# Project Planning Phase
## Project Planning Template (Product Backlog, Sprint Planning, Stories, Story points)

| Date | 8 November 2023 |
|---|---|
| Team ID | Team-592779 |
| Project Name | Machine Learning Model For Occupancy Rates And Demand In The Hospitality Industry |
| Maximum Marks | 8 Marks |

**Product Backlog, Sprint Schedule, and Estimation (4 Marks)**

| Sprint | Functional Requirement (Epic) | User Story Number | User Story / Task | Story Points | Priority | Team Members |
|---|---|---|---|---|---|---|
| Sprint 1 | Project setup & Infrastructure | USN - 1 | Install the necessary frameworks and tools in the development environment to set up the hotel occupancy rate prediction system. | 1 | High | Ashish Chauhan |
| Sprint 1 | 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. | 2 | High | Ishika Lalwani |

| Sprint | | USN | | | | |
|---|---|---|---|---|---|---|
| Sprint 2 | Model Development and Training | USN - 3 | The model is built on an appropriate machine learning algorithm – Random Forest Classifier. 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. | 2 | High | Ashish Chauhan |
| Sprint 3 | 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. | 2 | Medium | Dev Agarwal |
| Sprint 4 | 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. | 1 | Medium | Piya Chhibber |

**Project Tracker, Velocity & Burndown Chart: (4 Marks)**

| Sprint | Total Story Points | Duration | Sprint Start Date | Sprint End Date (Planned) | Story Points Completed (as on Planned End Date) | Sprint Release Date (Actual) |
|---|---|---|---|---|---|---|
| Sprint-1 | 20 | 8 days | 16-10-2023 | 23-10-2023 | 20 | 23-10-2023 |
| Sprint-2 | 20 | 4 days | 24-10-2023 | 27-10-2023 | 20 | 27-10-2023 |
| Sprint-3 | 20 | 10 days | 28-10-2023 | 06-11-2023 | 20 | 06-11-2023 |
| Sprint-4 | 20 | 3 days | 07-10-2023 | 09-10-2023 | 20 | 09-11-2023 |

**Velocity:**

Sprint Duration = 25 days

Velocity = 20(points per sprint)

Average Velocity = 25/20 = 1.25