Developing Fight Delay Prediction Model using Machine Learning

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Technology Architecture

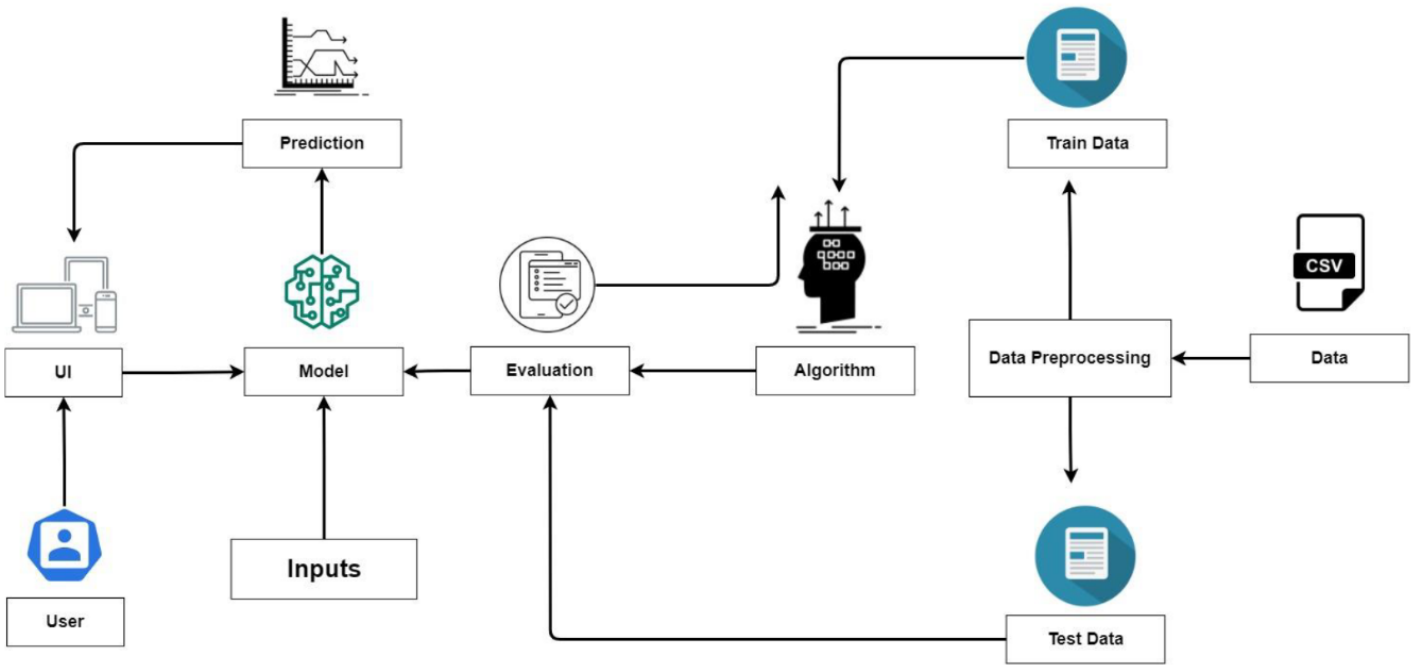

Table-1 : Components & Technologies:

S.No	Component	Description	Technology
1.	User Interface	User interacts using web application- Web UI	HTML, CSS, JavaScript / Angular js.
2.	Application Logic-1	Logic for preprocessing.	Python (numpy libraries)
3.	Application Logic-2	Logic for a training and testing	Sklearn library (train_test_split function)

4.	Application Logic-3	Logic for model building	Machine learning model Decision tree classifier .
5.	Database	Database contains the user information and flight details.	MySQL.
6.	File Storage	File storage requirements	IBM Block Storage , Local Filesystem.
7.	External API-1	Time Door is a REST API for statistical insights into time series data.	Http,Timedoor.
8.	Machine Learning Model	Ensemble of multiple decision trees provide better classification accuracy.Random forest obtains a class vote for decision tree.	Random forest ,Decision tree classifier.

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	It is used to build almost any type of website — from content management systems and wikis, through to social networks and news sites.	Django, ArcGIS Editor.
2.	Security Implementations	It is used to identify the threats in the system. To measure the potential vulnerabilities of the system.	Risk assessment ,authentication.
3.	Scalable Architecture	To determine the user limit for the web application.	Scalability testing.
4.	Availability	Running an application for a planned period of time, collecting failure events and repair times.	Load testing,endurance testing.

5.	Performance	Determines the behavior of web application when it receives extreme variations in Traffic.	Spike testing,stress testing.