

Name _____

CPADS Lab Activity #9**Program #1**

```

val = 0

while (val < 10):
    print(val)

```

What is the output of the program above?

0
0
0
0
⋮

infinite loop because
val never changes inside loop

Program #2

```

m = 5
n = 0

while (m > n):
    print(m + n)
    m = m - 1
    n = n + 1

```

<u>m</u>	<u>n</u>	<u>m+n</u>
5	0	5
4	1	5
3	2	5
2	3	5

3 ← loop breaks

What is the output of the program above?

5
5
5

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Program #3

```

print ('Enter a series of numbers with values between 1 and 5 (inclusive)')
expected_vals = int(input('How many numbers would you like to input: '))
val = -1
total = 0
num_vals = 0

while ((val < 1 or val > 5) or num_vals != expected_vals):
    val = int(input('Enter a number: '))

    if (val >= 1 and val <= 5):
        total = total + val
        num_vals = num_vals + 1
    else:
        print('Invalid input value, try again')

print(total // expected_vals)

```

Handwritten notes:

- continues for invalid inputs* (pointing to the while loop condition)
- continues until expected vals valid inputs are entered* (pointing to the while loop condition)
- only totals and counts valid values* (pointing to the if block inside the while loop)
- computes integer average* (pointing to the final print statement)

In English, describe what the program above does. What is the output of the program above?

Handwritten description:

Prompts the user to enter the number of values between 1-5 they wish to enter

Then it gets user input values and only sums and counts the ones that are valid (between 1-5)

Finally it prints the integer average of the valid values

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Program #4

```
# import a library that can generate random numbers
from random import randint

lowRange = 1
highRange = 5
# Create a random number between lowRange and highRange (inclusive)
randomNumber = randint(lowRange, highRange)

attemptNumber = 0
guessAgain= "yes"
guess = -1

print('Let\'s play a game.')
print('I\'m thinking of a number between', lowRange, 'and', highRange)

while guess != randomNumber and guessAgain!= "no":
    guess = int(input('Guess my number: '))
    attemptNumber = attemptNumber + 1;

    if guess != randomNumber:
        print('Sorry, that is not correct')
        guessAgain = input('Would you like to guess again? [yes/no]: ')

if guess == randomNumber:
    print('Yeah, you guessed correctly on attempt #', attemptNumber)
else:
    print('Quitter')
```

In English, describe what the program above does. Type the code into PyCharm to see how it works. When testing the code, experiment with different inputs. What happens if you supply a value less than 1? Greater than 5? What happens if you type **no** (in capital letters) when prompted to guess again?

This is a guessing game for a number between 1-5. The user is asked for a new guess as long as they have not guessed the correct value and have not said they are finished playing (no). Each guess is counted and the total number of attempts is displayed when the user guesses correctly. For guesses outside 1-5, the program will simply count it as an incorrect guess. If the user enters **NO**, the game will continue since the check is only for exactly no (lowercase).