Assignment #5
CS 3060 Programming Languages, Spring 2021
Instructor: S. Roy

Scala #1

Due Date: March 16 @ 11.59 PM.
Total Points: 50 points

Directions: Using the source provided via Gitlab `https://gitlab.com/sanroy/sp21-cs3060-hw/`, complete the assignment below. The process for completing this assignment should be as follows:

1. You already forked the Repository "sanroy/sp21-cs3060-hw" to a repository "yourId/sp21-cs3060-hw" under your username. If not, do it now.
2. Get a copy of hw5 folder in "sanroy/sp21-cs3060-hw" repository as a hw5 folder in your repository "yourId/sp21-cs3060-hw"
3. Complete the assignment, committing changes to git. Each task code should be in a separate file. As an example, task1.scala for Task 1.
4. Push all commits to your Gitlab repository
5. If you have done yet done so, add TA (username: prabeshpaudel) and Roy (username: sanroy) as a maintainer of your Gitlab repository

Tasks:

1. **(6 Points) Task #1:** Write a Scala program which asks 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 saves the lines to a file named "myLines.txt".

2. **(6 Points) Task #2:** Write a Scala program which asks the user to type the name of a file. If the file-content (we are NOT talking about the filename string) contains "cpp" or "ruby", then print "The file content is not good enough". If the file-content contains "java" or "scala", then print "The file is worth of study". Otherwise, print "The file is meaningless".

3. **(6 Points) Task #3:** Write a Scala program which prints the string "The square of a is b" 20 times while substituting a by numbers from 5 to 24 where b is a^2.

4. **(8 Points) Task #4:** Write a Scala program called $sumOfPower$ to calculate the sum $1^1+2^2+3^3+...+10^{10}$ without using an exponent operator. You can do this using nested *for* loops. Check: The sum equals 10405071317.

5. **(8 Points) Task #5:** Write a function called $myStringSplit$ which, given a string and a specific character, return a list which is substrings of the original string from one instance of the specific character to the next. Of course, do this without using built-in functions to the extent possible.

   An example: if the given string is abc1defg11chi and given char is 1, then the output should be List("defg", "").

6. **(16 Points) Task #6:** 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

[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

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 List and Map (or HashMap) data structures as they are available in Scala. You may design a regular expression to define a *word*.