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

Date	19 May 2023
Team ID	NM2023TMID22485
Project Name	Project – Automated Weather Classification using Transfer Learning

Technical Architecture:
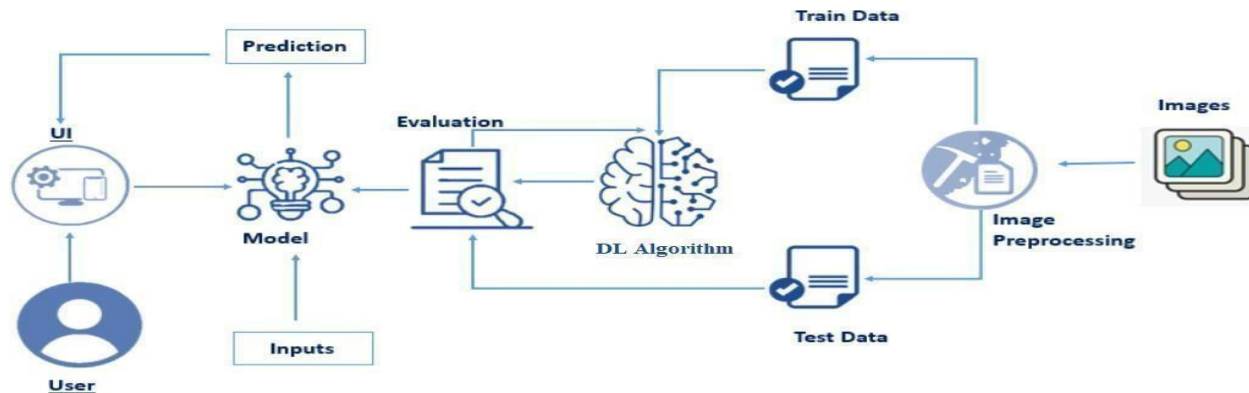
Table-1 : Components & Technologies:

S.No	Component	Description	Technology
1.	User Interface	User inputs the input image using a web UI	HTML, CSS, JavaScript , etc.
2.	Application Logic-1	Logic for a process in the application	Java / Python
3.	Database	Data Type: Images of various weather conditions.	Kaggle, UCI repository, etc.

4.	Cloud Database	Database Service on Cloud	IBM DB2, IBM Cloudant etc.
5.	File Storage	File storage requirements	IBM Block Storage or Local Filesystem
6.	Weather API	Get Historical weather data for accurate weather forecasts	IBM Weather API, etc.
7.	Transfer learning in ML	Transfer learning for achieving better performance in image analysis and classification.	Image Recognition and Classification Model.
8.	Infrastructure (Server / Cloud)	Application Deployment on Local Cloud	Local, Cloud Foundry, Kubernetes, etc.

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	Flask, Tensorflow, Keras	Flask: Web framework used for building web applications
2.	Scalable Architecture	Designed the system architecture in a scalable manner utilizing techniques such as horizontal scaling, distributed computing and load balancing etc,.	Apache Hadoop Distributed Filesystem(HDFS)
3.	Availability	Load balancers for achieving scalability.	Technology used
4.	Performance	Can collect multiple inputs from user per sec and can provide accurate results.	Transfer learning