**Topics:**

1. **Customer Churn Prediction:** Predict whether customers are likely to churn (cancel their subscription or leave the platform) based on their past behaviour and demographics.
2. **Product Recommendation System:** Develop a recommendation engine to suggest products or services to users based on their preferences, purchase history, and browsing behaviour.
3. **Sentiment Analysis for Customer Reviews:** Analyze customer reviews and sentiment data to categorize them as positive, negative, or neutral, providing insights for businesses to improve customer satisfaction.
4. **Employee Attrition Prediction:** Predict the likelihood of employee attrition or turnover based on factors such as job satisfaction, performance metrics, and tenure.
5. **Credit Risk Assessment:** Build a model to assess the creditworthiness of individuals or businesses and predict the risk of default on loans or credit lines.
6. **Demand Forecasting:** Forecast demand for products or services based on historical sales data, market trends, and external factors like seasonality or promotions.
7. **Fraud Detection:** Develop a fraud detection system to identify suspicious transactions or activities in financial transactions, insurance claims, or e-commerce transactions.
8. **Customer Segmentation:** Segment customers into distinct groups based on demographic, behavioural, or transactional data, allowing businesses to tailor marketing strategies and offerings.
9. **Price Optimization:** Optimize pricing strategies by analysing market trends, competitor pricing, and customer willingness to pay to maximise revenue and profitability.
10. **Inventory Management:** Develop an inventory management system to optimize stock levels, minimize stockouts, and reduce carrying costs by predicting demand and reorder quantities.
11. **Predictive Maintenance:** Predict equipment failures or maintenance needs in industrial machinery, vehicles, or infrastructure based on sensor data and historical maintenance records.
12. **Healthcare Diagnosis Prediction:** Build a diagnostic model to predict the likelihood of specific diseases or medical conditions based on patient symptoms, medical history, and diagnostic tests.
13. **Energy Consumption Forecasting:** Forecast energy consumption for residential or commercial buildings based on historical usage data, weather patterns, and occupancy schedules.
14. **Weather Forecasting:** Develop a weather forecasting model to predict temperature, precipitation, and other weather variables for specific locations and timeframes.
15. **Stock Price Prediction:** Predict stock prices or market trends based on historical stock data, company fundamentals, and market sentiment indicators.
16. **Crop Yield Prediction**: Predict crop yields for crops based on historical weather data, soil quality, and farming practices, helping farmers optimize crop management.
17. **Real Estate Price Prediction:** Predict real estate prices or property values based on location, property characteristics, market trends, and economic indicators.
18. **Customer Lifetime Value Prediction:** Predict the lifetime value of customers based on their purchasing behaviour, loyalty, and engagement with the business.
19. **Image Classification:** Develop a model to classify images as either product images or non-product images for an e-commerce platform.
20. **Supply Chain Optimization:** Use machine learning to optimize the supply chain process for a manufacturing company.
21. **Quality Control:** Use machine learning to identify defective products in a manufacturing process.
22. **Personalized Marketing**: Build a system to personalize marketing messages to customers based on their behaviour and preferences.

**Mark allocation:**

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| **Milestone 1: Business Understanding** | **30** |
| 1. Define the problem and identify the data needed | 10 |
| 1. Collect and clean the data | 10 |
| 1. Pre-process and transform the data | 10 |
| 1. Store the data in a database or file system | 5 |
| **Milestone 2: Machine Learning Model Implementation** | **30** |
| 1. Explore and visualise the data | 10 |
| 1. Develop a machine learning model | 10 |
| 1. Evaluate and refine the model - hyper-parameter tuning | 10 |
| **Milestone 3: DASH Web Application Development** | **30** |
| 1. Integration with ML Model – use ChatGPT prompt template | 10 |
| 1. Deploy locally | 10 |
| 1. Debug and fix errors | 5 |
| 1. [Deployment](https://www.render.com) as a web service ([How to deploy on render](https://youtu.be/H16dZMYmvqo)) | 5 |
| **Milestone 4: Presentation** | **10** |
| 1. Communication Skills | 5 |
| 1. Response to Questions | 5 |
| **Total** | **100** |