

BUSINESS INTELLIGENCE AND ANALYTICS

ASSIGNMENT WEEK 4:

Total marks = (15 Qns * 1 mark = 15 marks)

1. The concept of "Survival at time 't'" in survival analysis refers to: (1 Mark)
 - a) The probability of customer loyalty at a specific time
 - b) The duration a customer remains active
 - c) The likelihood of customers making repeat purchases
 - d) The probability of a customer surviving from the previous time period to 't'

Answer: D) The probability of a customer surviving from the previous time period to 't'

2. What does the term "Churn Rate" signify in customer analytics? (1 Mark)
 - a) The percentage of customers who make repeat purchases
 - b) The rate at which new customers are acquired
 - c) The ratio of customers who remain loyal to total number of customers
 - d) The rate at which customers discontinue or leave

Answer: D) The rate at which customers discontinue or leave

3. How is Customer Lifetime Value (CLV) useful for businesses? (1 Mark)
 - a) It helps in reducing customer acquisition costs
 - b) It predicts the success of new product launches
 - c) It assists in identifying high-value customers for loyalty programs
 - d) It determines employee performance metrics

Answer: C) It assists in identifying high-value customers for loyalty programs

4. What does the customer half-life measure? (1 Mark)
 - a) The average time a customer stays with a business.
 - b) The time taken for exactly half of a customer cohort to leave
 - c) The average lifespan of a customer.
 - d) The time when a customer starts their relationship with a business.

Answer: B) The time taken for exactly half of a customer cohort to leave

5. What does the hazard signify in survival analysis? (1 Mark)
 - a) The probability of customers remaining loyal
 - b) The risk of customer attrition within a specific time interval
 - c) The likelihood of acquiring new customers
 - d) The proportion of customers renewing their subscriptions

Answer: B) The risk of customer attrition within a specific time interval

6. How is the hazard probability calculated in customer tenure analysis? (1 Mark)
 - a) It is derived from a parametric equation.
 - b) It requires complex regression modelling.
 - c) It involves the ratio of customers who stop at a particular tenure to the population at risk.

d) It is calculated using a customer's initial signup date.

Answer: C) It involves the ratio of customers who stop at a particular tenure to the population at risk.

7. What is a key application of survival analysis besides measuring customer churn? (1 Mark)
- a) Identifying factors influencing customer purchases.
 - b) Calculating customer lifetime value.
 - c) Predicting customer sentiment on social media.
 - d) Analysing customer demographics and purchase history.

Ans: b) Calculating customer lifetime value.

8. Why is it important for businesses to track their customer acquisition cost (CAC) alongside CLV? (1 Mark)
- a) To determine the profitability of customer segments
 - b) To identify opportunities for cost reduction
 - c) To measure the effectiveness of marketing campaigns
 - d) All of the above

Ans: d) All of the above

9. What does a survival curve in customer retention showcase? (1 Mark)
- a) The increase in customer base over time
 - b) The proportion of customers expected to remain active over specific tenures
 - c) The decline in customer satisfaction rates
 - d) The total number of customers engaged with the business

Answer: B) The proportion of customers expected to remain active over specific tenures

10. What makes the survival curve a more reliable measure compared to the retention curve? (1 Mark)
- a) The survival curve is based on newer customer cohorts, providing more accurate data.
 - b) Survival calculations use information from all customers, offering more stability.
 - c) Retention curves are limited to customers starting at a specific time, causing fluctuations.
 - d) The retention curve considers the hazard probabilities at all tenures.

Answer: B) Survival calculations use information from all customers, offering more stability.

11. What are the potential limitations of using survival analysis in customer churn prediction? (1 Mark)
- a) It requires a large amount of historical data for accurate predictions.
 - b) It assumes that customer behaviour remains consistent over time.
 - c) It cannot account for external factors that may influence churn rates.
 - d) All of the above

Ans: d) All of the above

12. How does survival differ from retention in customer analytics? (1 Mark)

- a) Survival focuses on future customer behaviour, while retention analyses past behaviour.
- b) Retention measures the conditional survival at specific tenures.
- c) Survival accumulates probabilities of a customer event not occurring over time.
- d) Retention is always a smoother curve compared to survival.

Answer: C) Survival accumulates probabilities of a customer event not occurring over time.

13. Which components are crucial for a full customer value calculation? (1 Mark)

- a) Length of the customer relationship only
- b) Revenues and length of the customer relationship
- c) Costs associated with customers only
- d) Revenues, costs, and length of the customer relationship

Answer: D) Revenues, costs, and length of the customer relationship

14. How does survival analysis contribute to customer value calculations? (1 Mark)

- a) It estimates the probability of a customer surviving indefinitely.
- b) It helps determine the exact tenure for each customer in a relationship.
- c) It provides insights into the expected remaining tenure for customers.
- d) It calculates the value of the customer per unit time.

Answer: C) It provides insights into the expected remaining tenure for customers.

15. An online gaming platform has 100,000 active users. During a specific month, 10,000 users become inactive. The platform identifies 20,000 users as being at risk of becoming inactive during that month. What is the hazard probability for the online gaming platform during that month? (1 Mark)

- a) 0.2
- b) 0.6
- c) 0.5
- d) 0.25

Ans: c) 0.5