

TOP 30

DATA SCIENCE QUESTIONS

— commonly asked in —

BFSI



Curated by  tutort academy

Question

1

What is data science, and how is it relevant to BFSI?

Data science is the field that uses various techniques and algorithms to extract valuable insights and predictions from data. In BFSI, it helps in risk assessment, fraud detection, customer segmentation, and more.

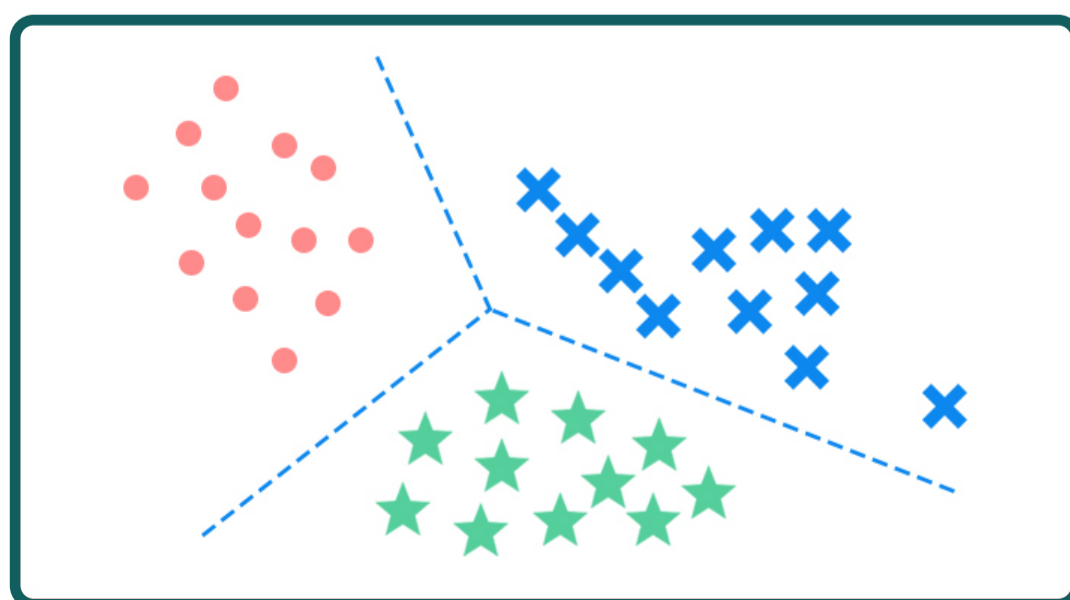
Question

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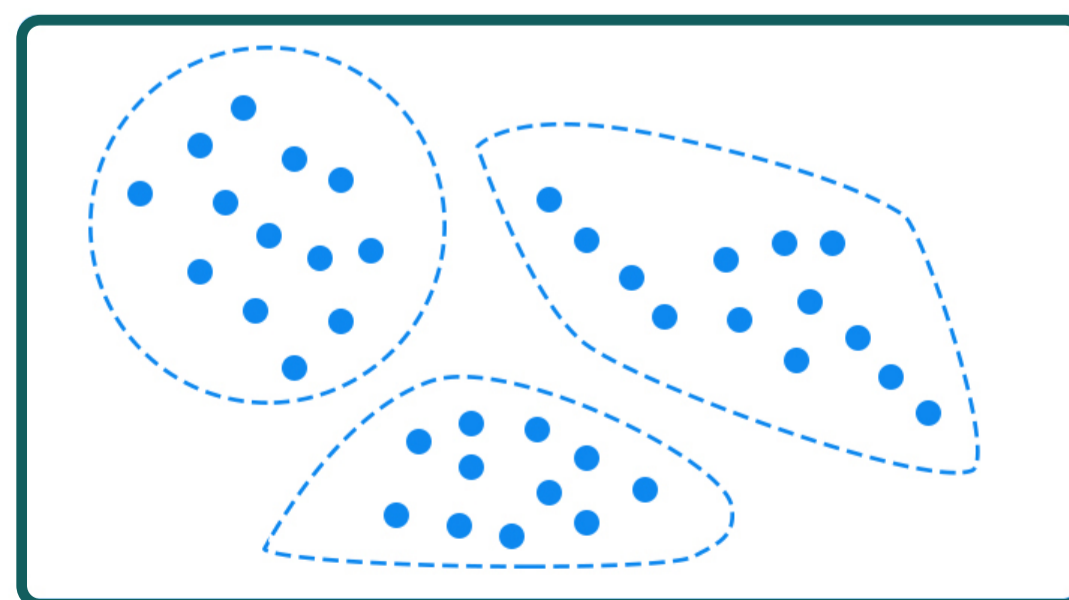
What is the difference between supervised and unsupervised learning?

Supervised learning uses labeled data for training, while unsupervised learning works with unlabeled data to discover hidden patterns.

SUPERVISED LEARNING



UNSUPERVISED LEARNING

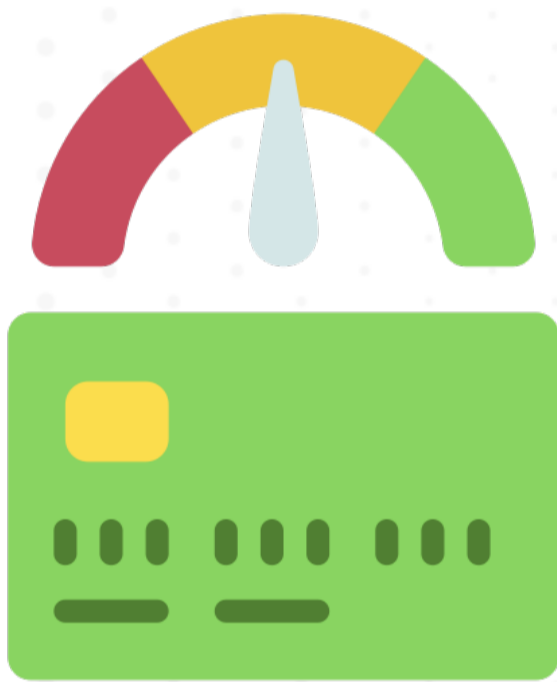


Question

3

Explain the term 'credit scoring' in the context of banking.

Credit scoring is a statistical method used to assess the creditworthiness of individuals or businesses based on their financial history and other relevant data.



Question

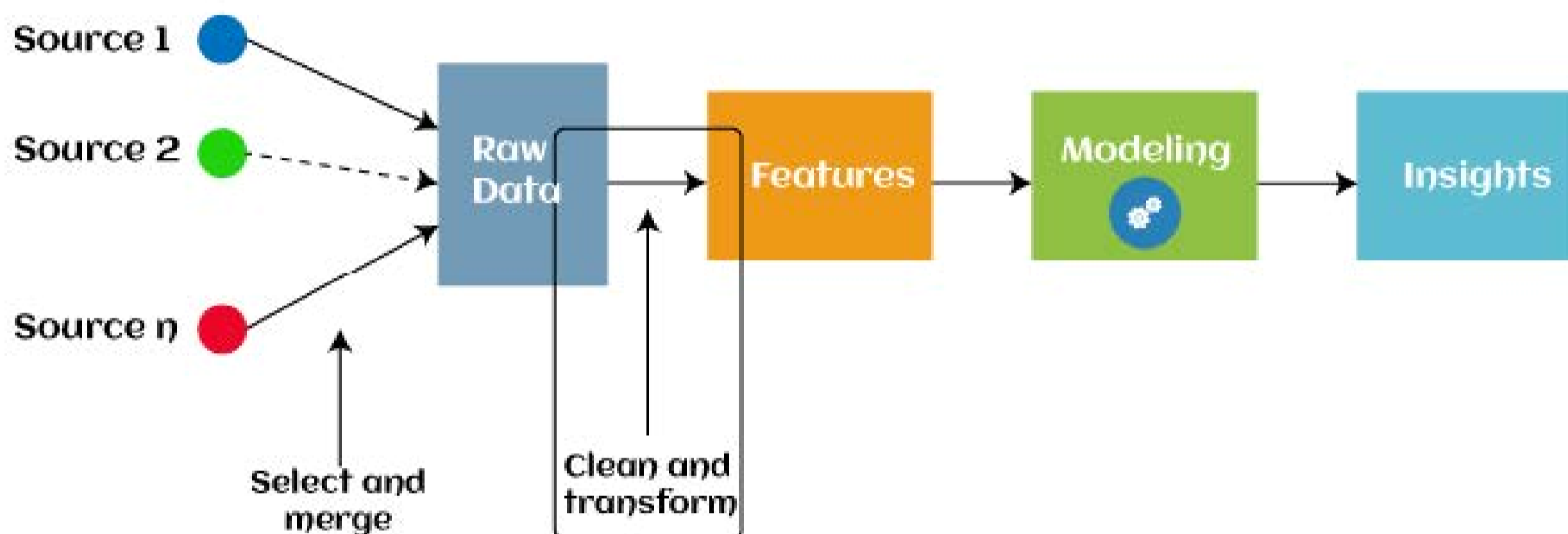
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How does logistic regression work, and how can it be applied in banking?

Logistic regression is used to predict binary outcomes. In banking, it can be used for customer churn prediction or loan default prediction.

What is the significance of feature engineering in data preprocessing?

Feature engineering involves creating new features or modifying existing ones to improve model performance and accuracy.



Describe the concept of time series analysis.

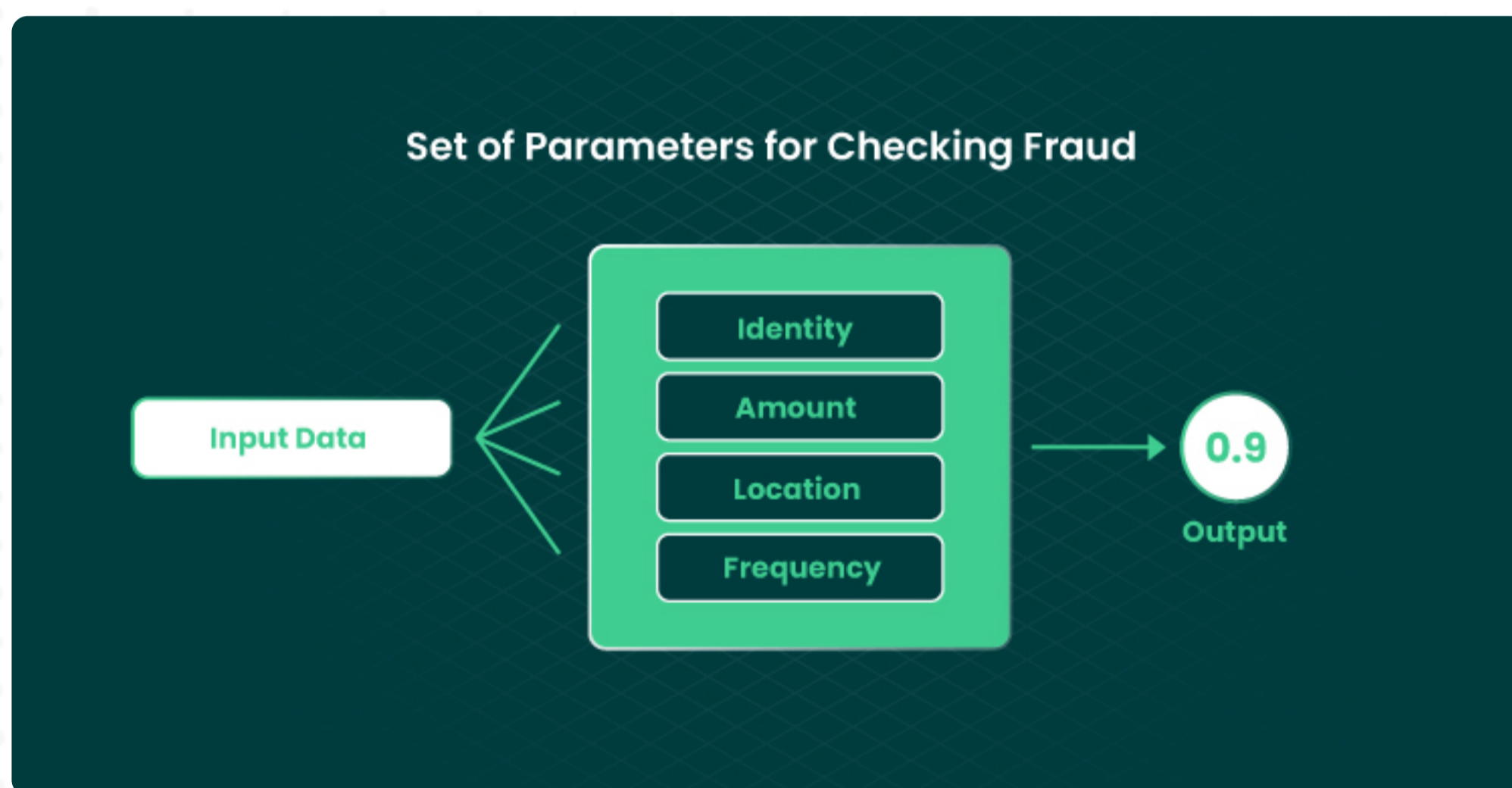
Time series analysis is used to analyze data points collected or recorded at specific time intervals to make predictions or identify trends over time.

Question

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How can machine learning models be used for fraud detection in banking?

Machine learning models can identify unusual patterns in transactions and flag potentially fraudulent activity for further investigation.



Question

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What is the difference between classification and regression in machine learning?

Classification predicts discrete categories, while regression predicts continuous values.

Question

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Explain the term 'overfitting' and how to prevent it in machine learning models.

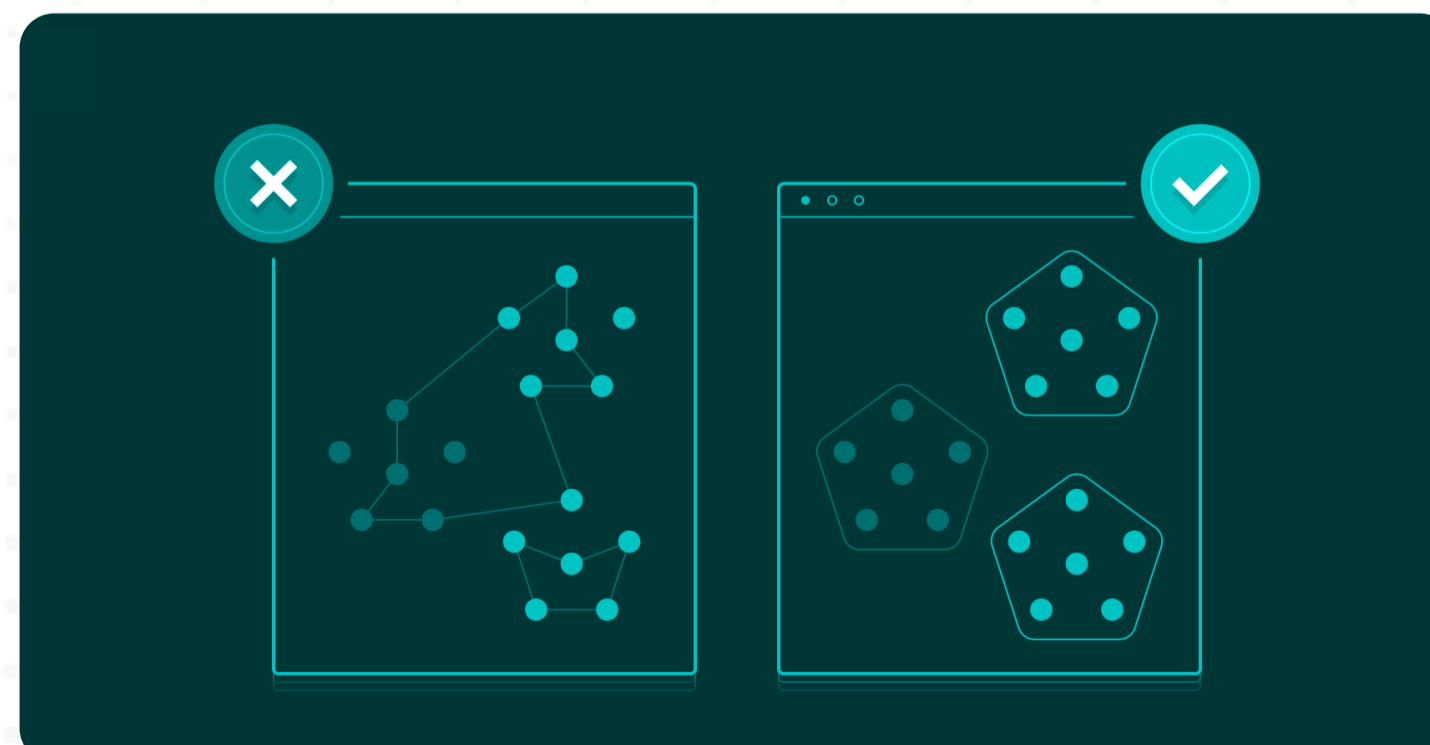
Overfitting occurs when a model learns the training data too well and performs poorly on unseen data. It can be prevented through techniques like cross-validation and regularization.

Question

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What is the role of clustering algorithms in customer segmentation for banks?

Clustering algorithms group customers with similar characteristics together, helping banks tailor their marketing and services to specific segments.



Question

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How do you handle missing data in a dataset?

Techniques like imputation or removing incomplete records can be used to handle missing data.

Question

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What are decision trees, and how are they useful in BFSI for risk assessment?

Decision trees are used to make decisions based on a series of conditions. In BFSI, they can be used to assess credit risk by considering various factors.



Shailja
Barsaiyan

From
accenture

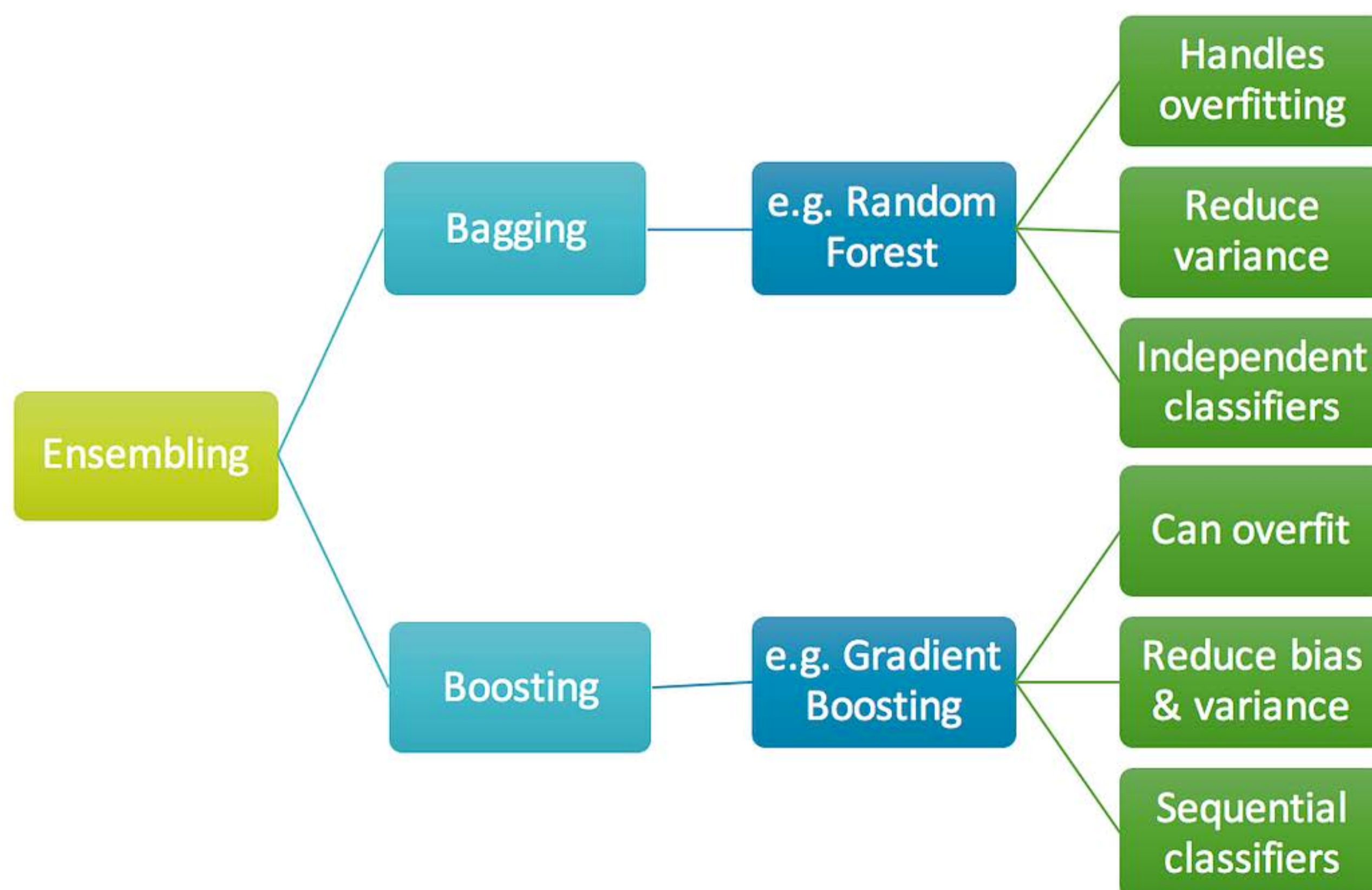


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Explain the term 'gradient boosting' and its application in finance.

Gradient boosting is an ensemble learning technique that combines multiple weak models to create a strong predictive model. It is used for credit scoring and portfolio optimization.



Question

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What are the key challenges of working with imbalanced datasets, and how can they be addressed?

Imbalanced datasets can lead to biased models. Techniques like oversampling, undersampling, or using different evaluation metrics can help address this issue.

Question

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Describe the steps involved in a typical data science project lifecycle.

The steps include problem definition, data collection, data preprocessing, model selection, model training, evaluation, and deployment.

Question

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How can natural language processing (NLP) be applied in the BFSI sector?

NLP can be used for sentiment analysis of customer reviews, chatbots for customer service, and analyzing news for market sentiment.

Question

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What is A/B testing, and how is it useful in optimizing banking services?

A/B testing is a method to compare two versions of a service or product to determine which one performs better. It can be used to optimize website layouts, marketing strategies, and more.



Vikhil Krishna

From
 mc analytics



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Question

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Explain the concept of deep learning and its applications in finance.

Deep learning is a subset of machine learning using neural networks. It is used for tasks like high-frequency trading, fraud detection, and algorithmic trading.

Question

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What are the ethical considerations in data science, especially in BFSI?

Ethical considerations include ensuring data privacy, preventing bias in algorithms, and using data responsibly to avoid discriminatory practices.

Question

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What is PCA (Principal Component Analysis), and how can it be applied in finance?

PCA is used for dimensionality reduction. In finance, it can help reduce the number of variables while preserving essential information for portfolio optimization.

Question

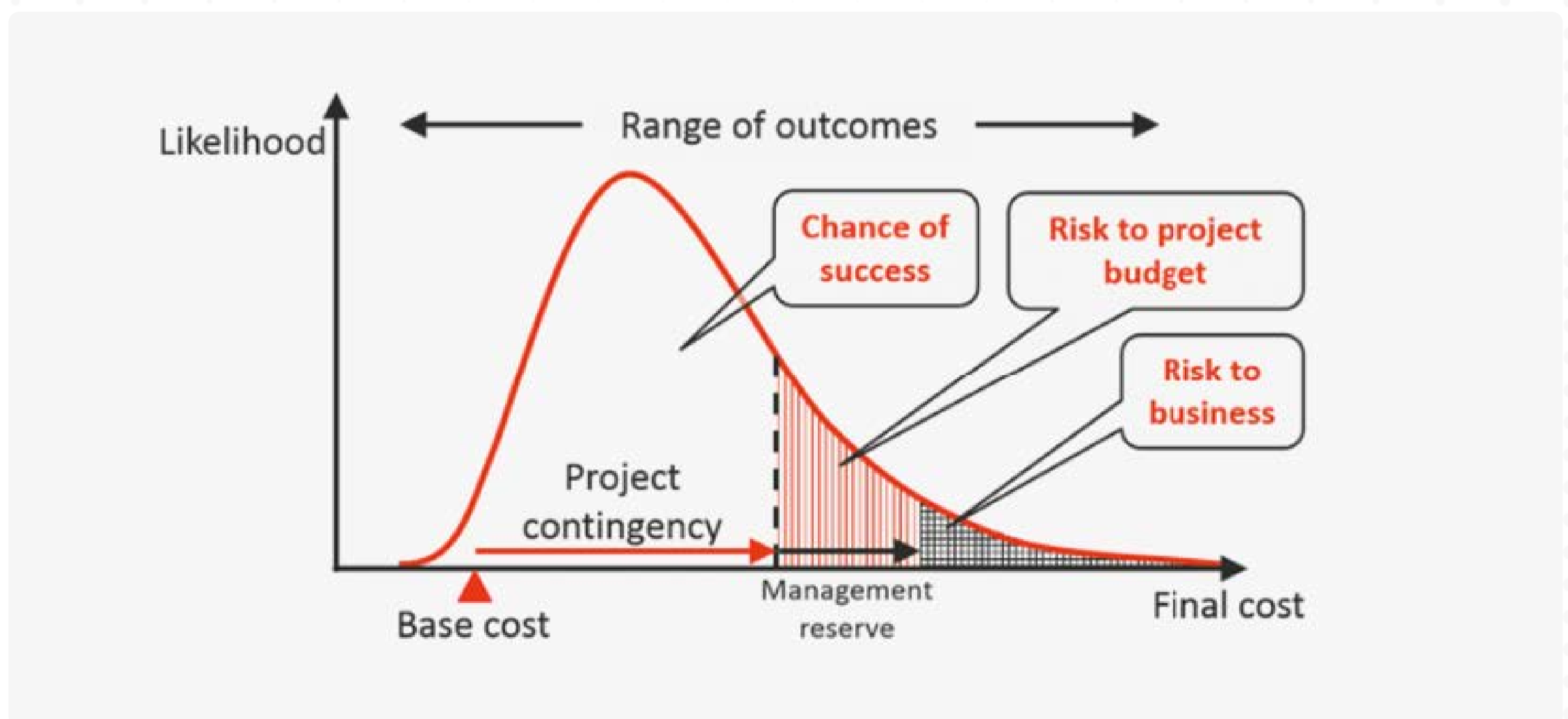
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How can data science models be used for credit risk assessment?

Data science models can analyze various factors like credit history, income, and market data to assess the risk associated with lending money to individuals or businesses.

Explain the concept of Monte Carlo simulation and its use in BFSI.

Monte Carlo simulation is used for risk assessment by simulating multiple possible scenarios to understand potential financial outcomes and uncertainties.



Gunjan
Bhadani

From

citibank



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Question

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What is time series forecasting, and how can it be applied in banking for financial planning?

Time series forecasting predicts future values based on historical data, aiding financial planning, budgeting, and demand forecasting.

Question

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How can data science help in customer retention for banks and insurance companies?

By analyzing customer behavior and preferences, data science can help identify strategies to retain and upsell to existing customers.

What is the importance of data governance in BFSI?

Data governance ensures data quality, security, and compliance with regulatory requirements, critical in a highly regulated industry like BFSI.



Explain the concept of risk management analytics and its role in banking.

Risk management analytics involves assessing and mitigating various risks such as credit, market, and operational risks to ensure the stability of financial institutions.

The Five-step Risk Management Process



Question

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What are some key data privacy regulations affecting BFSI, and how can they be complied with?

Regulations like GDPR and CCPA require organizations to protect customer data. Compliance involves data encryption, consent management, and data access controls.

Question

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How can data science help in optimizing investment portfolios for clients?

Data science can use historical data and predictive models to recommend investment strategies that align with a client's goals and risk tolerance.

Question

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What are some common data visualization tools used in BFSI for reporting and analysis?

Tools like Tableau, Power BI, and Python libraries like Matplotlib and Seaborn are commonly used for data visualization.

Question

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How do you stay updated with the latest trends and technologies in data science and BFSI?

Continuous learning, attending conferences, following industry blogs, and joining online communities are ways to stay updated in this rapidly evolving field.

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Phone
+91-8712338901



E-mail
contact@tutort.net