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

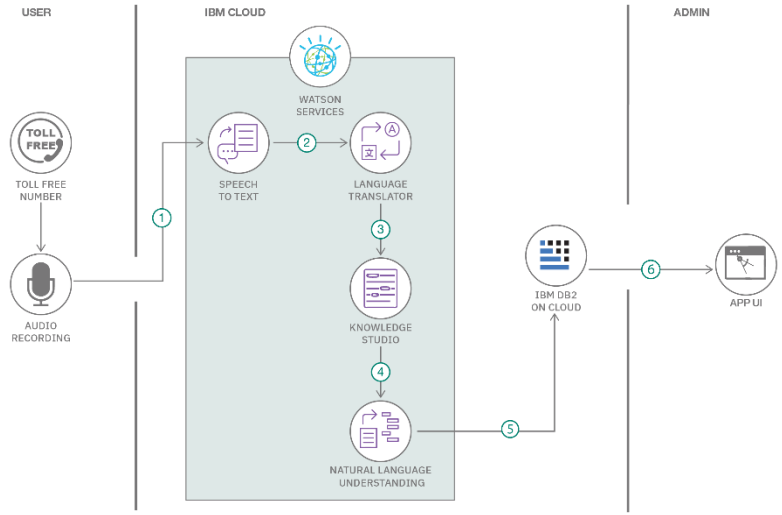
Date	03 October 2022
Team ID	PNT2022TMID06841
Project Name	Project - Natural Disasters Intensity Analysis and Classification using Artificial Intelligence
Maximum Marks	4 Marks

Technical Architecture:

The Deliverable shall include the architectural diagram as below and the information as per the table1 & table 2

Example: Order processing during pandemics for offline mode

Reference: https://developer.ibm.com/patterns/ai-powered-backend-system-for-order-processing-during-pandemics/



Guidelines:

1. Include all the processes (As an application logic / Technology Block)
2. Provide infrastructural demarcation (Local / Cloud)
3. Indicate external interfaces (third party API's etc.)
4. Indicate Data Storage components / services
5. Indicate interface to machine learning models (if applicable)

Table-1 : Components & Technologies:

S.No	Component	Description	Technology
1.	User Interface	User can check for the instant weather updates; organisation user can upload the IR image for prediction.	HTML, CSS, JavaScript / react.
2.	Application Logic-1	For every 15 mins the model will take the image from the database and make prediction.	Python
3.	Application Logic-2	The prediction will be displayed in the web page.	Python -Flask
4.	Application Logic-3	Location of the cyclone may be displayed.	Python - Flask
5.	Database	No SQL database for data storage.	Mongo BD
6.	Cloud Database	Database Service on Cloud	AWS
7.	File Storage	File storage requirements	AWS S3 Bucket
8.	External API-1	To fetch the data from the database	AWS S3 bucket API, python Flask.
9.	External API-2	To send the inference back to the web application	Python Flask.
10.	Machine Learning Model	For intensity estimation	CNN model with regression unit
11.	Infrastructure (Server / Cloud)	Deployed on AWS	Kubernetes.

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	Scikit Learn, TensorFlow	Deep Learning
2.	Security Implementations	Highly secured	SHA-256, Encryptions, IAM Controls, OWASP etc.

S.No	Characteristics	Description	Technology
3.	Scalable Architecture	Flask API can handle 13000 request per second	Flask
4.	Availability	Available 24/7	
5.	Performance	Hosted on aws which uses GPU for training	

References:

https://c4model.com/

https://developer.ibm.com/patterns/online-order-processing-system-during-pandemic/

https://www.ibm.com/cloud/architecture

https://aws.amazon.com/architecture

https://medium.com/the-internal-startup/how-to-draw-useful-technical-architecture-diagrams-2d20c9fda90d