Homework #1
CS 3060 Programming Languages, Spring 2021
Instructor: S. Roy

Ruby #1

Due Date: Jan 23 (11:59 pm).

Total points: 50 points

Directions: A ruby code template (with a bunch of empty functions: Function1 to Function5) is provided and it is your task to complete the code. Then, you run the complete code and submut the code as well as a sample output. Check Gitlab `https://gitlab.com/sanroy/sp21-cs3060-hw` (or check Canvas) for details. The prefered process for completing this assignment should be as follows:

1. Fork the Repository "sp21-cs3060-hw" to a new Repository named "sp21-cs3060-hw" under your namespace (your gitlab username).
2. "git clone" the newly created repository on your local machine
3. Complete this assignment whose details are in hw1 sub-folder, committing changes to files in hw1.
4. Push all commits to your Gitlab repository
5. Add TA (with his gitlab username prabeshpaudel) as a member of your Gitlab repository

If for some reason Gitlab does not work for you, then you submbit the ruby code and results on Canvas.
Tasks:

1. **(8 Points) function #1:** Ask the user to type 4 lines (e.g., before going to the next line the user will hit the 'Enter' key, etc.) on keyboard, and your program should save the lines to a file named "savedText.txt". Then, your program also needs to open the file, and report the total number of words therein.
2. **(4 Points) function #2:** Ask the user to type the name of a file. If the file contains "Java" or "Haskell", then print "The file is not important", else if the file contains "Ruby" or "Python", then print "The file is superb"; otherwise, print "The file is uninteresting".
3. **(8 Points) function #3:** Print the string "The n-th power of integer n is x" while substituting n by numbers from 2 to 11 and x by the value of n^n. One constraint: Your program needs to compute the value of n^n without using the exponent operator, i.e., your program needs to use the loop syntax.
4. **(10 Points) function #4:** Let the user pick a number (say x) between 50 and 100. Now your program simulates tossing a coin x times. In particular, your program can contain a loop and in each iteration it randomly makes a choice: head (represented by 0) or tail (represented by 1), and stores the outcome (0 or 1) in an array. After the iterations, traverse the array and count how many heads and tails were generated. Also, report the ratio of number of tails and number of heads.
5. **(20 Points) function #5:** Go to `http://www.textfiles.com/stories/` and check that this site [1] hosts multiple stories while each story is in a textfile. Download two textfiles of your choice, which have atleast 1000 words, and save the files as `story1.txt` and `story2.txt`. Your program needs to read these files and processes them to collect some statistics. In particular, for each story x report the the number of unique words in x, the third-most frequent word in x and its frequency. Also, find the number of unique words over these two stories (i.e., if both the stories have a same word w, then we count it only once). **Hints:** You may use Array and Hash data structures as they are available in Ruby. You may design a regular expression to define a *word*.

[1] Disclaimer: we did not really check whether this website contains any improper story or language. If you find something improper, please ignore this site and use some other source