Question-1

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Part 1

​"Shark attacks are most likely to occur on​ Sunday, in less than 6 feet of​ water, during a new moon and involve surfers wearing black and white bathing​ suits, a first of its kind study from the University of Florida​ suggests." is the leading sentence of a May 2010 dated article in the University of Florida News. Researchers investigated all shark attacks in the area between Daytona Beach and New Smyrna​ Beach, the coastline infamous for its number of shark​ attacks, over a period of more than 50 years. But it is not only Florida that has a keen interest to discover the​ 'why, where and​ when' of shark attacks. In this case​ study, we will look at shark attacks from another data​ collection: www.sharkattackfile.net. It records data on all shark attacks in recorded​ history, going back to before 1800. Included is all known information on the shark attack such as the​ date, location, information on the individual who was​ attacked, details on the injuries sustained by the​ victim, and the species of the shark. The data file is​ large: it contains 5937 different attacks. Since we are primarily interested in the recent​ past, let us select those cases that happened in the​ 2000's. StatCrunch can help us with this selection. A last preparation of the data set refers to distinguishing between Florida and​ non-Florida attacks: we are interested to see whether attacks in Florida are similar or different than attacks outside Florida. We do so by creating a new​ variable, an indicator or dummy​ variable, signaling if the attach took place in Florida or not.

StatCrunch Data Set

In order to obtain the frequency data with​ StatCrunch, use the following menu and option selections.

Stat​ > Tables​ > Frequency​ > Select​ Column: Fatal​ (Y/N) &​ Statistic(s): Frequency​ & Percent of​ total, Where:​ "Year">1999 > Compute

Florida:

In order to create the Florida​ (Y/N) column with​ StatCrunch, use the following menu and option selections.

Data​ > Compute​ > Expression, and next type as​ expression: ifelse((Country!=USA or​ Area!=Florida),N,Y), type a Variable​ name, such as Florida​ (Y/N) and select​ Compute! If everything went​ well, you receive the​ message: New​ column, Florida​ (Y/N), added to data table

In order to create the contingency table comparing Florida to not Florida with​ StatCrunch, use the following menu and option selections.

Stat​ > Tables​ > Contingency​ > With Data​ > Row​ variable: Fatal​ (Y/N), Column​ variable: Florida​ (Y/N), Display: Column​ percent, Where:​ "Year">1999 > Compute

Generate a frequency table for shark attacks after 1999 with both​ frequencies, and percentages.

Part 2

The total number of fatal attacks after 1999 is

209209.

Part 3

The percentage of fatal attacks after 1999 is

11.611.6​%.

​(Round to one decimal place as​ needed.)

Part 4

If you sum percentages of fatal and​ non-fatal attacks, you will find a total of​ 99.8%. Why is this total not equal to​ 100%?

A.

Due to unknown outcomes in some of the attacks.

Your answer is correct.

B.

It is not possible to find out why from the data file.

C.

Due to the rounding of percentages to one decimal.

Part 5

Do the Florida figures differ from the other​ beaches? To find​ out, we will generate a contingency table of fatal attacks after 1999​ (the rows) versus attacks situated in​ Florida, or not​ (the columns).

Part 6

In order to find out if percentages in Florida differ from percentages​ elsewhere, what needs to be​ calculated?

Row percent

Column percent

Your answer is correct.

Percent of total

Part 7

What percentage of Florida shark attacks have been​ fatal?

1.671.67​%

​(Round to two decimal places as​ needed.)

Part 8

What percentage of​ non-Florida shark attacks have been​ fatal?

15.1315.13​%

​(Round to two decimal places as​ needed.)

Part 9

Is your contingency table a

2times×2

​table, or does it contain more rows or columns than​ 2? How can you explain that a​ yes/no variable has more values than​ two? Does this impact your comparison of fatal attacks between Florida and​ beyond?

A screenshot of a computer error

Description automatically generated

A screenshot of a computer

Description automatically generated

Find the descriptive statistics of the age of people attacked by sharks after​ 1999, both for fatal and​ non-fatal attacks.

Part 2

Find the mean ages of people involved in​ non-fatal and fatal shark attacks.

The mean age of people involved in​ non-fatal attacks is

enter your response here.

​(Round to two decimal places as​ needed.)