Technology Stack (Architecture & Stack)

Date	17 OCTOBER 2022
Team ID	PNT2022TMID47580
Project Name	Smart Solution Railways
Project Marks	4 Marks

Technical Architecture:
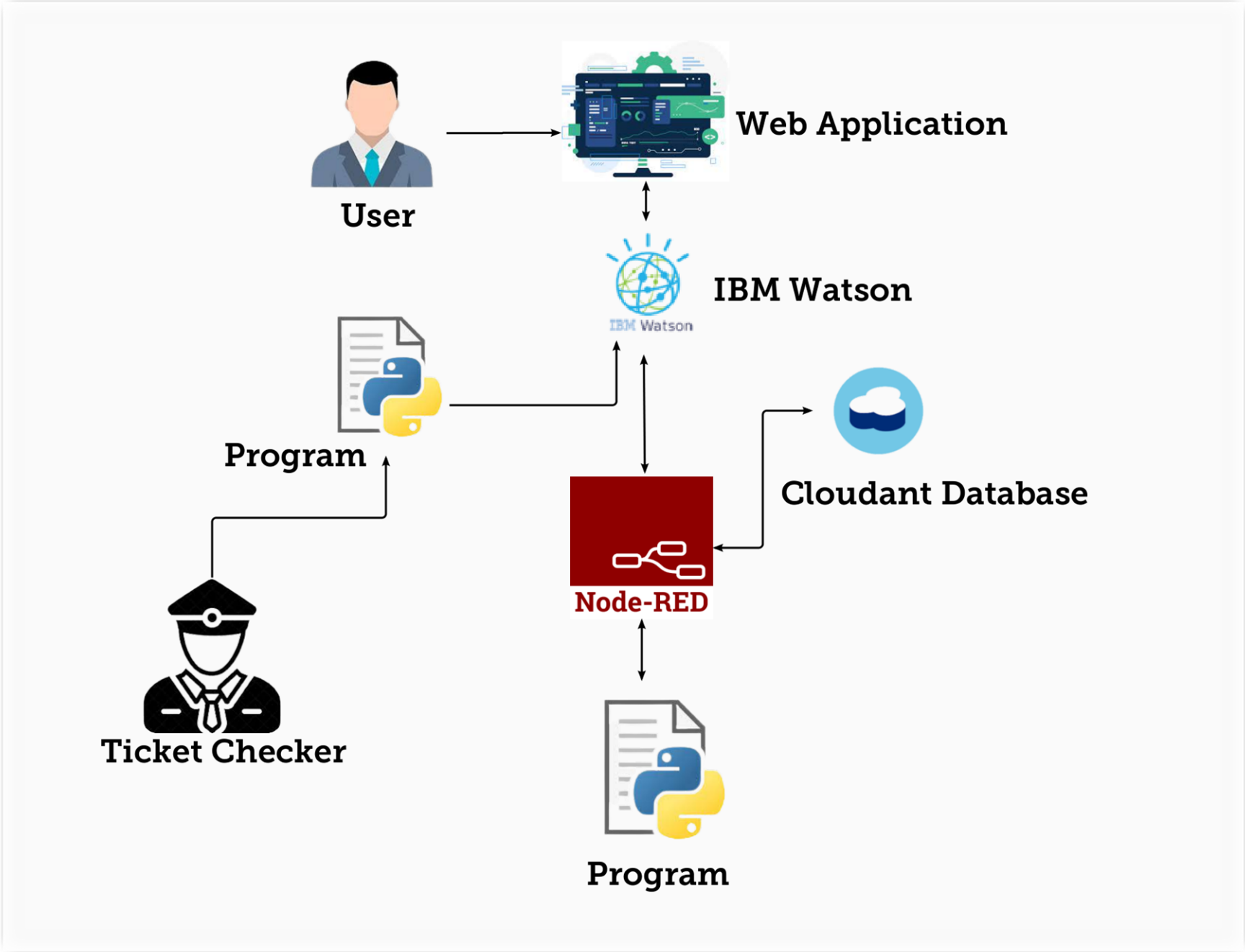
Table : Components & Technologies:

S.No	Component	Description	Technology
1.	User interface	Web & Mobile Application	Node red UI and MIT App Inventor
2.	Application logic-1	Sending Random Latitude and Longitude for the train location tracking.	Python
3.	Application Logic-2	Generating QR Code which holds the unique ID.	Node RED.
4.	Database	Data Type, Configurations etc.	MySQL & Maria Database
5.	Cloud Database	Database Service on Cloud	IBM Cloudant
6.	File Storage	File storage requirements	IBM Block Storage
7.	External API-1	To show the current location of the Train using the map api.	World Map API
8.	External API-2	Used to send the Email for the user which is used for the verification.	Email Sending API,
9.	Infrastructure (Server / Cloud)	Application Deployment on Server.	Kubernetes.

Table-2: Application Characteristics:

S.No	Component	Description	Technology
1.	Open-Source Frameworks	MIT App Inventor, Flask	Block Based Programming Language, python
2.	Security Implementation	User Details and Entered Data will be Encrypted.	Industry-Standard AES-256 encryption
3.	Scalable Architecture	The Scanner code written are highly scalable where any implementation or modifications can be done when ever it required.	Python.
4.	Availability	As 90% of the process is done by Cloud service, The Application is available at any time required.	IBM Cloud Service & IBM Load Balancer
5.	Performance	Thus The Process are complete done through Cloud Service and the Data's are stored in IBM Cloudant Database, the Performance of this project is high.	IBM Cloud Service, IBM Cloudant Database and Distributed Service.