Project design phase – II
Technology Stack (Architecture and Stack)

Date	01 November 2023
Team ID	Team-592761
Project name	Detection of Covid -19 from chest X-rays using Deep learning.
Maximum marks	4 marks

Technical Architecture diagram:

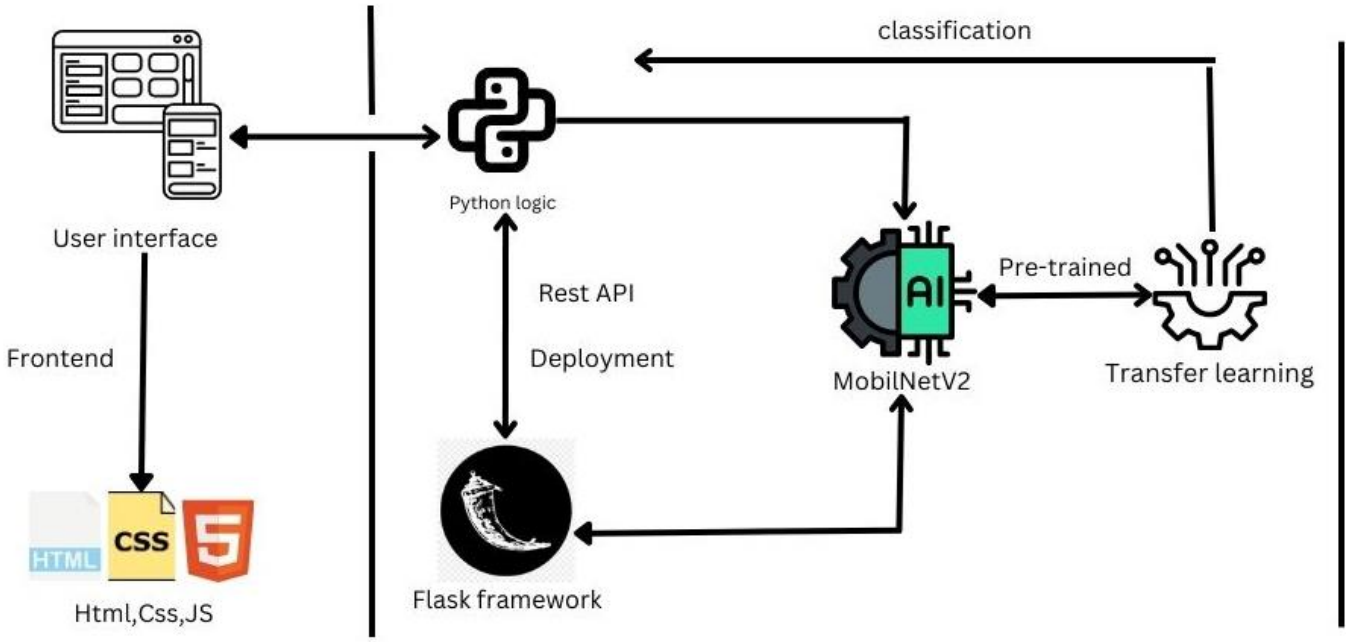

Table 1: Components and technologies

S.No	Component	Description	Technology
1.	User interface	Web UI that allows users to upload personal chest x-rays and classify them.	HTML, CSS, JS, Bootstrap, Font awesome.
2.	Application logic -1	Logic to receive user input as Images only and store its Features in an array.	HTML, JS, Flask, NumPy, Python.
3.	Image enhancement	Image enhancement tools such as white balancing and CLAHE	OpenCV, Python, NumPy.
4.	Normalization of array	To achieve standard scaling of the data to reduce variations in prediction.	NumPy, Min-Max scaler, Python.
5.	Deep learning model	A transfer learning based model that is defined based on a pre-trained CNN model.	Tensorflow, MobilNetV2, Python, Scikit-learn, NumPy, Pandas, OpenCV, ImageNet.
6.	Infrastructure	The model is deployed using Flask framework and hosted Locally.	Local host, Flask

Table 2: Application characteristics

S.No	Characteristics	Description	Technology
1.	Frameworks	Deep learning and web frameworks.	Tensorflow, Flask, Keras.
2.	Scalability	The frameworks used can be easily retrained using to handle updated datasets.	Tensorflow, version Control system.
3.	Security	The user uploaded files are not stored permanently thereby ensuring no data leak.	Python logic, OS package.