Project Initialization and Planning Phase

Date	12 July 2024
Team ID	SWTID1720108739
Project Name	Predicting The Energy Output Of Wind Turbine Based On Weather Condition
Maximum Marks	3 Marks

Define Problem Statements (Customer Problem Statement Template):

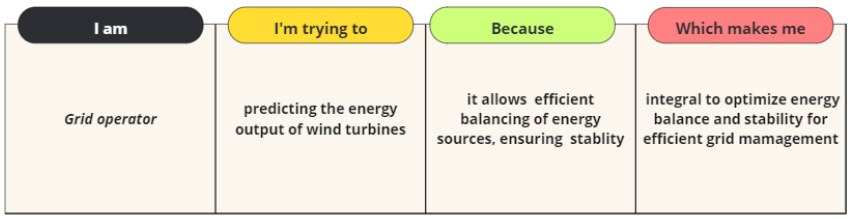
Energy Production Forecasting: Energy companies need to accurately forecast the energy production of their wind turbines over a specified period. This requires the development of machine learning models that can predict wind turbine energy output based on weather forecasts. The goal is to provide energy companies with reliable predictions to support informed decisions regarding energy distribution and pricing strategies.

I am	I'm trying to	Because	Which makes me
Energy company	predict the energy output based on weather forecasts	forecast the energy production of their wind turbines	make informed decisions about energy distribution and pricing.

Maintenance Planning :Wind farm operators face the challenge of scheduling maintenance for their turbines to minimize downtime and maximize energy production. To achieve this, operators need predictive models that can forecast wind turbine energy output based on weather conditions. This enables them to strategically plan maintenance activities during periods of anticipated low wind activity, thereby optimizing operational efficiency and maximizing overall energy yield.

I am	I'm trying to	Because	Which makes me
Wind farm operator	predicting energy output based on weather conditions	helps me schedule maintenance during low wind periods	minimize downtime and maximize energy production

Grid Integration: Grid operators aim to efficiently integrate wind energy into the overall energy grid. To achieve optimal grid balance, operators require accurate predictions of wind turbine energy output. This enables them to adjust the output of other energy sources in response to fluctuations in wind energy production, ensuring stable and reliable energy supply across the grid.



The overarching problem statements revolves around the development and deployment of machine learning models that can predict wind turbine energy output based on weather data. These predictions are crucial for energy companies, wind farm operators, and grid operators to optimize energy production, maintenance scheduling, and grid integration strategies.

Problem Statement (PS)	I am (Customer)	I'm trying to	Because	Which makes me feel
PS-1	ENERGY COMPANY	predict wind turbine energy output	forecast the energy production of their wind turbines	Makes informed decisions regarding energy distribution and pricing strategies.
PS-2	Wind farm operator	predict wind turbine energy output	helps me schedule maintenance during low wind periods	minimize downtime and maximize energy production
PS-3	Grid operator	predicting the energy output of wind turbines	it allows efficient balancing of energy sources, ensuring stablity	integral to optimize energy balance and stability for efficient grid mamagement