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

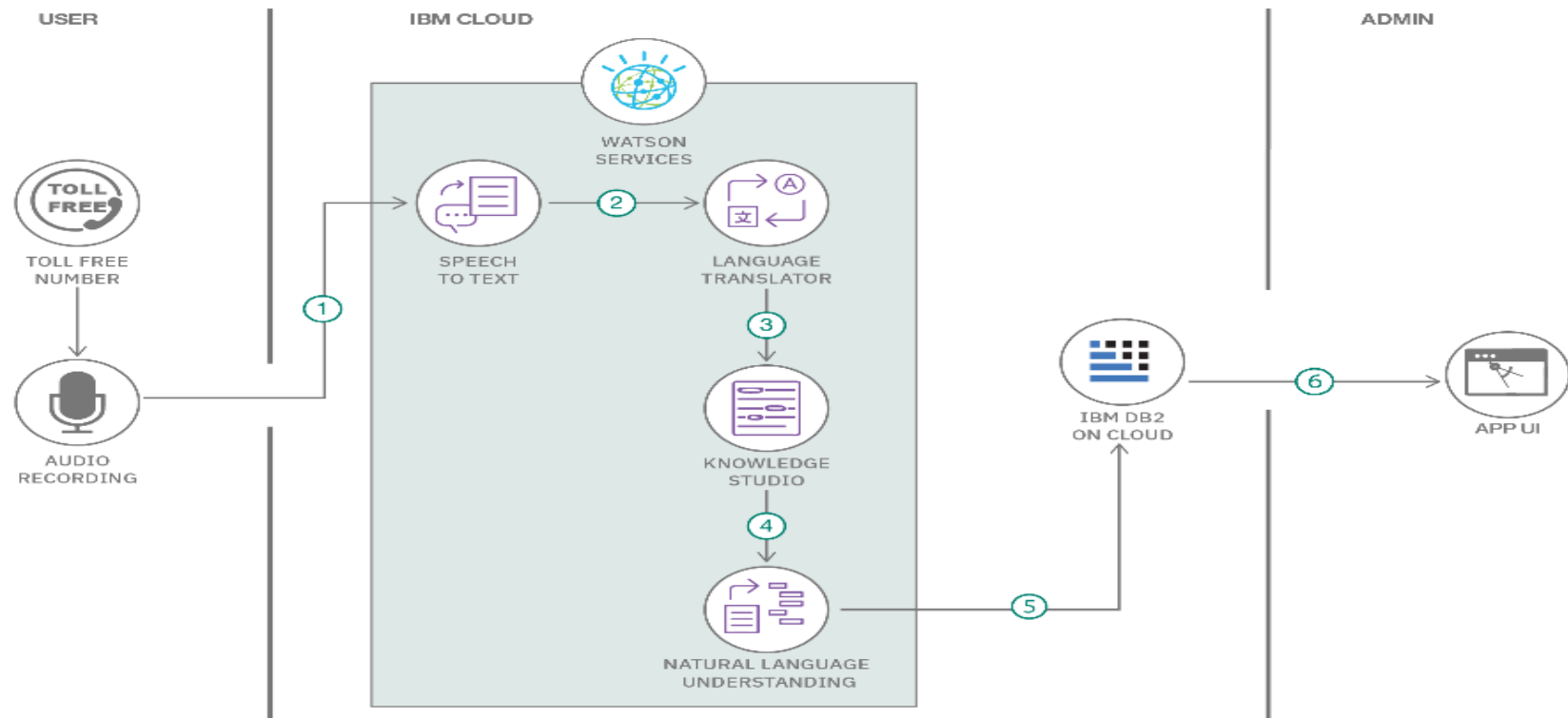| Date	23 October 2022
Team ID	PNT2022TMID42312
Project Name	Fertilizers Recommendation System for Disease Prediction
Maximum Marks	4 Marks

Technical Architecture:

Table-1 : Components & Technologies:

S.No	Component	Description	Technology
1.	User Interface	How user interacts with application e.g.Web UI	**HTML, CSS**
2.	Application Logic-1	Handle all the user requests done via the Web UI /Display the results after process	**Flask Server**
3.	Application Logic-2	Process the image provided by the user via WebUI	**Python**
4.	Application Logic-3	Train the model and provide the classificationresult for the given image	**IBM Watson Studio**
5.	Cloud Database	Database Service on Cloud	**IBM Cloudant DB**
6.	File Storage	File storage requirements	**Local Filesystem**
7.	Machine Learning Model	Purpose of Machine Learning Model	**CNN model (using TensorFlow andKeras)**
8.	**Infrastructure (Server / Cloud)**	**Application Deployment on Local System / Cloud**	**Local, Kubernetes, Docker**

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	List the open-source frameworks used	Flask, TensorFlow, Keras, NumPy, OpenCV, Kubernetes
2.	Security Implementations	List all the security / access controls implemented, use of firewalls etc.	IAM Controls
3.	Scalable Architecture	Justify the scalability of architecture (3 – tier, Micro-services)	3-tier type (Web server, App server and DB server).
4.	Availability	Justify the availability of application (e.g. use of load balancers, distributed servers etc.)	Local: Available based on computer's specs

S.No	Characteristics	Description	Technology
			Cloud: Web server, DB server available when requested. App server requires high requirements compared with other 2 servers, thereby availability is bit less but can be compensated by cloud
5.	Performance	Design consideration for the performance of the application (number of requests per sec, use of Cache, use of CDN's) etc.	Accuracy of model: >95% (Expected) Number of requests per second: 250 – 1000 (based on network traffic, 250 is default as targeted user group is moderate)