Homework #1
CS 3060 Programming Languages, Fall 2020
Instructor: S. Roy

Ruby #1

Due Date: Sep 8 (11:59 pm).

Total points: 60 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/fa20-cs3060-hw` (or check Canvas) for details. The prefered process for completing this assignment should be as follows:

1. Fork the Repository "fa20-cs3060-hw" to a new Repository named "fa20-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) 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 3 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 "savedLines.txt".
2. **(8 Points) function #2:** Ask the user to type the name of a file. If the file contains "CPlusPlus" or "Python", then print "The file is important". If the file contains "Ruby" or "Scala", then print "The file is extraordinary". Otherwise, print "The file is unknown".
3. **(8 Points) function #3:** Print the string "The cube of integer a is b" 50 times while substituting a by numbers from 1 to 50 whereas b is a^3.
4. **(16 Points) function #4:** Let the user pick a number (say x) between 10 and 200. Now your program tosses a coin x times. In particular, your program can contain a loop and in each iteration it randomly makes a choice: head (represented by 1) or tail (represented by 0), and stores the outcome (1 or 0) 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 heads and number of tails.
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 a textfile of your choice, which has atleast 1000 words, and save the file as `story.txt`. Your program needs to read this file and process it to collect some statistics. In particular, report the total number of words in the story, the number of distinct words, the second-most frequent word and its frequency. Also, find the number of words which start with character s.
   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.*

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[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