Statistical Investigative Questions Scenarios

Scenario #1

Diane Ma, data scientist for the Lakers Basketball team, is analyzing data to help players win games. She's come up with some initial investigative questions but would like to transform them into good investigative questions.

1. Identify the type of investigative question (summary, comparison, or association) and then go through the process of transforming it into a good investigative question.
    a. I wonder which player scores the most points?
    b. I wonder if a certain position (center, power forward, small forward, point guard, shooting guard) scores more points?
2. Write another statistical investigative question you can ask that might help to win basketball games.

Scenario #2

The president comes to visit, and you want to take the opportunity to ask him some good investigative questions. Your friends offer the following initial investigative questions to get you started.

1. Identify the type of investigative question (summary, comparison, or association) and then go through the process of transforming it into a good investigative question.
    a. I wonder if one state's spending is more than another?
    b. I wonder if someone in a big family spends a lot on healthcare?
2. Write another statistical investigative question that you could ask the president.

Scenario #3

Instagram is trying to streamline their platform and designate proper resources to each feature (i.e. Posts, Reels, etc.). Their team has some initial investigative questions to help them brainstorm ideas of what type of data they will need to collect.

1. Identify the type of investigative question (summary, comparison, or association) and then go through the process of transforming it into a good investigative question.
    a. I wonder who has shared the most pictures?
    b. I wonder if different features are used at different times of the day or week?
2. Write another statistical investigative question that may help Instagram streamline their resources.

Scenario #4

Sergey Brin, co-founder of Google, is giving a talk on how people use Google today. Your class has brainstormed some questions but still needs to change the following initial investigative questions.

1. Identify the type of investigative question (summary, comparison, or association) and then go through the process of transforming it into a good investigative question:
    a. I wonder if all countries do the same amount of Google searches?
    b. I wonder how many links have been returned in a search?
2. Write another statistical investigative question related to how people use Google today.

Statistical Investigative Questions Scenarios
Answer Key

Scenario #1

Diane Ma, data scientist for the Lakers Basketball team, is analyzing data to help players win games. She's come up with some initial investigative questions but would like to transform them into good investigative questions.

1. Identify the type of investigative question (summary, comparison, or association) and then go through the process of transforming it into a good investigative question.

   a. I wonder which player scores the most points? *This is a summary investigative question. A possible good investigative question is: I wonder how many points the Lakers typically score during a game?*

   b. I wonder if a certain position (center, power forward, small forward, point guard, shooting guard) scores more points? *This is a comparison investigative question. A possible good investigative question is: I wonder if there is a difference in points scored between playing a Lakers power forward position and a Lakers small forward position?*

2. Write another investigative question you can ask that might help to win basketball games. *A possible associative investigative question is: I wonder if the players who have been on the Lakers team for a longer period of time tend to typically have more play time in each game?*

Scenario #2

The president comes to visit, and you want to take the opportunity to ask him some good investigative questions. Your friends offer the following initial investigative questions to get you started.

1. Identify the type of investigative question (summary, comparison, or association) and then go through the process of transforming it into a good investigative question.

   a. I wonder if one state's spending is more than another? *This is a comparison investigative question. A possible good investigative question is: I wonder if there is a difference in the typical yearly spending of California and Texas?*

   b. I wonder if someone in a big family spends a lot on healthcare? *This is an associative investigative question. A possible good investigative question is: I wonder if bigger family size tends to have higher healthcare spending?*

2. Write another investigative question that you could ask the president. *A possible summary investigative question is: I wonder how many years Americans typically spend in school?*

Statistical Investigative Questions Scenarios
Answer Key

Scenario #3

Instagram is trying to streamline their platform and designate proper resources to each feature (i.e. Posts, Reels, etc.). Their team has some initial investigative questions to help them brainstorm ideas of what type of data they will need to collect.

1. Identify the type of investigative question (summary, comparison, or association) and then go through the process of transforming it into a good investigative question.
   a. I wonder who has shared the most pictures? *This is a summative investigative question. A possible good investigative question is: I wonder what is the typical number of pictures shared on Instagram?*
   b. I wonder if different features are used at different times of the day or week? *This is a comparative question. A possible good investigative question is: I wonder if people tend to share more Instagram Posts during the afternoon than Instagram Reels?*

2. Write another investigative question that may help Instagram streamline their resources. *A possible associative investigative question is: I wonder if having more Instagram Posts tends to have more likes?*

Scenario #4

Sergey Brin, co-founder of Google, is giving a talk on how people use Google today. Your class has brainstormed some questions but still needs to change the following initial investigative questions.

1. Identify the type of investigative question (summary, comparison, or association) and then go through the process of transforming it into a good investigative question:
   a. I wonder if all countries do the same amount of Google searches? *This is a comparative investigative question. A possible good investigative question is: I wonder if there's a difference in the typical number of Google searches between United States of America and Australia?*
   b. I wonder how many links have been returned in a search? *This is a summative investigative question. A possible good investigative question is: I wonder what the typical number of links returned is with each Google search?*

2. Write another investigative question related to how people use Google today. *A possible associative investigative question is: I wonder if including more words in your search tends to have more results/links to follow?*