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

Date	30/10/2022
Team ID	PNT2022TMID18402
Project Name	Developing a Flight Delay Prediction Model using Machine Learning
Maximum Marks	4 Marks

Table-1 : Components & Technologies:

S.No	Component	Description	Technology
1.	User Interface - front end	To interact with the application - Login, Delay Requests	HTML, CSS, Js
	Backend	To serve user requests	Python Flask
2.	Spatial Feature Extraction	To calculate crowdedness at particular source/destination	Python, IBM Watson AI
3.	Delay Prediction	Predict the delay for the given flight	IBM Watson AI
4.	Cloud Database	To store the user details	IBM DB2
5.	File Storage	To store the delay dataset	IBM Cloud Object Storage
6.	Machine Learning Model	To predict the flight delay	IBM Watson AI. Auto AI

7.	Infrastructure (Server / Cloud)	Local Cloud Server Configuration	IBM Kubernetes

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	List the open-source frameworks used	HTML, CSS, JavaScript, Bootstrap, Flask, Kubernetes
2.	Security Implementations	Native three step protection	Kubernetes IBM DB2
3.	Scalable Architecture	It can be scaled by adding master node and extra working nodes to the main cluster.	Kubernetes IBM Cloud
4.	Availability	IBM Kubernetes uses Kubernetes load balancers namely kube-proxy and ingress controllers.	IBM Kubernetes
5.	Performance	Performance can be enhanced by adding more working nodes to the master cluster.	IBM Kubernetes

Technical Architecture: