

sProject Design Phase-I Solution Architecture

Date	30 october 2023
Team ID	592000
Project Name	Project – T20 Totalitarian: Mastering Score Predictions
Maximum Marks	4 Marks

Solution Architecture:

The architecture of the T20 score prediction ML model involves various components and layers to handle data processing, model training, real-time predictions, user interactions, and feedback mechanisms. Below is a high-level solution architecture:

1. Data Collection:

Data Sources:- Data collection we will obtain the dataset from the Kaggle datasets. We'll collect the data in CSV or Xml format. Cricket match data, over wise statistics, team performance, and other relevant data from reliable sources.

2.Data Preprocessing:

Use Pandas and NumPy etc for data preprocessing steps

- 1.import the necessary libraries
- 2.import the dataset
- 3.Handling null values
- 4.outlier detection
- 5.Separate Dependent and independent variables
- 6.Encoding

Ingest and preprocess data using scalable data processing frameworks, ensuring data quality and consistency.

3.Feature Engineering:

Extract relevant features from the pre-processed data, incorporating player form team performance, and venue conditions and batting strength etc.

4. Model Training and Evaluation Layers:

Prepare Train and Test Data

Machine Learning Models:

Utilize machine learning algorithms, including ensemble methods, to train the T20 score prediction models like:

Decision Tree Regressor, linear Regressor, Random Forest Regressor etc...

Evaluation:

Evaluate model performance using historical data, adjusting parameters to optimize accuracy and reliability from Support Vector Machine.

To find best fit model.

5. Model Integration & User Interface and Interaction Layer:

From the flask or stream lit module integrated with the fitted model in python for web interface. Form this user easily interaction with model web-based platform allowing to customize prediction parameters based on their preferences.

6. Real-time Updates:

Implement a system to update the model with real-time data for continuous improvement. Add model evaluating features easily from updating dataset

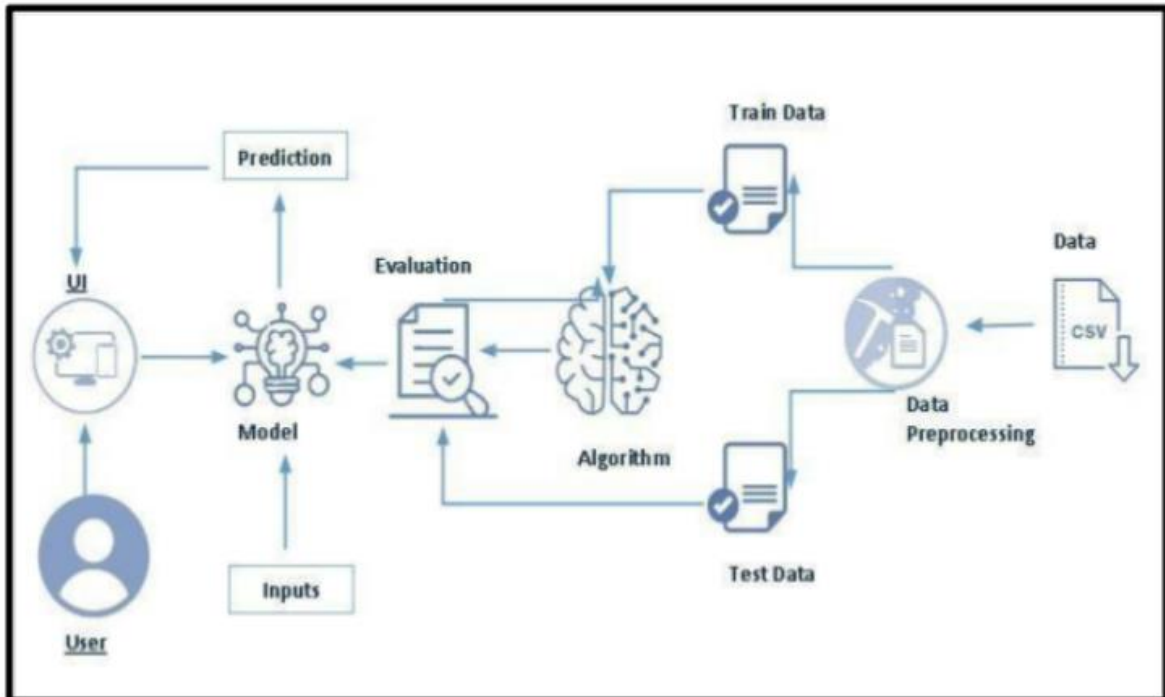
7. Feedback Mechanism

Implement a feedback form within the platform, allowing users to provide input on predictions and suggest improvements.

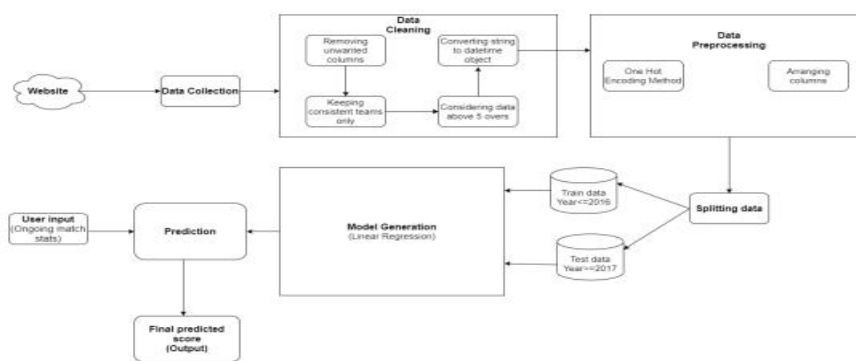
This architecture is designed to accommodate scalability, real-time processing, user engagement, and continuous improvement, providing a foundation for a reliable and effective T20 score prediction ML model. The specific technologies and frameworks chosen will depend on factors such as development preferences, infrastructure requirements, and data sources. Regular testing and monitoring are essential to fine-tune and optimize the system as it scales.

Example - Solution Architecture Diagrams:

Figure-1: ML model creation:



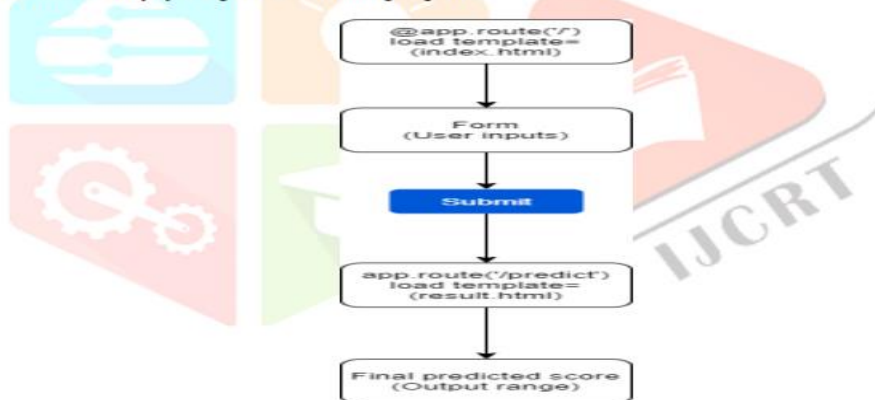
Figures: Architecture and data flow of the T20-score prediction model



Model Architecture
fig – 1: cfp system flowchart

3.2. UI Flow:

The UI flow for our project is given in the following diagram.



UI Flow
fig – 2: ui flow of the system

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

