Project Design Phase-II
Data Flow Diagram & User Stories

Date	9 February 2026
Team ID	LTVIP2026TMIDS90282
Project Name	Weather-Based Prediction of Wind Turbine Energy Output: A Next-Generation Approach to Renewable Energy Management
Maximum Marks	

Data Flow Diagrams:

A Data Flow Diagram (DFD) is a traditional visual representation of the information flows within a system. A neat and clear DFD can depict the right amount of the system requirement graphically. It shows how data enters and leaves the system, what changes the information, and where data is stored.

The Data Flow Diagram (DFD) of the Weather-Based Wind Turbine Energy Prediction system illustrates how data moves through different stages of the project. The process begins with the user providing input through the web interface. The input includes weather parameters such as wind speed and theoretical power values. These inputs are sent to the prediction module developed using a trained machine learning model.

During the training phase, historical weather and power generation data are collected and preprocessed. The machine learning algorithm is trained using this dataset, and the trained model is saved as a .sav file. In the deployment phase, the Flask web application loads this trained model and uses it to generate predictions based on real-time user inputs. The predicted energy output is then displayed back to the user through the user interface.