Week 1

1. Which of the following options describes data analysis? **1 / 1 point**

- ○ Using facts to guide business strategy
- ○ Creating new ways of modeling and understanding the unknown by using raw data
- ◉ The collection, transformation, and organization of data in order to draw conclusions, make predictions, and drive informed decision-making
- ○ The various elements that interact with one another in order to provide, manage, store, organize, analyze, and share data

Correct
Data analysis is the collection, transformation, and organization of data in order to draw conclusions, make predictions, and drive informed decision-making.

2. In data analytics, a model is a group of elements that interact with one another.

- ○ True
- ◉ False

Correct
In data analytics, a data ecosystem is a group of elements that interact with one another.

2. In data analytics, what term describes a collection of elements that interact with one another?

- ◉ A data ecosystem
- ○ A modeling system
- ○ A database
- ○ The cloud environment

Correct
Data ecosystems are made up of elements that interact to produce, manage, store, organize, analyze, and share data.

Fill in the blank: Data _____ involves creating new ways of modeling and understanding the unknown by using raw data.

- ○ design
- ○ engineering
- ◉ science
- ○ analysis

Correct
Data science involves creating new ways of modeling and understanding the unknown by using raw data.

3. Fill in the blank: The primary goal of a data _____ is to find answers to existing questions by creating insights from data sources.

- ◉ scientist
- ○ designer
- ○ engineer
- ○ analyst

Incorrect
Review the section on the data ecosystem for a refresher.

Select the best description of gut instinct.

- ○ Manipulating data to match your intuition
- ○ Using your innate ability to analyze results
- ◉ An intuitive understanding of something with little or no explanation
- ○ Choosing facts that complement your personal experiences

Correct
Gut instinct is an intuitive understanding of something with little or no explanation.

5. A company defines a problem it wants to solve. Then, a data analyst gathers relevant data, analyzes it, and uses it to draw conclusions. The analyst shares their analysis with subject-matter experts, who validate the findings. Finally, a plan is put into action. What does this scenario describe?

- ○ Data science
- ◉ Data-driven decision-making
- ○ Customer service
- ○ Identification of trends

Correct
This company has put data at the heart of its business strategy in order to achieve data-driven decision-making.

6. Fill in the blank: The people very familiar with a business problem are called _____. They are an important part of data-driven decision-making.

- ○ stakeholders
- ◉ subject-matter experts
- ○ competitors
- ○ customers

Correct
Subject-matter experts are very familiar with the business problem and can look at the results of data analysis to validate the choices being made.

7. A data analyst finishes analyzing data for a marketing project. The results are clear, so they present findings and recommendations to the client. What should they have done before that presentation?

- ○ Surveyed customers about results, conclusions, and recommendations
- ○ Created a model based on the results of the analysis
- ◉ Shared the results with subject-matter experts from the marketing team for their input
- ○ Archived the datasets in order to keep them secure

Correct
Including insights from people who are familiar with the business problem is an example of data-driven decision-making.

You read an interesting article about data analytics in a magazine and want to share some ideas from the article in the discussion forum. In your post, you include the author and a link to the original article. This would be an inappropriate use of the forum.

- ○ True
- ◉ False

Correct
Sharing informative articles is an appropriate use of the forum as long as you give credit to the original author. Also, posts should be relevant to data analytics and checked for typos and grammatical errors.

8. You have recently subscribed to an online data analytics magazine. You really enjoyed an article and want to share it in the discussion forum. Which of the following would be appropriate in a post? Select all that apply. **0.5 / 1 p**

- ☑ Giving credit to the original author

Correct
Sharing informative articles is an appropriate use of the forum as long as you give credit to the original author. Also, posts should be relevant to data analytics and checked for typos and grammatical errors.

- ☑ Including an advertisement for how to subscribe to the data analytics magazine

This should not be selected
Review the section on discussion forums for a refresher.

- ☐ Checking your post for typos or grammatical errors
- ☑ Including your own thoughts about the article

Correct

1. Seeking out new challenges and experiences in order to learn is an example of which analytical skill?

- ○ Understanding context
- ○ Having a technical mindset
- ◉ Curiosity
- ○ Data strategy

Correct
Curious people seek out new challenges, which leads to knowledge.

2. Identifying the motivation behind data collection and gathering additional information are examples of which analytical skill?

- ○ Data design
- ◉ Understanding context
- ○ Data strategy
- ○ A technical mindset

Correct
Identifying the motivation behind data collection and gathering additional information are examples of understanding context. Context is the condition in which something exists.

3. A data analyst works for an appliance manufacturer. Last year, the company's profits were down. Lower profits can be a result of fewer people buying appliances, higher costs to make appliances, or a combination of both. The analyst recognizes that those are big issues to solve, so they break down the problems into smaller pieces to analyze them in an orderly way. Which analytical skill are they using?

- ○ Data strategy
- ○ Curiosity
- ◉ A technical mindset
- ○ Understanding context

Correct
They are using a technical mindset, which involves the ability to break things down into smaller steps or pieces and work with them in an orderly and logical way.

4. Which analytical skill involves managing the people, processes, and tools used in data analysis?

- ○ Data design
- ○ Understanding context
- ○ Curiosity
- ◉ Data strategy

Correct
Data strategy involves managing the people, processes, and tools used in data analysis.

5. The manager at a music shop notices that more trombones are repaired on the days when Alex and Jasmine work the same shift. After some investigation, the manager discovers that Alex is excellent at fixing slides, and Jasmine is great at shaping mouthpieces. Working together, Alex and Jasmine repair trombones faster. The manager is happy to have discovered this relationship and decides to always schedule Alex and Jasmine for the same shifts. In this scenario, the manager used which quality of analytical thinking?

- ○ Problem-orientation
- ○ Visualization
- ◉ Correlation
- ○ Big-picture thinking

Correct
The manager used correlation, which involves being able to identify a relationship between two or more pieces of data.

6. What method involves asking numerous questions in order to get to the root cause of a problem?

- ○ Strategizing
- ○ Inquiry
- ◉ The five whys
- ○ Curiosity

Correct
The five whys involves asking numerous questions in order to get to the root cause of a problem?

7. Gap analysis is a method for examining and evaluating how a process works currently in order to get where you want to be in the future.

- (●) True
- ( ) False

Correct
Gap analysis is a method for examining and evaluating how a process works currently in order to get where you want to be in the future.

8. A company is receiving negative comments on social media about their products. To solve this problem, a data analyst uses each of their five analytical skills: curiosity, understanding context, having a technical mindset, data design, and data strategy. This makes it possible for the analyst to use facts to guide business strategy and figure out how to improve customer satisfaction. What is this an example of?

- (●) Data-driven decision-making
- ( ) Data science
- ( ) Data visualization
- ( ) Gap analysis

Correct
Data-driven decision-making involves using facts to guide business strategy. The five essential analytical skills are a key part of data-driven decision-making.

Week 3

1. Fill in the blank: During the _____ phase of the data life cycle, a business decides what kind of data it needs, how it will be managed, who will be responsible for it, and the optimal outcomes.

- ( ) archive
- ( ) manage
- (●) planning
- ( ) capture

Correct
During the planning phase of the data life cycle, a business decides what kind of data it needs, how it will be managed, who will be responsible for it, and the optimal outcomes.

2. In the data life cycle, which phase involves gathering data from various sources and bringing it into the organization?

- ○ Manage
- ◉ Capture
- ○ Archive
- ○ Analyze

Correct
The capture phase involves gathering data from various sources and bringing it into the organization.

3. A data analyst finishes using a dataset, so they erase or shred the files in order to protect private information. This is called archiving.

- ○ True
- ◉ False

Correct
Erasing or shredding files describes the destroy phase of the data life cycle. Archiving involves storing files in a place where it's still available.

4. A dairy farmer decides to open an ice cream shop on her farm. After surveying the local community about people's favorite flavors, she takes the data they provided and stores it in a secure hard drive so it can be maintained safely on her computer. This is part of which phase of the data life cycle?

- ◉ Archive
- ○ Analyze
- ○ Manage
- ○ Plan

Incorrect
This is the manage phase of the data life cycle. It deals with how data is cared for, how and where it's stored, the tools used to keep it safe and secure, and the actions taken to make sure it's maintained properly.

5. After opening the ice cream shop on her farm, the same dairy farmer then surveys the local community about people's favorite flavors. She uses the data she collected to determine that the top five flavors are strawberry, vanilla, chocolate, mint chip, and peanut butter. She feels confident in her decision to sell these flavors. This is part of which phase of the data life cycle?

- ○ Plan
- ○ Archive
- ◉ Analyze
- ○ Capture

Correct
This is part of the analyze phase. This phase involves using data to make smart decisions and support business goals.

Week 3

1. In which stage of the data life cycle does a business decide what kind of data it needs, how the data will be managed, and who will be responsible for it?

- ○ Analyze
- ○ Capture
- ◉ Plan
- ○ Manage

Correct
During planning, a business decides what kind of data it needs, how it will be managed throughout its life cycle, who will be responsible for it, and the optimal outcomes.

2. A data analyst is working at a small tech startup. They've just completed an analysis project, which involved private company information about a new product launch. In order to keep the information safe, the analyst uses secure data-erasure software for the digital files and a shredder for the paper files. Which stage of the data life cycle does this describe?

- ○ Plan
- ◉ Manage
- ○ Archive
- ○ Destroy

Incorrect
Review the video on the data life cycle for a refresher.

3. In the analyze stage of the data life cycle, what might a data analyst do? Select all that apply.

- ☑ Create a report from the data

Correct
In the analyze stage of the data life cycle, a data analyst might use formulas to perform calculations, create a report from the data, or use spreadsheets to aggregate data.

- ☑ Use a formula to perform calculations

Correct
In the analyze stage of the data life cycle, a data analyst might use formulas to perform calculations, create a report from the data, or use spreadsheets to aggregate data.

- ☑ Use spreadsheets to aggregate data

Correct
In the analyze stage of the data life cycle, a data analyst might use formulas to perform calculations, create a report from the data, or use spreadsheets to aggregate data.

4. Fill in the blank: The data life cycle has six stages, whereas data analysis has six _____.

- ○ key questions
- ○ data types
- ◉ process steps
- ○ data analytics tools

Correct
Although both the data life cycle and the data analysis process have six elements, the life cycle involves stages and analysis involves process steps.

5. A company takes insights provided by its data analytics team, validates them, and finalizes a strategy. They then implement a plan to solve the original business problem. This describes which step of the data analysis process?

- ○ Process
- ○ Share
- ○ Analyze
- ◉ Act

Correct
The act phase is when insights are put into action.

6. What is the main difference between a formula and a function?

- ○ A formula begins with an equal sign (=); a function begins with an asterisk (*).
- ○ A formula is used to add or subtract; a function is used to multiply or divide.
- ○ A formula can be used multiple times in a spreadsheet; a function can only be used once.
- ◉ A formula is a set of instructions used to perform a specified calculation; a function is a preset command that automatically performs a specified process.

Correct
A formula is a set of instructions used to perform a specified calculation; a function is a preset command that automatically performs a specified process.

7. Fill in the blank: A query is used to _____ information from a database. Select all that apply.

- [x] retrieve

Correct
A query enables data analysts to request, retrieve, and update information from a database.

- [ ] request
- [x] update

Correct
A query enables data analysts to request, retrieve, and update information from a database.

- [ ] visualize

You didn't select all the correct answers

8. Fill in the blank: Structured query language (SQL) enables data analysts to _____ the information in a database. Select all that apply.

- [x] update

Correct
A query enables data analysts to request, retrieve, and update information from a database.

- [x] request

Correct
A query enables data analysts to request, retrieve, and update information from a database.

- [ ] visualize
- [ ] retrieve

You didn't select all the correct answers

1. **Scenario 1, question 1-5** **1 / 1 point**

You've just started a new job as a data analyst. You're working for a midsized pharmacy chain with 38 stores in the American Southwest. Your supervisor shares a new data analysis project with you.

She explains that the pharmacy is considering discontinuing a bubble bath product called Splashtastic. Your supervisor wants you to analyze sales data and determine what percentage of each store's total daily sales come from that product. Then, you'll present your findings to leadership.

You know that it's important to follow each step of the data analysis process: ask, prepare, process, analyze, share, and act. So, you begin by defining the problem and making sure you fully understand stakeholder expectations.

One of the questions you ask is where to find the dataset you'll be working with. Your supervisor explains that the company database has all the information you need.

Next, you continue to the prepare step. You access the database and write a query to retrieve data about Splashtastic. You notice that there are only 38 rows of data, representing the company's 38 stores. In addition, your dataset contains five columns: Store Number, Average Daily Customers, Average Daily Splashtastic Sales (Units), Average Daily Splashtastic Sales (Dollars), and Average Total Daily Sales (All Products).

Considering the size of your dataset, what's the best way to proceed with the process and analyze steps?

- ○ Use SQL to process and analyze the data.
- ○ Continue using the company database to process and analyze the data.
- ◉ Download the data, then use a spreadsheet to process and analyze it.
- ○ Upload the data, then process and analyze it using Tableau.

✓ **Correct**
Spreadsheets work well for processing and analyzing a small dataset, such as the one you're using.

2. **Scenario 1 continued** **0.5 / 1 point**

You've downloaded the data from your company database and imported it into a spreadsheet. To use the dataset for this scenario, click the link below and select "Use Template."

Link to template: Course Challenge - Scenario 1

OR

If you don't have a Google account, you can download the template directly from the attachment below.

Course Challenge Dataset - Scenario 1 - Scenario 1_ Pharmacy Data - Part 1
CSV File

Now, it's time to process the data. As you know, this step involves finding and eliminating errors and inaccuracies that can get in the way of your results. **While cleaning the data, you notice there's missing data in one of the rows. What might you do to fix this problem? Select all that apply.**

- [x] Ask a colleague on your team how they've handled similar issues in the past

Correct
You could ask your supervisor or a colleague for guidance. Asking questions helps you learn and avoid mistakes.

- [x] Delete the row with the missing data point

This should not be selected
You could ask your supervisor or a colleague for guidance. Asking questions helps you learn and avoid mistakes.

- [ ] Sort the spreadsheet so the row with missing data is at the bottom
- [ ] Ask you supervisor for guidance

3. Scenario 1 continued 0 / 1 point

Once you've found the missing information, you analyze your dataset.

During analysis, you create a new column F. At the top of the column, you add the attribute Average Percentage of Total Sales - Splashtastic. Select the correct definition for an attribute.

- ( ) A headline or subhead
- ( ) A characteristic or quality of data used to label a column
- (•) An observation of data within a column
- ( ) All of the characteristics of something contained in a table

Incorrect
Review the video on columns, rows, and cells in spreadsheets for a refresher.

4. Scenario 1 continued 1 / 1 point

Next, you determine the average total daily sales over the past 12 months at all stores. The range that contains these sales is E2:E39. **The correct syntax is =AVERAGE(E2:E39).**

- (•) True
- ( ) False

Correct
The correct syntax is =AVERAGE(E2:E39). The function begins with an equal sign (=), then the word AVERAGE. The range is E2 through E39.

5. **Scenario 1 continued** — 0 / 1 point

Next, you create a slideshow, which includes a data visualization to highlight the Splashtastic sales insights you've discovered. You've reached which phase of the data analysis process?

- ○ Act
- ○ Manage
- ○ Share
- ◉ Analyze

⊗ **Incorrect**
Review the video on the data analysis process for a refresher.

6. **Scenario 2, questions 6-10** — 1 / 1 point

You've been working for the nonprofit National Dental Society (NDS) as a junior data analyst for about two months. The mission of the NDS is to help its members advance the oral health of their patients. NDS members include dentists, hygienists, and dental office support staff.

The NDS is passionate about patient health. Part of this involves automatically scheduling follow-up appointments after crown replacement, emergency dental surgery, and extraction procedures. NDS believes the follow-up is an important step to ensure patient recovery and minimize infection.

Unfortunately, many patients don't show up for these appointments, so the NDS wants to create a campaign to help its members learn how to encourage their patients to take follow-up appointments seriously. If successful, this will help the NDS achieve its mission of advancing the oral health of all patients.

Your supervisor has just sent you an email saying that you're doing very well on the team, and he wants to give you some additional responsibility. He describes the issue of many missed follow-up appointments. You are tasked with analyzing data about this problem and presenting your findings using data visualizations.

An NDS member with three dental offices in Colorado offers to share its data on missed appointments. So, your supervisor uses a database query to access the dataset from the dental group. The query instructs the database to retrieve all patient information from the member's three dental offices, located in zip code 81137.

The table is dental_data_table, and the column name is zip_code. How do you complete the following query?

```
SELECT *
FROM dental_data_table
```

- ○ zip_code = 81137
- ○ WHERE = 81137
- ◉ WHERE zip_code = 81137
- ○ WHERE_zip_code = 81137

✓ **Correct**
The correct syntax is WHERE zip_code = 81137. WHERE indicates where to look for information. The column

7. Scenario 2 continued **1 / 1 point**

The dataset your supervisor retrieved and imported into a spreadsheet includes a list of patients, their demographic information, dental procedure types, and whether they attended their follow-up appointment. To use the dataset for this scenario, click the link below and select "Use Template."

Link to template: Course Challenge - Scenario 2

OR

If you don't have a Google account, you can download the template directly from the attachment below.

Course Challenge Dataset - Scenario 2
CSV File

The patient demographic information includes data such as age and gender. As you're learning, it's your responsibility as a data analyst to make sure your analysis is fair. **Which aspect of patient demographics might get in the way of fairness?**

- ○ The dataset represents people who are single.
- ○ The dataset indicates which dental procedure the patients had performed.
- ○ The dataset contains patient identification numbers.
- ◉ The dataset includes people who all live in the same zip code.

Correct
It's your responsibility as a data analyst to make sure your analysis is fair. Although many zip codes do reflect diverse populations, a better choice would be to include data about people who live in multiple zip codes.

8. Scenario 2 continued 1 / 1 point

As you're reviewing the dataset, you notice that there are a disproportionate number of senior citizens. So, you investigate further and find out that this zip code represents a rural community in Colorado with about 800 residents. In addition, there's a large assisted-living facility in the area. Nearly 300 of the residents in the 81137 zip code live in the facility.

You recognize that's a sizable number, so you want to find out if age has an effect on a patient's likelihood to attend a follow-up dental appointment. You analyze the data, and your analysis reveals that older people tend to miss follow-ups more than younger people.

So, you do some research online and discover that people over the age 60 are 50% more likely to miss dentist appointments. Sometimes this is because they're on a fixed income. Also, many senior citizens lack transportation to get to and from appointments.

With this new knowledge, you write an email to your supervisor expressing your concerns about the dataset. He agrees with your concerns, but he's also impressed with what you've learned and thinks your findings could be very important to the project. He asks you to change the business task. Now, the NDS campaign will be about educating dental offices on the challenges faced by senior citizens and finding ways to help them access quality dental care.

Changing the business task involves which of the following?

- ○ Conducting a gap analysis
- ◉ Defining the new question or problem to be solved
- ○ Using a database instead of a spreadsheet
- ○ Creating a graphical representation of the data

✓ **Correct**
A business task is the question or problem data analysis answers for a business.

9. Scenario 2 continued 1 / 1 point

You continue with your analysis. In the end, your findings support what you discovered during your online research: As people get older, they're less likely to attend follow-up dental visits.

But you're not done yet. You know that data should be combined with human insights in order to lead to true data-driven decision-making. So, your next step is to share this information with people who are familiar with the problem. They'll help verify the results of your data analysis.

Fill in the blank: The people who are familiar with a problem and help verify the results of data analysis are _____.

- ○ customers
- ○ stakeholders
- ◉ subject-matter experts
- ○ data scientists

✓ **Correct**
Subject-matter experts look at the results of data analysis to identify any inconsistencies, make sense of the gray areas, and eventually validate the choices being made.

10. Scenario 2 continued 1 / 1 point

The subject-matter experts are impressed by your analysis. The team agrees to move to the next step: data visualization. You know it's important that stakeholders at NDS can quickly and easily understand that older people are less likely to attend important follow-up dental appointments. This will help them create an effective campaign for members.

It's time to create your presentation to stakeholders. It will include a data visualization that depicts the relationship between age and follow-up dental appointment attendance rates. **For this, a doughnut chart will be most effective.**

- ○ True
- ◉ False

Correct
A doughnut chart is used to depict the relationship between two things. A line chart would be effective for tracking trends over time, such as people attending fewer appointments as they get older.