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

Technical Architecture:

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

Table-1 : Components & Technologies:

S.No	Component	Description	Technology
1.	User Interface	Web UI for user interaction	HTML, CSS, JavaScript / Angular Js / React Js etc.
2.	Application Logic-1	Backend logic for processing dog breed identification	Python
3.	Database	Storage of data related to user accounts, images, and breed predictions	MySQL, NoSQL, etc.
4.	Cloud Database	Scalable database service hosted on IBM Cloud	IBM DB2, IBM Cloudant etc.
5.	File Storage	Storage of uploaded images and model checkpoints	IBM Block Storage or Other Storage Service or Local Filesystem
6.	External API-1	Integration with external weather API for additional context	IBM Weather API, etc.
7.	Machine Learning Model	Purpose of Machine Learning Model	Object Recognition Model, etc.
8.	Infrastructure (Server / Cloud)	Application Deployment on Local System / Cloud Local Server Configuration: Cloud Server Configuration :	Local, Cloud Foundry, Kubernetes, etc.

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	Utilization of open-source frameworks for development	Technology of Open-source frameworks (TensorFlow)
2.	Security Implementations	Implementation of security measures and access controls	Encryption (e.g., SHA-256),IAM Controls, OWASP guidelines
3.	Scalable Architecture	Justify the scalability of architecture (3 – tier, Micro-services)	Technology used for scalability (e.g., Kubernetes, Docker)

S.No	Characteristics	Description	Technology
4.	Availability	Justify the availability of application (e.g. use of load balancers, distributed servers etc.)	Load balancers, fault-tolerant architecture
5.	Performance	Design consideration for the performance of the application (number of requests per sec, use of Cache, use of CDN's) etc.	Caching mechanisms, CDN integration