CSCI-101 Programming 1

Lab 12

Create a **lab12** directory and put all of the files for this lab in the **lab12** directory.

1. Create an entity class named **Player** that contains the following:
    1. Fields

name	type	default value
username	String	null
score	int	0
health	int	100

    2. A constructor that has a single String parameter. If the value passed into the constructor is null, the **username** field is set to "Anonymous", otherwise the **username** field is set to the value passed into the constructor.
    3. Getters for all 3 fields.
    4. No setters are included in this class.
    5. A method named **changeScore** which has an integer parameter named **delta**. The method adds the value in **delta** to the field named **score**.
    6. A method named **changeHealth** which has an integer parameter named **delta**. The method adds the value in delta to the field named **health**.

2. Create a runnable program (i.e. a class with a main method) in a class named **GuessTheNumber** that behaves as follows:
   - Ask the user to enter their name.
   - Read the name from the keyboard
   - Create an instance of the **Player** class, passing to the constructor the name entered by the user.
   - Generate a random number between 1 and 100 (inclusively) and save it in a variable named **randomValue**.
   - In an infinite loop do the following:
     - Ask the user to guess an integer between 1 and 100 (inclusively).
     - Read the value entered by the user and store it in a variable named **guessedValue**.
     - Compute the absolute value (Hint: Math.abs) of the difference between **randomValue** and **guessedValue** and store the value in a variable named **delta**.
     - If the user guessed the number correctly:

       Print to the screen "Correct!"

       Increment the player's score by 1.

       Print to the screen the player's current score and health.

       Reset the player's health to 100.

       Generate a new random number between 1 and 100 (inclusively) and save it in **randomValue**.

       Print to the screen "New game? (Y/N)".

       Read the response from the user.

       If the user entered **Y** then continue at the top of the while-loop; otherwise terminate the program.
     - If the user did not guess the number correctly:

       Print to the screen "Wrong!".

       Subtract **delta** from the Player's health.

       Print to the screen the player's current score and health.

       If the player's health is less than or equal to 0, then
       - Print to the screen "You died!".
       - Reset the player's health to 100.
       - Generate a new random number between 1 and 100 (inclusively) and save it in **randomValue**.
       - Print to the screen "New game? (y/n)".
       - Read the response from the user.
       - If the user entered **Y** then continue at the top of the loop; otherwise terminate the program.

       Else if the player's heath is greater than 0, then
       - Tell the player whether they need to guess a higher or lower number relative to their last guess.