CRISP-ML(Q) 1a.Business Understanding

Instructions:
Please share your answers filled in-line in the Word document. Submit code separately wherever applicable.

Please ensure you update all the details:
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Topic: Business Understanding

Instructions: Learn to understand the problem statement and frame business objective(s) and constraint(s). You should try and use data optimization terminologies "maximize" and/or "minimize" for objective(s) and constraint(s) (for example: "maximize profit" "minimize risk", etc.)

Hint:
- Objective(s) implies the goals to be achieved in terms of maximizing & minimizing.
- Constraint(s) are the challenges/limitations in achieving the objectives.

Q. For the below-listed business problems, draft the business objectives and constraints.

S.no	Business Problem
Hint:	Smart data platforms can bring together customer transaction data and data from real-time communication streams to disclose insights concerning customers' feelings about the services which allows for addressing satisfaction-related issues and churn prevention. **Sol: Hint** Business Objective: Minimize: Churn rate (churning implies customers going to another company for their needs) (or) Maximize: Customer satisfaction (satisfaction will make customers more loyal to the brand) Business Constraints: Lack of data coverage for all customers

1	Advanced targeting allows predicting needs, preferences, and customers' reactions to the telecommunication services and products on offer by segmenting their market and targeting the content according to each group.
	Business Objective:
	Maximize: Customer retention
	(or)
	Minimize: Acquisition cost per customer
	Business Constraints: Budget limitations for marketing and advertising
2	Collection of positive & negative reactions to the service or product from social media sources, and recent trends via customer sentiment analysis may provide an opportunity to utilize mechanisms for direct responding.
	Business Objective:
	Maximize: Effectiveness of customer support
	(or)
	Minimize: Time to resolve customer issues
	Business Constraints: Adherence to social media platform policies
3	Customers usually search for better & cheaper services so telecommunication companies measure, manage, and predict the customer lifetime value (CLV). Smart solutions process real-time insights based on customer purchasing behavior, activity, services utilized, and average customer value.
	Business Objective:
	Maximize: Cross-selling and upselling opportunities
	(or)
	Minimize: Operational costs associated with customer service
	Business Constraints: Compliance with data privacy and protection regulations

4	The retail industry uses AI systems with built-in machine-learning algorithms to collect and analyze data regarding products, transactions, etc. Based on findings from data, systems estimate the best strategies that can be implemented for the profit of the business Business Objective: Maximize: Customer satisfaction (or) Minimize: Time to market for new products Business Constraints: Data quality and completeness
5	The price determination process depends not only on the costs to produce an item but also on a typical customer's wallet and the competitors' offers. The tools for data analysis bring this issue to a new level of its approach. Business Objective: Maximize: Customer satisfaction and perceived value (or) Minimize: Customer churn due to price dissatisfaction Business Constraints: Accuracy and timeliness of data collected (production costs, customer spending habits, competitor pricing)
6	Inventory deals with stocking goods for their future use. Inventory management refers to stocking goods to use in times of crisis. The retailers aim to provide the right product at the right time and in the proper condition. Business Objective: Maximize: Customer satisfaction and service levels (or) Minimize: Lead times in inventory replenishment Business Constraints: Accuracy of demand forecasting and data analytics

7	As flight delays depend on many factors, an intelligent system can be applied to analyze huge datasets in real-time to predict delays and re-book customers' flights in time.
	Business Objective:
	Maximize: Predictive accuracy for delays
	(or)
	Minimize: Operational disruptions
	Business Constraints: Accuracy and timeliness of data from various sources (weather, air traffic, maintenance)
8	Understanding people and why they decide to stay at or leave a job is arguably one of the most important questions for HR to answer. Identifying attrition risk calls for advanced pattern recognition in surveying an array of variables.
	Business Objective:
	Maximize: Employee engagement and satisfaction
	(or)
	Minimize: Costs associated with hiring and training new employees
	Business Constraints: Availability and quality of employee data
9	In modern manufacturing, production can often depend on a few critical machines or cells. The same data that provides a manufacturer with real-time monitoring can be analyzed through data science to improve asset management and prevent machine failure.
	Business Objective:
	Maximize: Lifespan of critical machinery
	(or)
	Minimize: Maintenance and repair costs
	Business Constraints: Accuracy and reliability of real-time data collection

10	The world is constantly changing. Thus, the sports industry is faced with the challenge of trying to predict the next trend, the next big idea that will capture its audience. Coupling this challenge with that of technology, it's clear that some sports teams and venues will always be at odds.
	Business Objective:
	Maximize: Revenue from ticket sales, merchandise, and media rights
	(or)
	Minimize: Operational costs related to implementing new technologies
	Business Constraints: Market competition and external economic factors