Kavikulguru Institute of Technology and Science

Project Preliminary Investigation Report

Name of Department :

COMPUTER TECHNOLOGY

Name of Project Guide :

MR. B. A. DESHPANDE

Name of Project Co - Guide (if any) :

Students Details :

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Title of the Project :

Comprehensive CRICKET LEAGUE Analytics and Visualization

Area of Project Work :

Data analysis and visualization on Cricket.

Problem Statement :

To generate a detailed data visualization dashboard for cricket match analytics, as the Cricket League generates vast ball-by-ball data, player stats, and team performance metrics, but lacks a user-friendly platform for detailed analysis and visualization. This project will utilize Power BI to create an interactive dashboard for visualizing match dynamics, player performance, and trends.

Literature Review :

Title of Paper	Details of Publication with Date and Year	Literature Identified for Project
Beyond Boundaries: A Comprehensive Cricket Analytics Dashboard	Journal of Emerging Technologies and Innovative Research (JETIR) by Shruti.C.S, Deepak Raj. A, Dr. V. Radhamani, Volume 10, October 2023	This study employs Power BI and Streamlit to analyze T20 World Cup and Cricket league data sourced via web scraping from ESPN Cricinfo. Data preprocessing with Pandas ensures reliability, while Power BI's DAX enables advanced modeling and visualization. Streamlit provides an interactive interface, delivering insights into match statistics, player performance, and team strategies
Cricket Data Analytics using POWER BI	International Journal Of Creative Research Thoughts (IJCRT) by Vishal Kumar Yadav, Nishant Tiwari, Swati Tiwari, Rohini Rathod, Volume 12, 4 April 2024	Cricket data analysis leverages tools like Power BI for insights into player performance, match outcomes, and team dynamics. Machine learning models enhance predictive analytics, while interactive dashboards support real-time decision-making. Research shows Power BI's utility in improving strategies, talent identification, and trend analysis.

Current Limitations

- Limited access to data i.e. not all data is available easily, which affects the completeness of the analysis.
- Data integration is a challenge as combining different types of data can be difficult and time-consuming.
- Performance issues with large data may occur as the dashboards may slow down while handling large amounts of data.

Propose Solution

- Gather and integrate reliable Cricket league data from multiple sources for comprehensive analysis.
- Clean and preprocess the raw data to ensure consistency and accuracy.
- Design an optimized Power BI data model to enable fast querying and efficient data handling.
- Create relationships between datasets to support complex analyses, such as player performance and match outcomes.
- Implement user-friendly, interactive visualizations for easy exploration of match and

Objectives and Scope of Work

Objectives

- Collect and integrate Cricket league match data for detailed analysis.
- Design an optimized Power BI model for fast querying and efficient data handling.
- Develop interactive visualizations for actionable insights on player performance and match dynamics.

Scope of Work

- Collect and integrate comprehensive Cricket league match data from multiple reliable sources for detailed analysis and visualization.
- Clean, preprocess, and structure the data to ensure consistency, accuracy, and proper relationships for meaningful insights.
- Develop an interactive Power BI dashboard that allows users to explore player performance, match dynamics, and trends.

Feasibility Assessment :

I. Expected Outcomes of the Project

- An interactive Power BI dashboard delivering comprehensive insights into player performance and match dynamics.
- Data-driven insights empowering analysts, coaches, and teams to make informed decisions based on performance trends.
- Clear, intuitive visualizations of key performance metrics such as strike rates, economy rates, and match outcomes.
- Capability to explore match data at various granular levels, from individual balls to season-wide trends.
- User-friendly platform with interactive filters and drill-down features for customizable data exploration.

II. Innovation Potential

- The use of advanced data modelling within Power BI to support complex queries to insights on player and team performance.
- Integration of diverse data sources (player statistics, match outcomes and ball-by-ball data) for comprehensive analysis.
  The platform's ability to generate customized visualization allowing users to drill down into specific metrics, trends and player comparisons.

III. Task Involved

- **Gathering requirements**: Identifying the needs of the project
- **Obtaining data**: Identifying data sources and collecting the data
- **Cleaning data**: Using Power Query to clean and prepare the data
- **Modelling data**: Structuring the data into a model
- **Visualizing data**: Creating charts and graphs to represent the data
- **Creating dashboards**: Building dashboards to display the data
- **Tracking tasks**: Using Power BI to monitor task progress, efficiency, and data quality

IV. Expertise Required

In-House Expertise

1. Power BI for data modeling, visualization.
2. Knowledge of data analysis, preprocessing, and statistical techniques.
3. Understanding of cricket metrics and analytical requirements for performance evaluation.

External Expertise

1. Expertise in advanced analytics.
2. In depth knowledge of cricket and match analysis.

V. Facilities Required

In-House Facilities

1. Data visualization tools(Power BI)
2. Data preprocessing and cleaning tools (Ex: Excel)
3. Git Or GitHub to manage code repositories.

External Facilities

1. Reliable Cricket league data source access.

Milestones and Time Plan

	Task	JULY 2024	AUG 2024	SEP 2024	OCT 2024	NOV 2024	DEC 2024	JAN 2025	FEB 2025	MAR 2025	APR 2025
Design	Conceptual Design							✔			
	Detailed design							✔			
	Design Modifications							✔			
	Final Design							✔			
Develop	Procurement (If any)								✘		
	Prototyping								✔		
	Modifications								✔		
Deliver	Testing and Validation									✔	
	Final Modifications									✔	
	IPR / patent draft									✘	
	Thesis and Poster									✔	

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