Project Design Phase-I
Proposed Solution Template

Date	19 May 2023
Team ID	NM2023TMID22485
Project Name	Project - Automated Weather Classification Using Transfer Learning

Proposed Solution Template:

Project team shall fill the following information in proposed solution template.

S.No.	Parameter	Description
1.	Problem Statement (Problem to be solved)	Given historical weather data and meteorological variables, the task is to develop a weather classification model that accurately predicts the weather conditions for a given location and time period. The model should be able to classify the weather into different categories, such as sunny, cloudy, rainy, snowy, foggy, etc., based on the available data.
2.	Idea / Solution description	The proposed solution aims to develop a weather classification system that accurately predicts weather conditions based on historical data and meteorological variables. After feature selection and engineering, suitable machine learning or statistical models are explored, such as deep learning models like **tensorflow** etc .The preprocessed data is divided into training and validation sets, ensuring representation from different time periods, and the selected model is trained and optimized using the training set. Performance evaluation is conducted using appropriate metrics on the validation set.
3.	Novelty / Uniqueness	Different Weather Categories: The weather classification model aims to classify weather conditions into different categories, such as sunny, cloudy, rainy, snowy, foggy, etc. Each category represents a unique weather pattern and set of conditions.
4.	Social Impact / Customer Satisfaction	Customer satisfaction in weather classification refers to the level of satisfaction or contentment experienced by users or customers who utilize the weather

		classification system or service. It measures the extent to which the system meets their needs, expectations, and requirements in terms of accuracy, reliability, usability, and usefulness of the provided weather classifications. Continuous monitoring of customer feedback, conducting user surveys, and analysing user behaviour can help identify areas for improvement and enhance customer satisfaction in weather classification.
5.	Business Model (Revenue Model)	Target Customers Revenue Streams Data Processing and Analysis By developing a robust business model, a weather classification service can effectively deliver value to customers, generate revenue streams, and sustain itself in the market. It allows the business to align its resources, strategies, and operations to provide accurate weather classifications while meeting the needs and expectations of its target customers.
6.	Scalability of the Solution	Architecture Design: Design the system architecture in a scalable manner, utilizing techniques such as horizontal scaling, distributed computing, and load balancing. Distributed Storage: Employ distributed storage systems like Apache Hadoop Distributed File System (HDFS) or cloud-based object storage to store and manage large volumes of weather data. Continuous Evaluation and Improvement: Continuously monitor and evaluate the solution's scalability as the system grows and user demands increase. Collect feedback from users and stakeholders to identify areas of improvement and invest in ongoing optimization efforts.