**Project Title:** Predictive Modeling for Customer Churn in E-commerce

**Project Overview:** The goal of this project is to develop a predictive model that can identify customers who are likely to churn from an e-commerce platform. By analyzing historical transactional data, user engagement metrics, and other relevant factors, the project aims to provide actionable insights to reduce customer churn and increase retention rates.

**Objectives:**

1. Analyze the dataset to understand the patterns and trends related to customer behavior and churn.
2. Preprocess the data to handle missing values, outliers, and feature engineering.
3. Explore different machine learning algorithms suitable for predictive modeling.
4. Build and evaluate predictive models using techniques such as logistic regression, decision trees, random forests, and gradient boosting.
5. Fine-tune the selected model for optimal performance using techniques like hyperparameter tuning and cross-validation.
6. Validate the model using a separate test dataset to assess its generalization ability.
7. Interpret the results and provide actionable recommendations to stakeholders for reducing customer churn.

**Deliverables:**

1. A well-documented analysis of the dataset, including exploratory data analysis findings.
2. Preprocessed and feature-engineered dataset ready for modeling.
3. Trained predictive model(s) along with code implementation.
4. Evaluation metrics and performance analysis of the model(s).
5. Final report summarizing the project methodology, results, and recommendations.
6. Presentation slides for communicating the project findings to stakeholders.

**Timeline:**

* Day 1-3: Data collection and exploratory data analysis
* Day 4-6: Data preprocessing and feature engineering
* Day 7-14: Model selection and training
* Day 15-17: Model evaluation and fine-tuning
* Day 18-21 Finalize report, presentation, and documentation

**Resources:**

* Historical transactional data from the e-commerce platform
* Python programming language for data analysis and modeling (libraries such as pandas, scikit-learn, etc.)
* Jupyter Notebook for code implementation and documentation
* Presentation tools like PowerPoint or Google Slides

**Stakeholders:**

* E-commerce company management
* Marketing and customer retention teams

**Constraints:**

* Ensure compliance with data privacy regulations (e.g., GDPR)
* Utilize open-source or licensed datasets for analysis and modeling

**Success Criteria:**

* Achieve a predictive accuracy of at least 80% on the test dataset.
* Provide actionable insights to reduce customer churn and improve retention rates.
* Present findings in a clear and understandable manner to stakeholders.

**Risk Management:**

* Potential challenges may include limited availability or quality of data, overfitting of models, and interpretability of results. These risks will be mitigated through careful data preprocessing, model validation, and robust documentation of methodologies.