sProject Design Phase-I
Solution Architecture

Date	17 November 2023
Team ID	Team-591790
Project Name	Project – T20 Totalitarian: Mastering Score Predictions
Maximum Marks	4 Marks

Solution Architecture:

1. Data Collection:

- Data Sources: Obtain cricket match data, over-wise statistics, team performance, etc., from reliable sources like Kaggle datasets in CSV or XML formats.

2. Data Preprocessing:

- Use Pandas, NumPy, etc., for data preprocessing steps:

- Import necessary libraries and datasets.

- Handle null values and outliers.

- Separate dependent and independent variables.

- Perform encoding and data transformation for model compatibility.

3. Feature Engineering:

- Extract relevant features from preprocessed data:

- Incorporate player form, team performance, venue conditions, batting strength, etc., to enhance model accuracy.

4. Model Training and Evaluation:

- Prepare train and test datasets.

- Utilize machine learning algorithms (e.g., Decision Tree Regressor, Linear Regressor, Random Forest Regressor) for T20 score prediction.

- Evaluate model performance using historical data, adjusting parameters for optimal accuracy.

5. Model Integration & User Interface:

- Integrate the trained model with Flask or Streamlit in Python to create a web-based platform.

- Develop a user interface allowing customizable prediction parameters based on user preferences.

6. Real-time Updates:

- Implement a system to update the model with real-time data for continuous improvement.

- Incorporate features for updating the dataset and retraining the model.

7. Feedback Mechanism:

- Include a feedback mechanism within the platform, enabling users to provide input on predictions and suggest improvements.

Key Considerations:

- *Scalability & Real-time Processing: Design the architecture to handle scalability and real-time predictions efficiently.

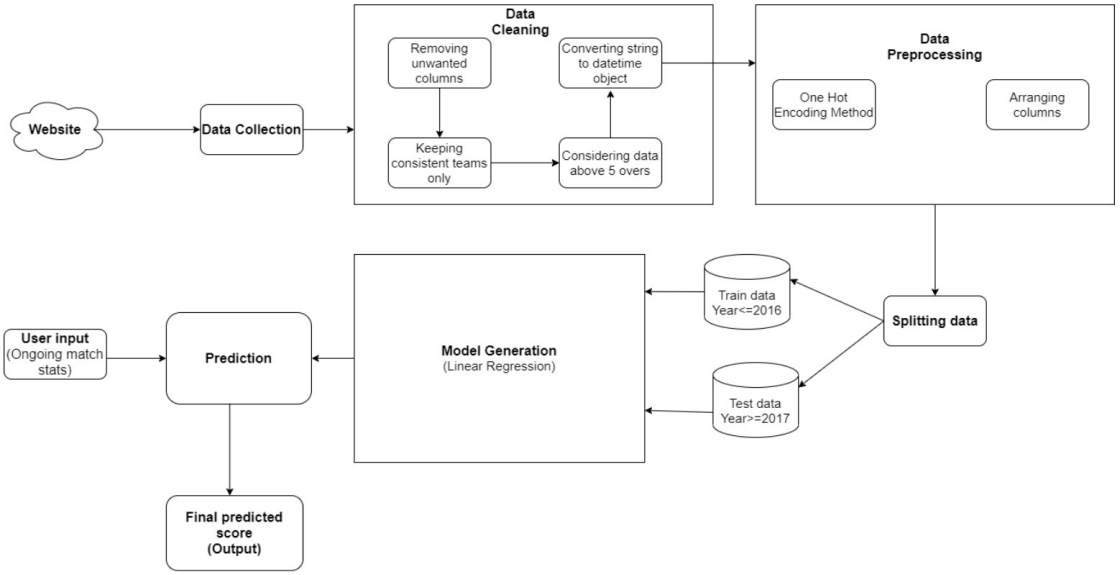
- *User Engagement: Focus on user interaction through an intuitive web-based platform for easy prediction customization.

- *Continuous Improvement: Implement mechanisms for model updates and user feedback to enhance prediction accuracy over time.

This architecture prioritizes scalability, real-time processing, user engagement, and continuous improvement, forming a robust foundation for an effective T20 score prediction ML model. The selection of specific technologies and frameworks will depend on project requirements and preferences, ensuring regular testing and monitoring for system optimization and scalability.

Example - Solution Architecture Diagrams:

Figures: Architecture and data flow of the T20-score prediction model



References : https://ijcrt.org/papers/IJCRT2105677.pdf