

# ***Assignment 11***

## Big Data and Data Science

### Educational Objective (EO)

Explain big data, data science, and the role of the data scientist.

### Instructions

#### Activity 1—Explaining Big Data and Data Science

##### Group Activity Followed by Large Group Discussion

Divide participants into three small groups and provide each group with a flipchart. Assign each group one of these topics:

- Big data
- Data science
- The role of the data scientist

(If you have a large number of participants, divide them into more than three groups and assign the same topic to more than one group.) Ask participants to summarize their assigned topic.

**Debrief:**

Review the groups' summaries with the class by calling on each group leader in turn.

## Big Data Analysis Techniques

### Educational Objective (EO)

Summarize big data analysis techniques.

### Instructions

#### Activity 1—Summarizing Big Data Analysis Techniques

#### Individual Activity Followed by Large Group Discussion

Assign each participant one of the big data analysis techniques:

- Text Mining
- Social Network Analysis
- Neural Networks

Ask participants to create a summary memo that explains the purpose and usage of their assigned big data analysis technique.

#### Debrief:

Review each big data analysis technique with the class.

## Text Mining

### Educational Objective (EO)

Summarize text mining concepts and their application to risk management and insurance.

### Instructions

#### Activity 1—Summarizing Text Mining Concepts and Their Use in Risk Management and Insurance

##### Group Activity Followed by Large Group Discussion

Divide participants into two to four small groups. Ask participants to create a job aid that summarizes the text mining process and how it applies to risk management and insurance.

**Reference:** Job aids are tools or resources that provide support or assistance for particular work or topic. They are typically used for quick reference and to enhance job performance. Job aids can take many forms, such as tables, checklists, graphs and so on.

**Debrief:**

Reconvene the large group. Have the groups prepare to present their job aids. Assign one group to start describing their job aid by topic (such as The Text Mining Process) and compare the content between the groups. Mark up the job aids to create a single job aid.

## Social Network Analysis

### Educational Objective (EO)

Summarize social network analysis concepts.

### Instructions

#### Activity 1—Describing Social Network Analysis Concepts

##### Individual Activity

Ask participants to complete the matching activity in **Activity 1— Describing Social Network Analysis Concepts**. In this activity, the social network analysis concepts have been defined incorrectly. Participants should match each social network analysis concept with its correct definition.

**Debrief:**

Review the answers with the class.

## Activity 1—Describing Social Network Analysis Concepts

Questions	Answers
1. Link	Measures the average distance between a specific node and other nodes.
2. Link analysis	The process of extracting hidden patterns from data.
3. Link prediction	Measures how many times a node is part of the shortest path between two other nodes.
4. Data mining	The study of who will likely influence whom and how closely people and things are connected.
5. Centrality measure	An attribute that relates to the characteristics of a specific node.
6. Degree	A node and all of its nearest neighbors.
7. Closeness	The connection between two people or between a person and a thing.
8. Betweenness	The quantification of a node's relationship to other nodes in the same network.
9. Egonet	A network that has two types of nodes.
10. Bigraph	An attribute that relates to the node's connections within the network.
11. Local variable	Measures similarity, allowing for the analysis of groups and related trends.
12. Network variable	Measures the connections each node has.

## Answers for Activity 1—Describing Social Network Analysis Concepts

Questions	Answers
1. Link	The connection between two people or between a person and a thing.
2. Link analysis	The study of who will likely influence whom and how closely people and things are connected.
3. Link prediction	Measures similarity, allowing for the analysis of groups and related trends.
4. Data mining	The process of extracting hidden patterns from data.
5. Centrality measure	The quantification of a node's relationship to other nodes in the same network.
6. Degree	Measures the connections each node has.
7. Closeness	Measures the average distance between a specific node and other nodes.
8. Betweenness	Measures how many times a node is part of the shortest path between two other nodes.
9. Egonet	A node and all of its nearest neighbors.
10. Bigraph	A network that has two types of nodes.
11. Local variable	An attribute that relates to the characteristics of a specific node.
12. Network variable	An attribute that relates to the node's connections within the network.

## Assessing Reputation Risk Through Text Mining and Social Network Analysis

### Educational Objective (EO)

Explain how text mining and social network analysis can be used to assess reputation risk.

### Instructions

#### Activity 1—Analyzing Reputation Risk with Text Mining and Social Network Analysis

##### Group Activity Followed by Large Group Discussion

Divide participants into small groups and provide each group with a flipchart. Ask the groups to complete the **Case Study—Food Company**.

**Debrief:**

Call on each group to present their strategies for minimizing reputation risk at Food Company.



## **Case Study—Food Company**

Your team is responsible for risk management for Food Company. One of the products your company manufactures, Cookie Bits ice cream, was recalled amid reports of food poisoning. Investigators have determined that the cookie bits in the ice cream, which are produced by another company, are the source of the food poisoning. Top management at Food Company are very concerned about the impact this problem will have on your company's reputation.

Prepare a strategy for assessing the reputation risk to Food Company. Document this strategy on the flipchart.