R Exercise

Seminar 2

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Make sure to clear memory before starting

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> rm(list=ls())          # It will  clean up memory!
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Task 1: Expressions and Variables

- Calculate the following equations:

A= $\frac{2}{5} * \left(\sqrt{92} * 3^5\right)$

B= $\frac{198}{log_{10}82 + e^{12}}$

C= $|372 - 596|$

D = $\frac{A}{2B+C}$

- Write down R code lines for A, B, C, and D
- What are the outcomes of A, B, C, and D?
- Test if D is smaller than 10

Task 2: Vectors

- Create the following vectors:

E = [0.5, 1.0, 1.5, 2.0, 2.5, 3.0]

F = [9, 8, 7 ,6, 5, 4]

G = $[2, \frac{2^3}{2}, \frac{2^5}{3}, \frac{2^7}{4}, \frac{2^9}{5}, \frac{2^{11}}{6}]$

Create a vector, H, of the values of $e^x\cos(x)$ at x = 1,2,3,4,5,6

J = $\frac{\frac{E}{F}}{\frac{G}{H}}$ * 100

Note: Use the 'seq()' function to generate the numbers in the above vectors except J

- Write down R code lines for E, F, G, H, and J
- What is the value of second element in J?

Task 3: Vectors and Indexing

- Create a new vector named “K”
  1. Use the first three elements and the sixth element in “J”
  2. Add two additional elements into K (i.e., 5th and 6th elements)
     - 300 and 400
  3. Assign names for the elements in K
     - First, Second, Third, Fourth, Fifth, Sixth
  4. Replace the values of ‘First’ and ‘Third’ elements with 200 and 500 respectively
  5. Replace the ‘Second’ element by the sum of the ‘Fourth’ and ‘Sixth’ Value

- Write down R code lines for Step 1 to 5
- What are the mean and standard deviation of elements in K?