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

Date	03October 2022
Team ID	PNT2022TMID07996
Project Name	Early Detection of Chronic Kidney Disease using Machine Learning Techniques
Maximum Marks	4 Marks

Table-1 : Components & Technologies:

S.No	COMPONENTS	DESCRIPTION	TECHNOLOGY
1.	Website	User interacts with the prediction model through website to predict the CKD data.	HTML,CSS,JavaScript
2.	Cloud Database	The model is provided with data from IBM cloud database	IBM Cloud DB, ibm_db(Python package)
3.	API	Used to extend the service to other applications	Flask Application
4.	JWT & Sessions	It is used for Handling JSON web Tokens(signing,verifying,decoding)	PyJWT, Flask-Sessions
5.	Machine Learning Model	This model is developed to predict the CKD using ML algorithms	Sklearn, Algorithms-DT &MLR
6.	Data processing	Data is pre-processed and then used for prediction.	Pandas, Numpy, Matplotlib

TECHNICAL ARCHITECTURE:

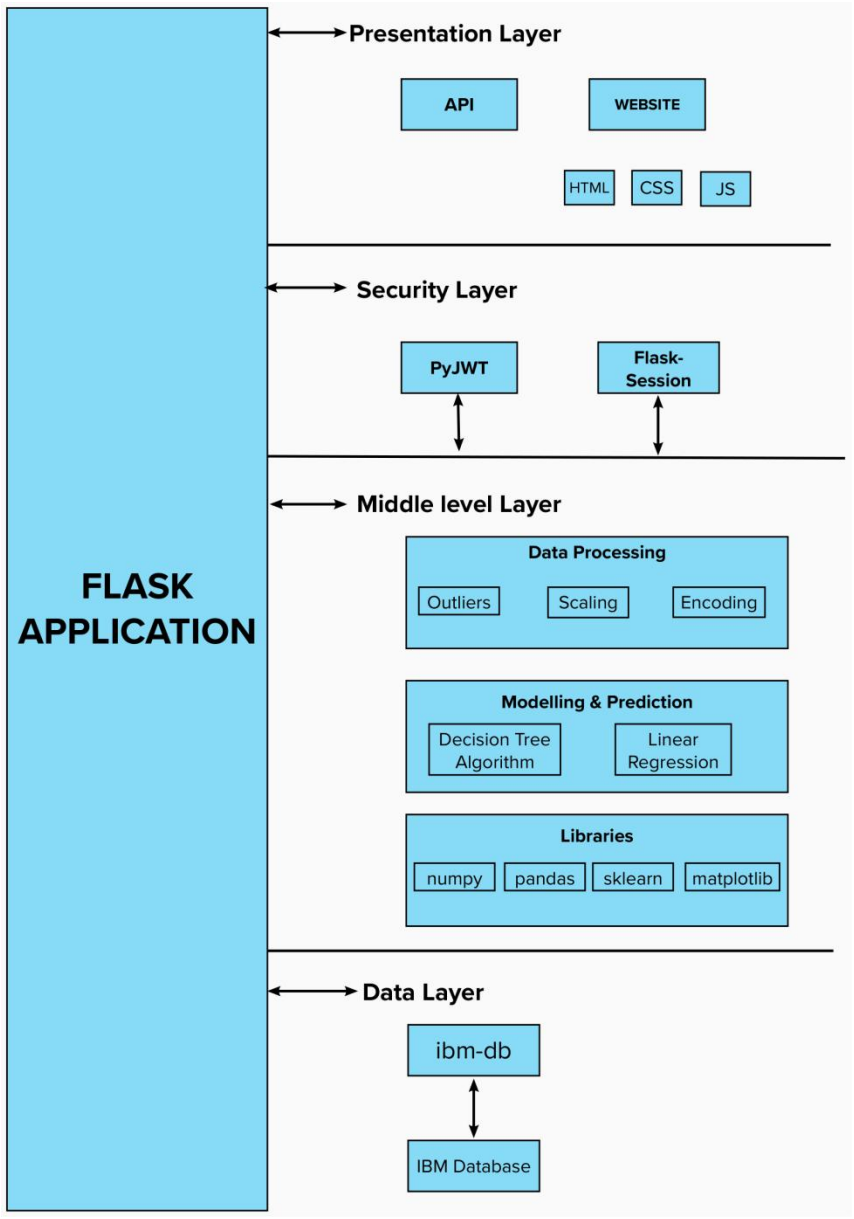

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	Back end Framework, CSS Styling framework, Relational Database	PyJWT, Flask, IBM Cloud DB
2.	Security Implementations	Request authentication using JWT Tokens	HS-256, Encryptions, SSL Certs
3.	Scalable Architecture	Support for Multiple Sample prediction using Excel Files	Pandas, Numpy
4.	Availability	Availability is increased by Distributed Servers in Cloud VPS	IBM Cloud Hosting
5.	Performance	The application is expected to handle multiple predictions per second	Load Balancers, Distributed Servers