FACULTY OF COMPUTING & INFORMATION TECHNOLOGY
KING ABDULAZIZ UNIVERSITY

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كلية الحاسبات وتقنية المعلومات
جامعة الملك عبدالعزيز

King Abdulaziz University
Faculty of Computing and Information Technology
Computer Science Department

CPCS202, 1st Term 2019 (Fall 2018-19)
Program 5: The Game of Hangman
Assigned: Monday, November 26th, 2018
Due: Wednesday, December 5th, 2018

Purpose:
The purpose of this assignment is to practice using methods and arrays as well as other previous concepts and basic features of Java in order to solve a real-world problem.

Course Learning Outcomes:
HVCLO#2-SO(c): Write a programing code that implements algorithms for solving simple problems.
CLO#5-SO(a): Write programs that use primitive data types and standard library functions/methods.
CLO#6-SO(a): Apply appropriate conditional and iteration constructs for a given programming task.
CLO#7-SO(a): Write and/or modify short programs that use standard conditional structures.
HVCLO#8-SO(a): Write programs that use standard iterative control structure.
HVCLO#9-SO(c): Write programs that use functions/methods.
HVCLO#10-SO(c): Manipulate one dimensional-arrays

Read Carefully:

This program is worth 6% of your final grade.

WARNING: This is an individual assignment; you must solve it by yourself. Any form of cheating will result in receiving **– 4%** (less than zero) in the program.

The deadline for this project is by **11:00 PM on Wednesday, December 5th, 2018.**
Note: once the clock becomes 10:59PM, the submission will be closed! Therefore, in reality, you must submit by 10:58 and 59 seconds.
LATE SUBMISSION: you are allowed to make a late submission, but there is a penalty. If you submit **within 24 hours** of the due date (so on Thursday by 10:59PM), you will receive a 25% deduction. You will NOT be able to submit after this date/time.

Blackboard Submission:
This assignment must be submitted online via blackboard
If your file is empty or you upload wrong the file, it will be solely your responsibility, and your grade will be **zero**.
Your program (**source file**) should be named as:
SectionNameStudentIdProgramNumber.java
Example: CA1110348 P5.*java*

Program-05 Description:

For this assignment, your mission is to write a program that plays **THE GAME OF HANGMAN**. As an assignment, Hangman will give you practice with Strings, one dimensional arrays processing, parameters, and return values, while also in itself being a fun console-based game to play.

The Game of Hangman

Hangman is a single-player game where the player has a finite number of guesses to try and guess all the letters that make up a secret word. After printing an introductory message explaining the game to the player, the computer selects a secret word at random. Then the player does a series of turns the player guesses a letter from A-Z. In each turn, the program shows a hint about the secret word.

- The hint is initially a row of dashes, one for each letter in the secret word. For example if the secret word is "HELLO", the hint is "-----".
- If the player's guess is a letter that appears in the secret word, the hint is updated so that all instances of that letter are shown in their correct positions. For example, if the secret word is "SHELLS" and the player guesses "H", the hint becomes "-H----". If the player then guesses "L", the hint becomes "-H-LL-".

Note that your program should be case insensitive; it should accept uppercase or lowercase letters and treat them the same. The game ends when either the user has correctly guessed all the letters in the secret word, or the user has made five (5) incorrect guesses. At the end, the program reveals the secret word, indicates whether the player won or lost, and asks if they would like to play again. If the player chooses to play again, another game begins. When the player chooses not to play again, the program **prints statistics about all games**. Show the **total number of games**, **games won**, **loss game**.

Note:

String[] word_list = { "ruby", "python", "java", "fortran", "html", "php" };

Required Methods:

As in past assignments, we ask you to break apart the overall task into methods. Therefore, we are going to tell you what methods you should have (and require these methods) in your program. You may not create additional methods if you like, but you must have the methods shown below with exactly these names and exactly these parameters (no more, no less) and return types. Do not change the method definitions in any way, or you will be substantially penalized. The reason we are requiring these methods is to provide practice using parameters and return values to communicate between these methods.

Table 1: List of required methods in Hangman (you must write all of these methods as shown)

<table>
<tr><th>Method name</th><th>Return type</th><th>Parameters</th><th>Function</th></tr>
<tr><td>intro</td><td>void</td><td>No parameters</td><td>In this method, you should print the following introductory text that appears at the start of the program. A blank line of output should appear after the text.<pre>Hangman Game!
I will think of a random word.
You'll try to guess its letters.
Try guess correctly to avoid loses!</pre></td></tr>
<tr><td>getSecretWord</td><td>String</td><td>No parameters</td><td>In this method you should return <b>secret_word</b> that is generated randomly from String[] word_list:
 String[] word_list = { "ruby", "python", "java", "fortran", "html", "php" };</td></tr>
<tr><td>playOneGame</td><td>boolean</td><td>String secret_word, char[] secret_letter</td><td>In this method, you should do all the work to play a single game of Hangman with the user from start to finish with the help of invoking other methods inside this method. You should prompt the user to type a single letter to guess:
System.out.print("\nEnter your Guess Letter: ");
 You need to invoke other methods such as:</td></tr>
<tr><td colspan="4"><table>
<tr><td>correctGuess</td><td>boolean</td><td>String secret_word, char[] secret_letter, char guessLetter</td><td>This method returns true if the <b>guessLetter</b> is a guess that is found in the <b>secret_word</b> and it will update the <b>secret_letter</b> array accordingly</td></tr>
<tr><td>winningState</td><td>int</td><td>char[] secret_letter</td><td>This method returns int value if the array <b>secret_letter</b> still has letters needs to be guessed.</td></tr>
</table></td></tr>
<tr><td>getStat</td><td>void</td><td>int[] game_stat,
int index</td><td>In this method, you should print the final statistics that display after all games of Hangman have been played. You should print the total games played, number of games won and number of games loss.<pre>System.out.println("------------------");
System.out.println("Your final Profile status:");
System.out.println("________________");
System.out.println("total number of won games =
"+total_won);
System.out.println("total number of loss games =
"+total_loss);</pre></td></tr>
</table>

Grading Details:

Your program will be graded upon the following criteria:

1) Adhering to the implementation specifications listed on this write-up.
2) Correctness.
3) Your program should include a header comment with the following information: your name, **email**, course number, section number, assignment title, and date.
4) Your program should look EXACTLY like the sample run given.

5) You will be graded on the following criteria:

- 10 points for correct looping
- 15 points for all related methods inside the **playOneGame** method
- 15 points for all correct arrays.
- 10 points for correct and correctly formatted output
- 48 points for the 6 required methods (8 point per each
- -2 points for not including header information (name, email, etc.)

Deliverables

You should submit one Java file containing the Java code.

***This file should be on the formatSectionName_StudentId_ProgramNumber. If they not in this format, you will lose points.

NOTE: your name, ID, section number AND EMAIL should be included as comments in all files!

Final suggestion: START EARLY!