to a production environment. Cloud platforms, such as Amazon Web Services or Microsoft Azure, can be used to host the platform and manage data storage and processing.

Overall, the design of the Sports Data Analytics Platform Using Tableau requires careful consideration of each component to ensure that the platform is functional, scalable, and user-friendly. It is important to involve stakeholders throughout the design process to ensure that the platform meets their needs and requirements.

The GUI of our Project



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4	France	234	256	287	777
5	China	228	163	154	545
6	Italy	219	191	198	608
7	Hungary	178	154	172	504
8	Sweden	150	175	188	513
9	Australia	150	171	197	518
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11	Finland	104	86	120	310
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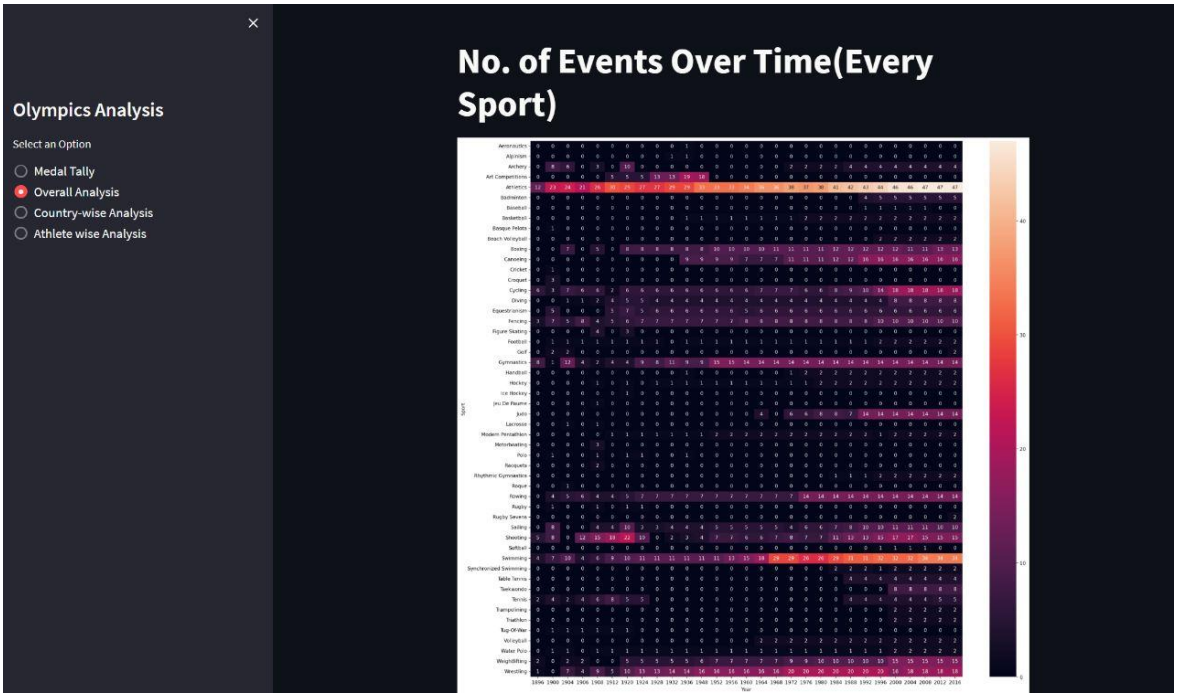
Olympics Analysis
Select an Option
Medal Tally
Overall Analysis
Country-wise Analysis
Athlete wise Analysis
No. of Events Over Time(Every Sport)


Olympics Analysis
Select an Option
Medal Tally
Overall Analysis
Country-wise Analysis
Athlete wise Analysis
Country-wise Analysis
Select a Country
India
Top 15 athletes of India
Name
Medals
Sport
0 Udham Singh Kular 4 Hockey
4 Leslie Walter Claudius 4 Hockey
8 Shankar Pillay Laxman 3 Hockey
11 Ranganathan Francis 3 Hockey
14 Richard James Allen 3 Hockey
17 Balbir Singh 3 Hockey
20 Harbinder Singh Chimni 3 Hockey
23 Balbir Singh Dosanjh, Sr. 3 Hockey
26 Victor John "V. J." Peter 3 Hockey
29 Dhyan Chand Bais 3 Hockey
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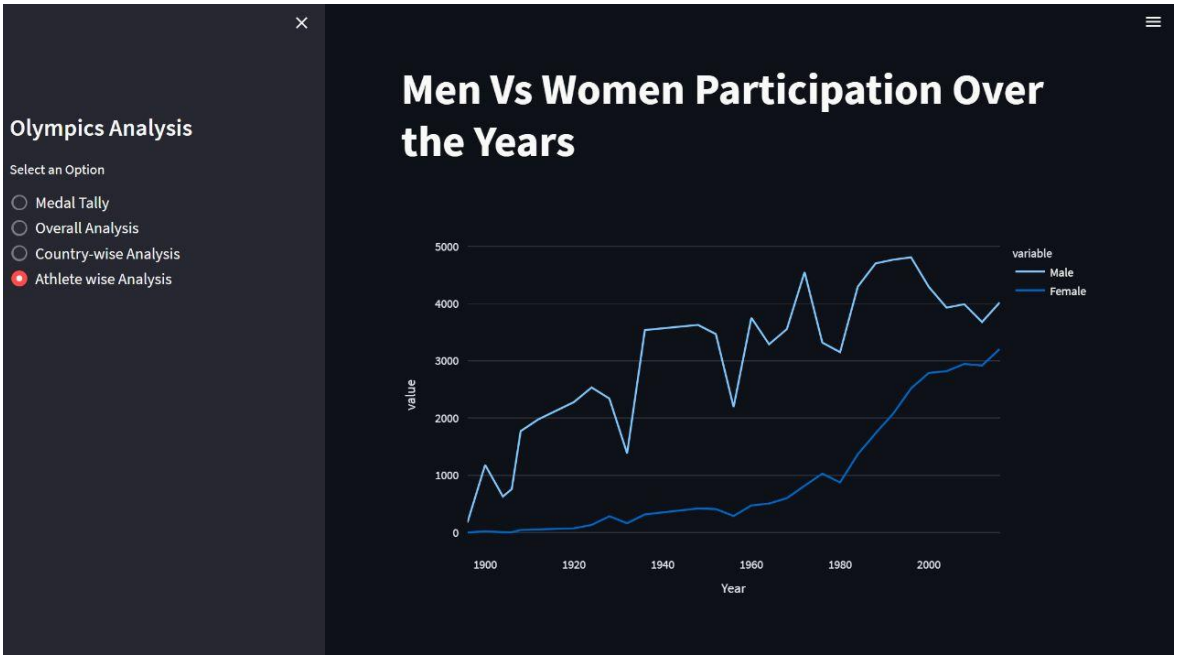
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Select an Option
Medal Tally
Overall Analysis
Country-wise Analysis
Athlete wise Analysis
Men Vs Women Participation Over the Years
5000
4000
3000
2000
1000
0
value
1900
1920
1940
1960
1980
2000
Year
variable
Male
Female

CHAPTER 7

Project Scheduling

Scheduling in this project management is the listing of activities, deliverables, and milestones within a project. A schedule also usually includes a planned start and finish date, duration, and resources assigned to each activity. Effective project scheduling is a critical component of successful time management, especially for professional service businesses.

CHAPTER 8

Conclusion

In conclusion, the Sports Data Analytics Platform Using Tableau is a powerful tool that can help sports organizations make data-driven decisions and gain insights into their operations. The platform can be used to collect and process data from a variety of sources, perform advanced analytics, and visualize the results in an intuitive and user-friendly format.

By leveraging the power of Tableau, sports organizations can gain a competitive advantage by identifying patterns and trends in their data and making informed decisions based on that information. The platform can be used for a wide range of applications, including athlete performance analysis, game strategy development, and fan engagement.

However, the successful implementation of the Sports Data Analytics Platform Using Tableau requires careful planning, design, and execution. It is important to involve stakeholders throughout the process to ensure that the platform meets their needs and requirements. Additionally, the software stack should be carefully chosen to ensure compatibility, scalability, and performance.

Overall, the Sports Data Analytics Platform Using Tableau represents a significant opportunity for sports organizations to gain a competitive advantage and improve their operations through data-driven decision-making.

References:

Youtube :- Sports Data Analytics Platform Using Tableau

https://youtu.be/5nQXhusiu7s

ACKNOWLEDGEMENT

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