

1. What is the primary purpose of Business Intelligence (BI)?

- A) Data collection
- B) Data storage
- C) Data transformation
- D) Data-driven decision-making

- **Answer: D) Data-driven decision-making**

2. In the context of machine learning, what is classification?

- A) Grouping data into clusters
- B) Categorizing data into predefined classes
- C) Predicting future trends
- D) Detecting outliers in data

- **Answer: B) Categorizing data into predefined classes**

3. What is the key difference between classification and clustering?

- A) Classification assigns data points to clusters.
- B) Clustering assigns data points to predefined classes.
- C) Classification is supervised, while clustering is unsupervised.
- D) Clustering is used for predictive analytics, while classification is not.

- **Answer: C) Classification is supervised, while clustering is unsupervised.**

4. Which of the following is an example of multiclass classification?

- A) Predicting whether an email is spam or not
- B) Categorizing customer reviews as positive, neutral, or negative
- C) Classifying images of animals into cats or dogs
- D) Detecting fraudulent credit card transactions

- **Answer: B) Categorizing customer reviews as positive, neutral, or negative**

5. Which algorithm is commonly used for classification and is known for its interpretability?

- A) Random Forest
- B) Neural Networks
- C) Naïve Bayes
- D) Support Vector Machines (SVM)

- Answer: C) Naïve Bayes

6. In the context of classification algorithms, what is overfitting?

- A) When a model performs well on the training data but poorly on new data.
- B) When a model is too simple to capture complex patterns in data.
- C) When a model has high bias and low variance.
- D) When a model is perfectly generalized to all data.

- Answer: A) When a model performs well on the training data but poorly on new data.

7. Which evaluation metric is commonly used for imbalanced classification problems?

- A) Accuracy
- B) Precision
- C) F1-score
- D) ROC-AUC

- Answer: B) Precision

8. What is one of the main advantages of the Random Forest classification algorithm?

- A) High interpretability
- B) Suitable for imbalanced datasets
- C) Low computational complexity
- D) Low predictive accuracy

- Answer: B) Suitable for imbalanced datasets

9. In the context of Business Intelligence, what does OEE stand for?

- A) Operational Efficiency Estimate
- B) Overall Equipment Effectiveness
- C) Operational Excellence Evaluation
- D) Overall Efficiency Estimation

- Answer: B) Overall Equipment Effectiveness

10. What is the primary goal of predictive maintenance in manufacturing?

- A) Maximizing equipment uptime
- B) Minimizing scheduled maintenance
- C) Reducing production efficiency
- D) Increasing unplanned downtime

- Answer: A) Maximizing equipment uptime

11. Which technique is used to transform raw sensor data into a format suitable for predictive modeling?

- A) Data cleaning
- B) Feature selection
- C) Data preprocessing
- D) Data aggregation

- Answer: C) Data preprocessing

12. Which classification algorithm is known for its ability to handle both linear and non-linear decision boundaries effectively?

- A) Logistic Regression
- B) Naïve Bayes
- C) Support Vector Machines (SVM)
- D) K-Nearest Neighbors (K-NN)

- Answer: C) Support Vector Machines (SVM)

13. In the case study, what was the primary challenge faced by the manufacturing company?

- A) Inventory management
- B) Supplier relationships
- C) Unplanned equipment breakdowns
- D) Marketing strategy

- Answer: C) Unplanned equipment breakdowns

14. What was the goal of implementing predictive maintenance in the manufacturing case study?

- A) To reduce production efficiency
- B) To increase unplanned downtime
- C) To minimize maintenance costs
- D) To introduce scheduled maintenance

- Answer: C) To minimize maintenance costs

15. How did the classification model in the case study classify machinery states?

- A) As "new" or "old"
- B) As "damaged" or "undamaged"
- C) As "healthy" or "at risk"
- D) As "operational" or "non-operational"

- Answer: C) As "healthy" or "at risk"

16. What was the primary benefit of implementing predictive maintenance in the case study?

- A) Increased unplanned downtime
- B) Reduced maintenance costs
- C) Lower production efficiency
- D) Decreased safety

- Answer: B) Reduced maintenance costs

17. What does OEE stand for in the context of the case study?

- A) Overall Efficiency Evaluation
- B) Operational Excellence Estimate
- C) Overall Equipment Effectiveness
- D) Operational Efficiency Estimation

- Answer: C) Overall Equipment Effectiveness

18. In the case study, what type of data was

collected from machinery sensors?

- A) Weather data
- B) Employee data
- C) Sensor data
- D) Sales data

- Answer: C) Sensor data

19. What is one of the advantages of using random forest classification in predictive maintenance?

- A) It has low computational complexity.
- B) It is not suitable for imbalanced datasets.
- C) It provides high interpretability.
- D) It can handle both numerical and categorical data.

- Answer: D) It can handle both numerical and categorical data.

20. Which of the following is not a challenge discussed in the presentation regarding classification and Business Intelligence?

- A) Data preprocessing
- B) Scalability
- C) Model deployment
- D) Data visualization

- Answer: D) Data visualization