SIOB 296 Introduction to Programming with R

Eric Archer (eric.archer@noaa.gov)

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Homework

Answer all questions in a script (.R) file. Use comments (`#` or `#'`).

1. Compute the following values:
27 times 38 minus 17 (= 1009)
natural logarithm of (56 divided by 4) (= 2.6390573)
square root of (4 times 13) (= 7.2111026)

2. Create the following vector and assign it to `q2`.

```
 [1] 4 5 6 7 3 5 6 7 8 1
```

3. Create the following vector and assign it to `q3`.

```
Error in seq.default(0, 10, 50, by = 5): too many arguments
```

```
Error in eval(expr, envir, enclos): object 'q3' not found
```

4. Multiply every element in `q1` by 5 and assign it to `q4`.

```
Error in eval(expr, envir, enclos): object 'q1' not found
```

```
Error in eval(expr, envir, enclos): object 'q4' not found
```

5. Remove the second and ninth element from `q4`.

```
Error in eval(expr, envir, enclos): object 'q4' not found
```

```
Error in eval(expr, envir, enclos): object 'q4' not found
```

6. What are the fifth, first, and eighth elements of the new `q4` vector in #5?

```
Error in eval(expr, envir, enclos): object 'q4' not found
```

```
Error in eval(expr, envir, enclos): object 'q6' not found
```

7. What is the sum of all elements in `q4` that are greater than 18?
The values:

```
Error in eval(expr, envir, enclos): object 'q4' not found
```

```
Error in eval(expr, envir, enclos): object 'q7' not found
```

Their sum:

```
Error in eval(expr, envir, enclos): object 'q7' not found
```

8. Create this vector and assign it to `q8`:

```
 [1] 32 25 66 32 25 66 32 25 66 32 25 66
```

9. Create this vector and assign it to `q9`:

```
 [1] 32 32 25 25 66 66 32 32 25 25
```

10. Execute the script "temperature.r". Create a single named vector with the number of values of temperature are in the vector `temp` and what is their mean and standard deviation.

```
          n         mean      std.dev
77641.000000    14.576133     2.612531
```

11. Create a new named vector of state areas (called `areas`) using the values in the `state.name` vector to name the values in `state.area`.

```
      Alabama         Alaska        Arizona       Arkansas     California
        51609         589757         113909          53104         158693
     Colorado    Connecticut       Delaware        Florida        Georgia
       104247           5009           2057          58560          58876
       Hawaii          Idaho       Illinois        Indiana           Iowa
         6450          83557          56400          36291          56290
       Kansas       Kentucky      Louisiana          Maine       Maryland
        82264          40395          48523          33215          10577
Massachusetts       Michigan      Minnesota    Mississippi       Missouri
         8257          58216          84068          47716          69686
      Montana       Nebraska         Nevada  New Hampshire     New Jersey
       147138          77227         110540           9304           7836
   New Mexico       New York North Carolina   North Dakota           Ohio
       121666          49576          52586          70665          41222
     Oklahoma         Oregon   Pennsylvania   Rhode Island South Carolina
        69919          96981          45333           1214          31055
 South Dakota      Tennessee          Texas           Utah        Vermont
        77047          42244         267339          84916           9609
     Virginia     Washington  West Virginia      Wisconsin        Wyoming
        40815          68192          24181          56154          97914
```

12. Using the `areas` vector from #11, what is the total area of Washington, Oregon, and California?

```
[1] 323866
```

13. Using the `areas` vector from #11, how many Rhode Islands can fit into California?

```
[1] 130.7191
```

14. Using the `state.abb` and `state.name` vectors, what is the abbreviation of Iowa?

```
[1] "IA"
```

15. Using the `state.abb` and `state.area` vectors, what are the abbreviations of states with areas greater than the mean area of all states?

```
 [1] "AK" "AZ" "CA" "CO" "ID" "KS" "MN" "MT" "NE" "NV" "NM" "OR" "SD" "TX"
[15] "UT" "WY"
```