**PROJECT Console Programming with Python - A Game of Chances**

**Objective** To use Python to demonstrate a game - based Console Application.

***PROJECT DESCRIPTION***

Create and code a Python application for the following scenario:

a GUESSING game

Follow the steps below to design and create this game application.

Wishing you a successful gameplay!

***Information About This Project***

The initial game screen consists of three sequential guessing segments.

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**[ Guess: An Alphabetic Character ]**

**Standard English alphabet**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | S | T | U | V | W | X | Y | Z |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| K | L | M | N | O | P | Q | R | S | T | U | V | W | X | Y | Z | A | B | C | D | E | F | G | H | I | J |

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**[ Guess: Flip a Coin ]**

**Standard U.S. Coin**

|  |  |
| --- | --- |
| **HEADS** | **TAILS** |

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**[ Guess: A Single Digit ]**

**Standard Base Ten Non - Zero Digits**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

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**[ The Sample Game Play ]**

First Action: The Player begins the game and enters a letter → G

Second Action: The Player then flips a coin and enters a side → 1 ( for TAILS )

Third Action: The Player then chooses a digit to enter → 7 ( five ATTEMPTS )

***Steps to Complete This Project***

**STEP 1**  **Open a Web Browser**

Launch a Web Browser on your computer, such as Microsoft Edge, MAC Safari, Google Chrome, Firefox, Mozilla, etc.

**STEP 2**  **Travel to a Web Link**

Navigate to the Web site that is given by the link below.

[**https://www.programiz.com/python-programming/online-compiler/**](https://www.programiz.com/python-programming/online-compiler/)

**STEP 3**  **Observe the Initial Code Statements**

At the above Web site, view the given test code that is provided.

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**# Python compiler (interpreter) to run Python online.**

**# Write Python code in this online editor and run it.**

**print("Hello World!")**

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**STEP 4**  **Copy the Program Code**

Highlight and delete all the code statements that are initially provided at the above Web site.

Then, copy all the program code statements that are given in **Figure 1** , which follows.

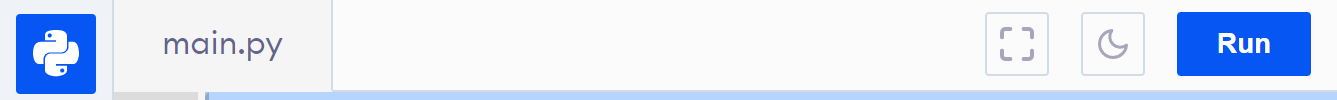
Be sure to copy just the code statements and to include all the statements.

**Figure 1 Program Code: The Guessing Game**

|  |
| --- |
| **# Guessing Game using Python**  **import random**    **print ("Welcome to the Guessing Game")**  **print ("----------------------------")**  **print ("first: enter a LETTER (between A and Z):")**  **myInput = input().upper()**  **guessChar = myInput[0]**  **# randint function generate an ASCII number from 65 to 90**  **letter = random.randint(65, 90)**  **chk = guessChar == chr(letter)**  **if (chk == True) :**  **print ("Good guess!!")**  **else :**  **print ("your letter:", guessChar, "; their letter:", chr(letter))**  **print ()**  **# enter a 0 for HEADS and a 1 for TAILS**  **print("Guess a COIN flip (HEADS or TAILS):")**  **print("enter a 0 for HEADS and a 1 for TAILS")**  **guessCoin = int(input())**  **# randint function generate a number from 0 to 1**  **coin = random.randint(0, 1)**  **if (coin == 0 and guessCoin == 0) :**  **flip = "HEADS"**  **print ("Good guess!!")**  **print ("your coin:", flip, "their coin:", flip)**  **else :**  **flip = "TAILS"**  **print ("Maybe next time!")**  **print ("your coin:", flip, "their coin: HEADS")**  **print ()**  **# randint function generate a number from 1 to 9**  **number = random.randint(1, 9)** |
| **# number of chances to be given**  **chances = 0**  **chk = False**  **print ("Now you have 5 chances to guess a number!")**  **print ()**  **# while loop to loop through the number of chances**  **while chances < 5 :**  **# increase the value of the chance variable by 1**  **chances += 1**    **# enter a number between 1 to 9**  **print("Guess a NUMBER (between 1 and 9):")**  **guessNum = int(input())**    **# compare the user entered number**  **# with the number to be guessed**  **if (guessNum == number) :**  **# if number entered by user is same as the number**  **# generated by the randint function**  **print("Congratulations! YOU are a WINNER!!!")**  **break**  **# check if the user entered a number smaller than**  **# the generated number**  **elif (guessNum < number) :**  **print("Too Low: Guess a number higher than", guessNum)**    **# user entered number is greater than the generated number**  **else :**  **print("Too High: Guess a number lower than", guessNum)**  **# check whether the user guessed the correct number**  **if (not chances < 5) :**  **print("Sorry, YOU LOSE!!! The number is", number)** |

**STEP 5 Run the Starter Code Program**

After you have copied the program code into that online compiler, click the   
[ Run ] button there to execute the program.



An output screen such as shown below will then appear.

Text

Description automatically generated

A sample screen snapshot of the game play is given below.

**STEP 6 Play the Game**

After you compile your program, run the program with multiple executions using each of these three scenarios.

A sample run is shown in **Figure 2** , which follows.

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**Scenario One**

player correctly guesses a Letter, a Coin Flip, a Single Digit

**Scenario Two**

player correctly guesses at least one of a Letter, a Coin Flip, a Single Digit

**Scenario Three**

player incorrectly guesses each of a Letter, a Coin Flip, a Single Digit

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**Figure 2 Program Output: The Guessing Game**

Text

Description automatically generated

**STEP 8 For Further Exploration**

For further discussion, here are some intriguing questions for pondering, which concern this application.

**(1)** Explain how you would supplement this application such that the game player will also select a single card from a well - shuffled deck of 52 playing cards.

**(2)** Explain how random numbers are used in this game application?

**(3)** Do our program code statements for this application include any Exception Handling, e.g. a 3 is entered when we ask for a 0 or a 1 ?

**(4)** Explain how you would supplement this application such that the game player will also select a number when a six - sided die is tossed.