

CS 175

Problem Set 1

Due: 25 September 2017 11:59pm

General Instructions

- Answer the items completely. The answer sheet for this problem set should be submitted as a PDF file. You may use any word processing software to create the answer sheet. The name of the PDF file to be submitted should follow the following format: [CS 175] < *Student Number* > – < *Last Name, First Name* > – Problem Set 1.pdf. For example: [CS 175] 190800001 - De la Cruz, Juan - Problem Set 1.pdf
- For items requiring the creation of a script or program, just copy the code and paste it into the answer sheet.
- If you have consulted references (books, journal articles, online materials, other people), cite them as footnotes to the specific item where you used the resource/s as reference.
- Submission of the problem set answers should be done via e-mail. Attach the PDF file, and write as the subject header of the e-mail: [CS 175] < *Student Number* > – < *Last Name, First Name* > – Problem Set 1. For example: [CS 175] 190800001 - De la Cruz, Juan - Problem Set 1. Send your answers to janmichaelyap@gmail.com.
- **You should receive a confirmation e-mail from me stating receipt of your deliverable within 24 hours upon your submission of the problem set.** If you have not received any, forward your previous submission using the same subject header once more.
- If you have any questions regarding an item (EXCEPT the answer and solution) in the problem set, do not hesitate to e-mail me to ask them. However, **questions regarding this problem set forwarded/received on or after 12:01am of 22 September 2017 will NOT be entertained.**

Problem Set Items

1. Create a script that takes in 1 string via parameterized input. The string corresponds to the absolute path of a directory. If the directory does not exist, print out a message saying the directory does not exist. Otherwise, print out the contents of the directory to the screen.
2. Provide an R statement for the following:
 - (a) Create a vector of ten distinct real numbers. Assign it to a variable named *numVector*.
 - (b) Get the minimum value in *numVector*.
 - (c) Get the maximum value in *numVector*.
 - (d) Get the mean of the values in *numVector*.
 - (e) Get the standard deviation of the values in *numVector*.
 - (f) Install the package named *wcq* from the Comprehensive R Archive Network (CRAN)
 - (g) Load the package named *wcq*
 - (h) Create a 2×10 matrix and assign it to a variable named *numMatrix* where the first row of the matrix is exactly the values in *numVector*, while the second row is the values from a vector whose values were randomly generated from the standard normal distribution.
 - (i) Get the first row of *numMatrix*
 - (j) Get the submatrix containing the third, first, eighth, and fourth columns of *numMatrix*, in that order
 - (k) Perform matrix multiplication between *numMatrix* and its transpose

- (l) Perform matrix multiplication between the submatrix of *numMatrix* containing the second and fourth columns (in that order) and another submatrix containing the seventh and fifth columns (also in that order).
- (m) Create a data frame with 2 columns: *date* and *holiday*. Assign it to a variable named *PeyupsHolidays2017*. It should contain the holidays for 2016, as per the UP Diliman Academic Calendar AY 2017-2018 (see here: http://upd.edu.ph/wp-content/uploads/2017/04/Academic-Calendar_AY-2017-2018_as-of-14-Mar-2017.pdf)
- (n) Save the contents of *PeyupsHolidays2017* to a comma-separated value (CSV) formatted file named *peyups_holidays_2017.csv*
- (o) Open the contents of *peyups_holidays_2017.csv* and assign the contents as a data frame to the variable *Copy_PeyupsHolidays2017*