

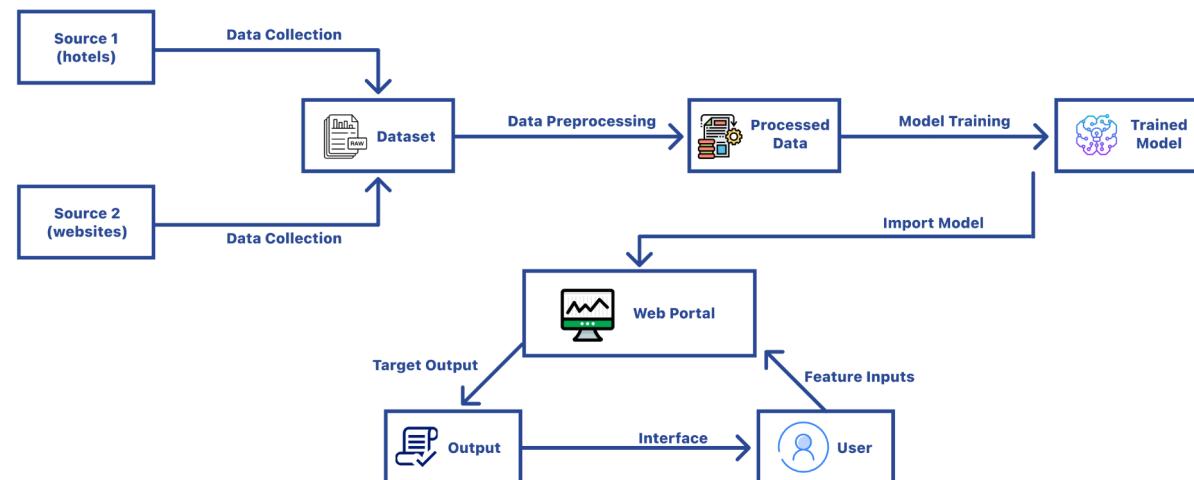
## Project Design Phase-II

### Data Flow Diagram & User Stories

Date	28 October 2023
Team ID	Team-592779
Project Name	Machine Learning Model For Occupancy Rates And Demand In The Hospitality Industry
Maximum Marks	4 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.



## User Stories

User Type	Functional Requirement (Epic)	User Story Number	User Story / Task	Acceptance criteria	Priority	Release
Hotels, Booking Websites and Applications	Project setup & Infrastructure	USN - 1	Install the necessary frameworks and tools in the development environment to set up the hotel occupancy rate prediction system.	Seamlessly configured with the required technologies and frameworks.	High	Sprint 1
Developers	Data Collection and Preprocessing	USN - 2	Collect a diverse dataset of booking patterns, occupancy rates and demands per season from various hotel booking websites and publicly available datasets. A larger and diversified dataset gives developers a chance to improve accuracy of the model.	Data is gathered from hotel websites and booking applications. After thorough cleaning and preprocessing, we move onto development of the model.	High	Sprint 1
Shareholders	Model Development and Training	USN - 3	The model is built on an appropriate machine learning algorithm - Regression. Historical data after preprocessing, is used to train the model, focusing on learning patterns in booking behaviour, seasonal trends, and customer preferences. For a shareholder of the hotel, this model's efficiency is directly proportional to the profits.	Algorithms are applied to the preprocessed data for training, validation, and generating predictions. Model is optimized and then evaluated using appropriate metrics.	High	Sprint 2

Customer	Model Deployment and Integration	USN - 4	The model should be able to seamlessly integrate into the reservation system. This will ensure high productivity from the hotel staff and convenience for users. The model should provide real-time predictions to optimise room pricing and staff allocation.	The machine learning model is deployed and integrated into the booking system. Real-time predictions for occupancy rates and demand are accessible. The model assists in optimising pricing and staff allocation.	Medium	Sprint 3
Hotel Manager	Model Monitoring and Quality Assurance	USN - 5	As a hotel manager, ensure the machine learning model's performance. Can develop an alert system to notify of performance issues or anomalies. Plan regular model retraining and updates to maintain quality and accuracy.	The machine learning model's performance is continuously monitored. An alert system is in place to detect performance issues or anomalies. A schedule for regular model retraining and updates is established.	Medium	Sprint 4