Title	OptiPrice Prognosticator: Pricing Prediction						
Project statement and outcomes	Develop a dynamic pricing model for an e-commerce platform that maximizes revenue and ensures competitiveness in real-time						
Modules to be implemented				**Evaluation template (refer enclosed sample), please share the milestone and module output mapping.**			
Data Collection (DC) **DC1**: Data Inventory and Source Identification. **DC2**: Data Cleaning and Preprocessing. **DC3:** Real-time Data Integration. **DC4**: Database Setup	**Key Variables Analysis (KVP)** **KVP1**: Demand Analysis **KVP2**: Competitor Analysis. **KVP3**: Data Type Conversions **KVP4**: Missing Value Analysis and treatment.	**Model Building (MB)** **MB1:** Algorithm Selection and Feature Engineering **MB2:** Model Training	**Model Evaluation & Presentation (MEP):** **MEP1**: Capture the performance metrics on the validation data for all the models. **MEP2**: Generate classification report for the finalized model. **MEP3**: Prepare the presentation/document on every module. **MEP4**: Prepare the churn remediation plan for the business **MEP5**: Add the final performance metrics results and the model outcomes.	**Milestone1 - Version0** **When** - at the end of 2nd week **Input criteria** - Approved 2nd week deliverables **Exit criteria** - Approved on the master dataset to be used. - Approved on the Independent Variables to be used, based on the Univarite and Bivariate Analysis performed on the master data. **Completion** - Data Collection and Understanding.	**Milestone2 - Version1** **When** - at the end of 4th week **Input criteria** - Approved 4th week deliverables **Exit criteria** - - Approved on the data preprocessing techniques. - Approved data treatments performed on the data. **Completion** - Data Preprocessing.	**Milestone3 - Version2** **When** - at the end of 6th week **Input criteria** - Approved 6th week deliverables **Exit criteria** - Approved Models to be using on the master dataset. Approved Hyperparameters **Completion** - Performance Metrics on all the built Models.	**Milestone4 - VersionFinal** **When** - at the end of 8th week **Input criteria** - Approved 8th week deliverables **Exit criteria** - Approved Final Model. - Approved Presentation or Project **Documentation**. - Approved Remediation/Action plans for the Businees to reduce Churn. **Completion** - Final Code and Documentation.
Week-wise module implementation and high-level requirements with output screenshots							
Week1 All: - Understanding the problem statement - Identify all relevant data sources. - Inventory historical sales data, competitor pricing, and other necessary datasets- Use the right joins and prepare master dataset - Clean and preprocess historical data. - Ensure data quality and consistency.	**Week2** All: Implement systems to collect and integrate real-time data. Set up APIs or data feeds from competitors, marketplaces, and other relevant sources. Establish a database to store both historical and real-time data. Choose a scalable solution to accommodate growing data volumes.	**Week3** Analyze historical demand patterns. Identify key factors affecting demand. Implement tools for monitoring competitor prices in real-time. Develop a strategy to adapt to competitive pricing changes.	**Week4** Integrate inventory data into the pricing model. Define rules for adjusting prices based on inventory levels. Analyze customer data to understand preferences and price sensitivity. Identify relevant customer segments..	**Week5** Choose a suitable machine learning algorithm. Select and engineer features for the model.	**Week6** Train the machine learning model using historical data. Optimize the model for revenue. Conduct thorough testing and validation of the model. Ensure the model's accuracy and generalization to new data	**Week7** - Finalize the model. - Calculate performance metrics on the validate data. - Repeat week 6 taks if the results are not promising. Deliverables: - - Approved code for above mentioned techniques and detailed observations.	**Week8** - Final testings - Code optimization and modularization - Documnetation - Remediation plan to business. Deliverables: - approved Final code and documnetation.