April 1

Weight: 5%

Activity 13

**QUESTION One: Regular Expressions (3 points)**

Using the following text file that contains a list of first names, give the regular expression for each of the following questions:

<https://raw.githubusercontent.com/dominictarr/random-name/master/first-names.txt>

a) return all the names that contain two or more consecutive vowels (i.e.: ae, ou, eau etc.) (.5 point)

b) return all names that the first letter are in between letters A – M and the last letter in between N – Z (.5 point)

c) return all names that contain a hyphen anywhere within the name, the first letter begins with a consonant and the last letter with a vowel (satisfies all conditions). (1 point)

d) return all names that have no vowels, have duplicate consonants (such as “tt”, “ll”) and is between 3 and 10 characters long in length. (1 point)

Integrate your regex solution into a python script that opens the file and then prints the results for each response to the console.

**QUESTION Two: Ticket Selling (2 points)**

Reza Enterprises sells tickets for buses, tours, and other travel services. Because Reza frequently mistypes long ticket numbers, Reza Enterprises has asked his students to write an application that shows if a ticket is invalid. Your application/program tells the ticket agent to enter a six-digit ticket number. Ticket numbers are designed so that if you lose the last digit of the number, then divide by 7, the remainder of the division is exactly the same to the last dropped digit. This process is shown below:

Step 1: Enter the ticket number; for example 123454

Step 2: Remove the last digit, leaving 12345

Step 3: Determine the remainder when the ticket number from step 2 is divided by 7. In this case, 12345 divided by 7 leaves a remainder of 4.

Step 4: Display a message to the ticket agent indicating whether the ticket number is valid or not. If the ticket number is valid, save the number to a .txt file called “tickets.txt” and continue to loop your program asking the user if they want to continue. If the user chooses not to continue, the program will terminate/exit. If the user decides to continue, the program will repeat the above steps until the user decides to quit the program. Every time a ticket is valid, append the number to the end of the text file, if the number is not valid, do not append it in the file. Furthermore, if a given ticket number is already present inside of the text file (a search needs to be made), do not append it nor add it in the file.

Test your application with the following ticket numbers:

- 123454; is a valid ticket number

- 147103; is a valid ticket number

- 154123; is not a valid ticket number

**Submission:** Submit your assignment via Omnivox, do not MIO your activity, any activity MIO’d to me will be ignored and will not be a valid submission. When submitting your assignment, the format is as follows: you will zip all your files together and name the zip file using your student id. Include any other files such as .txt and .py files into your zip file directory. Do not upload code in word/pdf documents or screenshots, doing so will in results in mark deductions.