Project Design Phase-II
Technology Stack (Architecture & Stack)

Date	15 October 2022
Team ID	Team- 592649
Project Name	T20 Totalitarian: Mastering Score Predictions
Maximum Marks	4 Marks

Technical Architecture:

The Deliverable shall include the architectural diagram as below and the information as per the table1 & table

2 **Example: Order processing during pandemics for offline mode**

Reference: **https://developer.ibm.com/patterns/ai-powered-backend-system-for-order-processing-during-pandemics/**
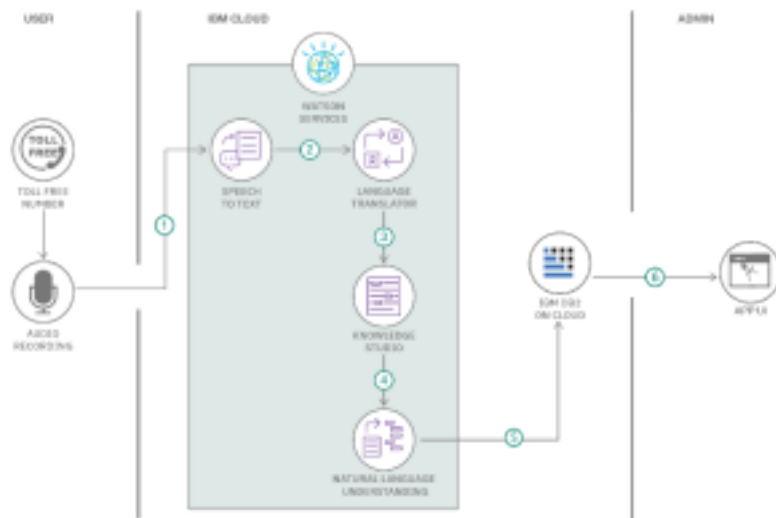
Guidelines:

1. Include all the processes (As an application logic / Technology Block)
2. Provide infrastructural demarcation (Local / Cloud)
3. Indicate external interfaces (third party API's etc.)
4. Indicate Data Storage components / services
5. Indicate interface to machine learning models (if applicable)

Table-1: Components & Technologies

S.No	Component	Description	Technology
1	User Interface	Prediction Interface for users	React.js, Redux, HTML, CSS
2	Prediction Engine	Core logic for score predictions	Python, TensorFlow, Scikit-learn
3	Data Storage	Storage for historical match and player data	MongoDB, Redis
4	External API-1	Cricket Match Data API for real-time updates	Cricbuzz API, ESPN API
5	External API-2	Player Statistics API for player performance	Cricinfo API, Cricket API
6	Machine Learning Model	Score Prediction Machine Learning Model	Linear Regression, Random Forest, XGBoost
7	Notification Service	Notify users of match results and predictions	Push Notifications, Firebase Cloud Messaging

8	User Authentication	Secure user authentication and authorization	OAuth 2.0, JWT
9	Cloud Infrastructure	Hosting and scaling the application	AWS (EC2, S3), Docker, Kubernetes
10	Logging and Monitoring	Track application performance and errors	ELK Stack (Elasticsearch, Logstash, Kibana)

Table-2: Application Characteristics

S.No	Characteristics	Description	Technology
1	Open-Source Frameworks	Utilize open-source frameworks for efficiency	Django, Flask (Python frameworks), Bootstrap
2	Security Implementations	Implement security measures for data protection	HTTPS, SSL/TLS, Hashing (SHA-256), OWASP
3	Scalable Architecture	Design the application for scalability	Microservices Architecture, Load Balancers, CDN

| 4 | Availability | Ensure high availability for users | Load Balancers, Redundancy, Disaster Recovery |
| 5 | Performance | Optimize performance for quick predictions | Caching (Redis), Content Delivery Networks (CDN) |

References:

https://c4model.com/

https://developer.ibm.com/patterns/online-order-processing-system-during-pandemic/

https://www.ibm.com/cloud/architecture

https://aws.amazon.com/architecture

https://medium.com/the-internal-startup/how-to-draw-useful-technical-architecture-diagrams-2d20c9fda90d