**Business Understanding**

* Analysis of the business problems
* Identify Business Requirements
* Identify Business Constraints
* Develop Possible solutions

**Instructions:**

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

Please ensure you update all the details:

**Name: \_\_\_\_\_\_\_\_\_\_\_\_\_ Batch ID:** \_\_\_\_\_\_\_\_\_\_\_

**Topic: Business Understanding**

**Instructions:** Learn to understand the business objective(s) and constraint(s) based on the business problem statements. You should identify and frame statements using the words “maximize” and/or “minimize” for objective(s) and constraint(s) (for example: “maximize profit” “minimize risk”, etc.)

Q1. For the below listed business problems, draft the business objectives and constraints.

**Hint:**

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

|  |  |
| --- | --- |
| **S.no** | **Business Problem** |
| **Hint:** | Smart data platforms can bring together customer transactions data and data from real-time communication streams to disclose the insights concerning customers feelings about the services which allows addressing the 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 customer more loyal to the brand)  Business Constraints: Lack of data coverage for all customers |
| 1 | Advanced targeting allows predicting needs, preferences, and customers’ reaction to the telecommunication services and products on offer by segmenting their market and targeting the content according to each group.  Business Objective:  Business Problem:  Business objective:  Business Success Criteria:  ML success Criteria:  Economic Success Criteria:  Maximize:  1. to maximize and draw more insightful information based on the customers’ needs and ratings.  2. provide Exact Service and most relevant road map for targeting each customer group, and generate more revenue.  Minimize: The Services which will not excite most of the customers group can be minimize.  Business Constraints: Availability of the Exact data from the customers. |
| 2 | Telecommunication companies tend to regard the customers’ engagement process and internal channels as a guarantee of smooth functioning of the operations. Network management and optimization gives an opportunity to identify the root causes.  Business Objective:  Minimize: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Maximize: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Business Constraints: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| 3 | Ensuring the high-quality performance of the product according to the customer’s requirement is not possible without applying smart data solutions.  Business Objective:  Maximize:  1. ensure high-quality product based on the customer’s requirement.  2. customers satisfaction and expectations.  3. Revenue  Minimize:  1. The cost that will come with the corresponding solution for the customers.  2.  Business Constraints: correctness of customer’s requirement. |
| 4 | Collection of positive & negative reactions to the service or product from social media sources, recent trends via customer sentiment analysis may provide an opportunity to utilize mechanisms for direct responding.  Business Objective:  Maximize:   1. Enhance the product quality. 2. Positive reviews 3. prediction of appropriate measures to improve the product and corresponding services. 4. Predict the accurate model based on customer sentiment analysis   Minimize:   1. Negative responses.   Business Constraints: Validate the correctness of the response collected.  Misinterpretation of reviews.  (Are they externally motivated) |
| 5 | Acquiring as many subscribers as possible remains a critical goal. In recent years, the number of users has been growing extremely fast and pricing emerged as a tool to limit congestion and increase revenue at the same time.  Business Objective:  Maximize:   1. Subscribe base 2. Cost per unit service (increase) (so that subscriber base is retained)   Minimize: the loss in customer’s base  Business Constraints: pricing |
| 6 | Customers usually search for better & cheaper services so the 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: Customer lifetime value , Customer retention rate  Minimize: Customer switching rate  Business Constraints: appropriate revenue per service |
| 7 | In telecommunications, companies prevent bypass fraud by using big data to review the source of transactions, the cost of the call, and the destination number, in real-world situations.  Business Objective:  Maximize: the profit  Minimize: the fraud  Business Constraints: potential trap doors can be developed. |
| 8 | Identify security issues, conduct predictive analysis, and use machine learning-based solutions to analyze any patterns of threats and automated escalations to resolve issues before they cause serious damage.  Business Objective:  Maximize: the end point security  Minimize: the damage proposed by potential threads and attacks to the network  Business Constraints: methodology for surveillance of the system  Good surveillance mechanism will increase the cost of operations |
| 9 | 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:  Minimize: wrong interpretation of the data  Maximize: the accuracy of the AI system and ML algorithms , profit  Business Constraints: finding exact features of product satisfaction |
| 10 | The price determination process depends not only on the costs to produce an item but on the wallet of a typical customer and the competitors' offers. The tools for data analysis bring this issue to a new level of its approach.  Business Objective:  Minimize: Errors in prediction of the cost of product  Maximize: the effective purchasing power of the customer.  Business Constraints: implemented decision must impact larger set of customers(win-win situation) |
| 11 | 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 in the proper condition.  Business Objective:  Minimize: loss encurred for the products that loses their value because of excessive stocking time  Maximize: the availability of the product at the right instance of time.  Effective stocking time analysis  Business Constraints: fluctuation of the requirements in the market , increase the operational cost |
| 12 | Customer feedback is taken as an important aspect of the retail store. Considering customer feedback and making changes can increase the store profits and customer satisfaction.  Business Objective:  Minimize: the loss , customers complaints  Maximize: customers satisfaction  Predict what is customer likes and dislikes  Increase the profits  Business Constraints: practicality of gathering a customer feedback , operations cost |
| 13 | Businesses have to be extremely cautious about choosing a new store's location. To make such a decision, a great deal of study regarding the location is required which gives us a basis for understanding the potential of the market. Also, special settings concerning the location of other stores are considered.  Business Objective:  Minimize: operations cost , wrong data interpretations  Maximize: the potential of business to grow , drawing optimistic inferences based on realistic data  Revenue  Business Constraints: availability of smart mechanisms to have a proper analysis ,availability of that location |
| 14 | Airlines use AI systems with built-in machine learning algorithms to collect and analyze flight data regarding each route distance, altitudes, aircraft type, weight, weather, etc. Based on findings from the data, systems estimate the optimal amount of fuel needed for a flight.  Business Objective:  Minimize: fuel cost , errors while collecting the readings of parametres  Maximize: the correct prediction of the fuel , accuracy of the AI and ML algorithms.  Business Constraints: Environmental conditions and unseen event estimation. |
| 16 | As flight delays are dependent on a huge number of 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:  Minimize: flight delays  Maximize: real time and easy ways to book seats  Business Constraints: Analyzing huge data |
| 17 | By analyzing specific customer’s flight and purchase patterns, and coupling it with historic data, algorithms are able to point out suspicious credit card transactions and detect fraudulent cases thereby saving airline and travel companies millions of dollars every year.  Business Objective:  Minimize: eliminate fraudulent cases  Maximize: security  Business Constraints: analyze specific customer flight |
| 18 | What is the optimal way to schedule an airline’s crew to maximize their productive time and balance their working hours to increase employee retention?  Business Objective:  Minimize: loss of employee retantion  Maximize: proper schedule aligning with working hours to increase employee retention  Business Constraints: time management |
| 19 | The image of the enterprise in the community largely influences the recruitment process. A person may not be interested in applying for a job in an enterprise whose goodwill is low.  Business Objective:  Minimize: dumy candidates  Maximize: improve organizational policies and find right candidate  Business Constraints: good recruitment process |
| 20 | If the job is boring, hazardous, tension ridden, and lacking in opportunities for advancement, very few people may be available for such jobs.  Business Objective:  Minimize: intensively working jobs  Maximize: healthy job opportunities  Business Constraints: find right candidate |
| 21 | One of the greatest challenges that an HR leader could face is keeping the staff satisfied.  Business Objective:  Minimize: work load  Maximize: staff satisfaction by increment in salary  Business Constraints: staff problem |
| 22 | Organizations face huge costs resulting from employee turnover. Some costs are tangible such as training expenses and the time it takes from when an employee starts to when they become a productive member.  Business Objective:  Minimize: costs  Maximize: saving money  Business Constraints: organizations face huge costs |
| 23 | Attracting the attention of a candidate and driving the traffic towards a company’s hiring page is one place where an AI can see widespread use.  Business Objective:  Minimize: the latency of the web page  Maximize: get more traffic at the company’s hiring pafe  Business Constraints: attracting the attention of a candidate |
| 24 | HR departments are responsible for the implementation of training programs. Some of these programs are designed to ensure your staff follows policies and procedures while others are used for job advancement. In some job settings, employees are required to complete certain certification programs.  Business Objective:  Minimize: duplicate and dummy certificationsd  Maximize: provide program to all employers and complete it  Business Constraints: implementation of training programs |
| 25 | 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:  Minimize: job leave ratio  Maximize: salary or promotion  Business Constraints: identifying attrition |
| 26 | Your HR department likely deals with many requests and queries from employees throughout the day. This could include queries about available time off, vacation time, or HR issues with their paycheck. They may also receive requests for shift swaps and other scheduling problems.  Business Objective:  Minimize: paying attention to unimportant request and queries  Maximize: problem solving  Business Constraints: create the new schedule and time management |
| 27 | In modern manufacturing, production can often depend on a few critical machines or cells. The same data that provides a manufacturer real-time monitoring can be analyzed through data science to improve asset management and prevent machine failure.  Business Objective:  Minimize: machine failure  Maximize: production  Business Constraints: analyze real time data and use it in real time applications |
| 28 | Plan to help manufacturers analyze if their product and services are meeting all objectives for initial processes such as the DMAIC framework. They need a strategy to be used to determine which product has the highest impact. Helping in minimizing errors and losses and eliminating unnecessary human effort can increase the overall quality of products and services.  Business Objective:  Minimize: errors and losses and eliminates unnecessary human efforts  Maximize: product quality and drawing inference of the product  Business Constraints: without unnecessary human effort done work |
| 29 | Some flaws in products are too small to be noticed by the naked eye even if the inspector is very experienced. The time taken for inspection also slows down the production.  Business Objective:  Minimize: inspection time  Maximize: quality of inspection with fast quality check  Business Constraints: hire an experienced inspector |
| 30 | A business wants to make design enhancements/upgrades to the current version of the product to increase consumption of the product and thereby the brand image. They need to identify the features which most of the customers use and they need to understand customer behavior towards the product, brand, and their interests.  Business Objective:  Minimize: operations cost , bugs in the updates  Maximize: the quality of product and its consumption , customers interests.  Business Constraints: Understand customer behavior |
| 31 | For many contract manufacturers, product development is part of the service they provide so having data to validate their choices to their customer is crucial. To validate the choices, they need to depend on a wide range of factors such as value for money, quality, reliability, and service. It is crucial to gather such data.  Business Objective:  Minimize: customer dis-satisfaction rate  Maximize: contract manufacturers product quality , reliability , service and revenue  Business Constraints: accurate measures for the data |
| 32 | Manufacturers are able to detect all kinds of issues on their routine methods of production, from bottlenecks to unprofitable production lines. Companies are taking a deeper look into their logistics, inventory, assets, and supply chain management. The insights will bring high-value insights that uncover potential opportunities not just in the manufacturing process but also in the packaging and distribution.  Business Objective:  Minimize: operational cost,  Maximize: opportunities in the manufacturing process, packaging and distribution, analysis of the product  Business Constraints: regular routine methods |
| 33 | The Department of Employment, Skills and Small Business carries out research to identify skill shortages in the labor market. Factors for skilled labor shortage analysis are adequate availability of vacancy, job postings and recruitments, applicants’ qualifications for the job, factors affecting the position to be filled, such as required licensing requirements, qualification and experience requirements are few of those constraints that should be considered.  Business Objective:  Minimize: the  Maximize: job posting, recruitments , qualification and experience  Business Constraints: considering all the constraints |
| 34 | 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 their audience. Coupling this challenge with that of technology, it’s clear that some sports teams and venues will always be at odds.  Business Objective:  Minimize:  Maximize:  Business Constraints: |
| 35 | Betting companies analyze the massive amounts of data generated by sporting events all around the world to come up with probabilities for future outcomes. Goes without saying that predictive modelling using machine learning techniques plays an important role in this.  Business Objective:  Minimize: the dropping rate of customers  Maximize: the engagement of the customers,  Business Constraints: collection of real time data |
| 36 | Stadium management and sponsors have studied the average profile of their audience carefully and have made targeted advertisements that appeal to their audiences. The broadcasters and stadium management have placed those ads carefully after conducting a careful analysis of its own resources for maximum impact.  Business Objective:  Minimize:  Maximize: the audience engagement to the advertisements , strategic placement of the advertisements  Business Constraints: |