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

Date	03 October 2022
Team ID	598189
Project Name	Project - Image Caption Generation
Maximum Marks	4 Marks

Technical Architecture:

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

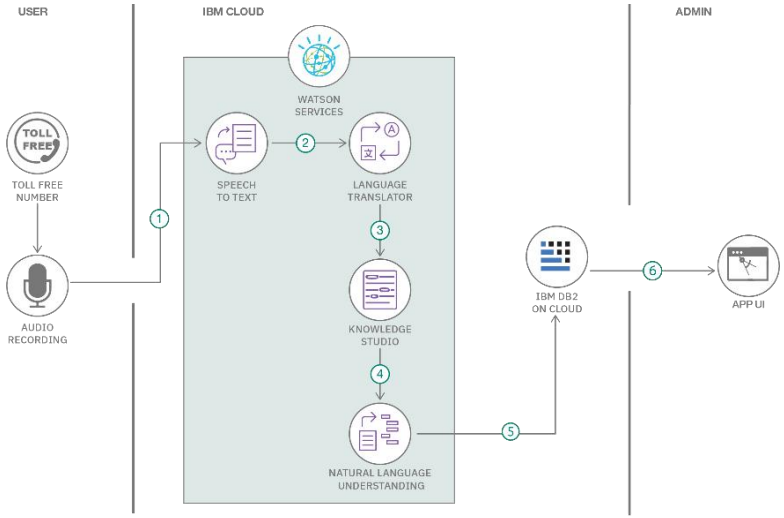

IMAGE CAPTION GENERATION.

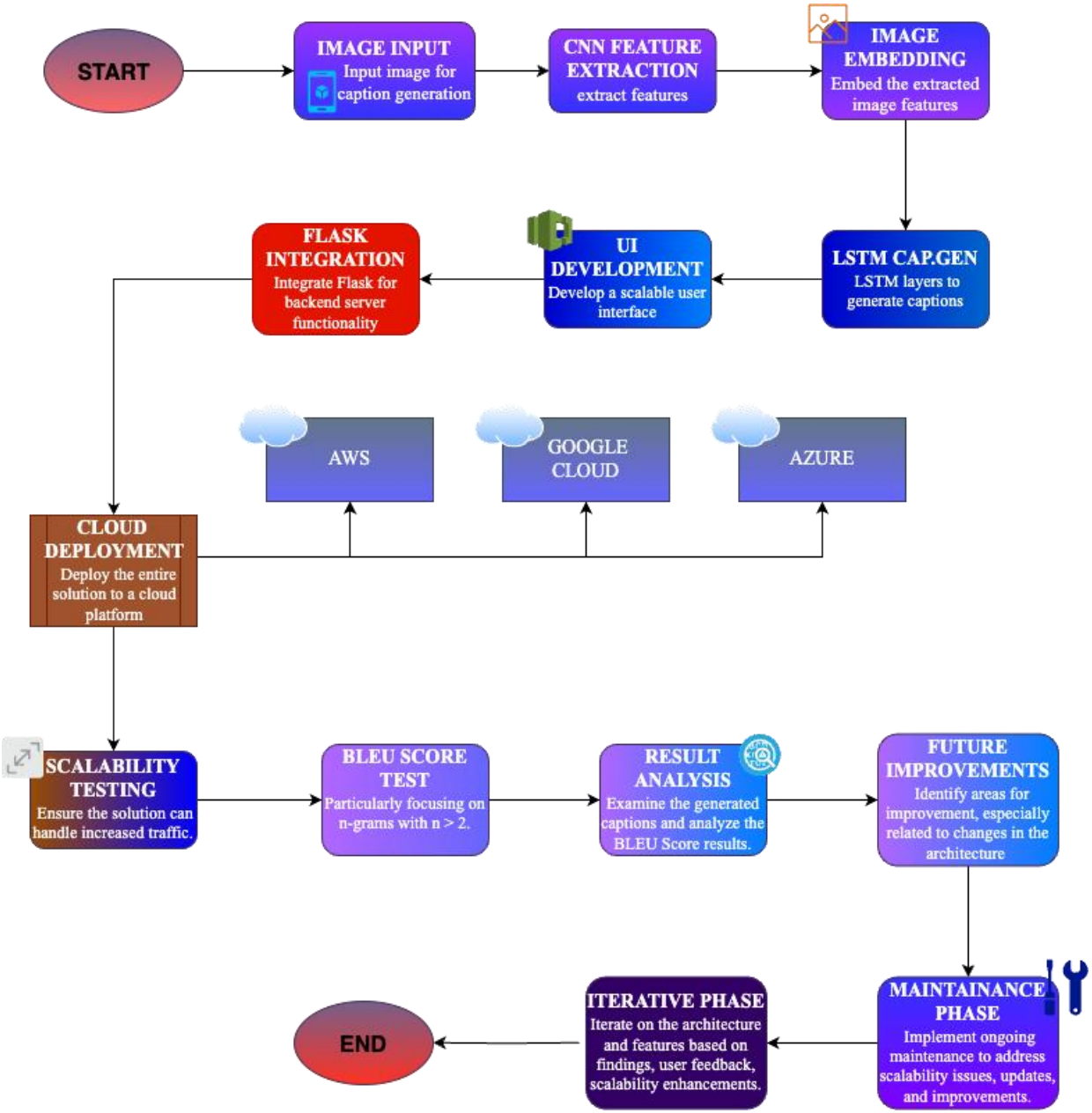

Table-1 : Components & Technologies:

Sl.no	Component	Description	Technology
1.	User Interface	How user interacts with application: User will have a feature to upload the image and get the caption of the image.	HTML, CSS, JavaScript / React/ Bootstrap.
2.	Application Logic-1	combination of pre-trained CNN and LSTM models to extract features and generate a descriptive caption	Python
3.	Application Logic-2	Utilize IBM Watson services to analyze and interpret user-provided data	IBM Watson Application
4.	Application Logic-3	Flask routes to handle incoming requests, process data, and return appropriate responses.	Flask
5.	Database	Data Type, Configurations etc.	MySQL, NoSQL
6.	Cloud Database	Database Service on Cloud	IBM , IBM Cloudant
7.	Machine Learning Model	A machine learning model learns from data to make predictions, automating decision-making for enhanced accuracy and efficiency	LSTM,CSS
8.	Infrastructure (Server / Cloud)	Application Deployment on Local System / CloudLocal Server Configuration	Local, Cloud Foundry, Kubernetes, etc

Table-2: Application Characteristics:

Sl.no	Characteristics	Description	Technology
1.	Open-Source Frameworks	List the open-source frameworks used	Flask,Bootstrap,Scikit-learn
2.	Scalable Architecture	Growing demands without compromising performance, ensuring seamless expansion as needed	Docker for containerization To maintain consistency across different environments.
3.	Availability	The application ensures high availability through the implementation of load balancers, distributed server architecture, and redundant systems	Deploying the application on distributed servers Or using a serverless Architecture.
4.	Performance	Design consideration for the performance of the application (number of requests per sec, use of Cache, use of CDN's) etc.	Caching mechanisms to store frequently accessed data and reduce response times, Optimizing machine learning model performance for real-time classification