

## Lecture Assignment #3

Please answer the following questions (write the answer for every question in a separate file) and then zip all the files together and submit the answers using [CANVAS](#) choose lecture assignment 2. The due date for the final submission is the midnight of Tuesday, July 11<sup>th</sup>. Make sure to have the prolog and comments on every solution you provide.

### Question 1:

Write a Python program to count the number of even and odd numbers in a range of numbers.

*Expected Output:*

Enter the start of a range: 1  
Enter the end of the range: 9  
Number of even numbers in (1, 9) is: 4  
Number of odd numbers in (1, 9) is: 5

### Question 2:

Use two variables k and total to write a for loop to compute the sum of the squares of the first 50 counting numbers, and store this value in total. Thus, your code should put  $1*1 + 2*2 + 3*3 + \dots + 49*49 + 50*50$  into total. Use no variables other than k and total.

### Question 3:

An arithmetic progression is a sequence of numbers in which the distance (or difference) between any two successive numbers is the same. This in the sequence 1, 3, 5, 7, ... , the distance is 2 while in the sequence 6, 12, 18, 24, ... , the distance is 6.

Given the positive integer distance and the positive integer n , associate the variable sum with the sum of the elements of the arithmetic progression from 1 to n with distance. For example, if distance is 2 and n is 10, then sum would be 25 because  $1+3+5+7+9 = 25$ .

### Question 4:

Write a Python program that accept a word from the user and reverse it.

*Expected output:*

Input a word to reverse: play  
The reverse is: yalp

### **Question 5:**

Write a Python program to construct the following pattern using minimum number of for loops.

*Expected output:*

```
*
* *
* * *
* * * *
* * * * *
* * * *
* * *
* *
*
```

### **Question 6:**

You already have done lab 5 problems using for loops. In this question we need to do the same three problems using while loop.

#### 6.1 Finding the sum

Write a python program to print the sum of all odd numbers from 1 to n using for loop. Where n is a value that should be read from the user.

*Expected output:*

```
Input range: 5
The sum of odd numbers from 1-5: 9
```

Expected output

```
Input range: 100
The sum of odd numbers from 1-100: 2500
```

#### 6.2 Find the power of a number

Write a python program to find power of any number using **while loop**. The program should not use built-in `math.pow()` function. How to find power of any number without using built in library functions in python programming.

*Expected output:*

```
Input the base number: 2
Input the exponent value: 5
The result of 2^5: 32
```

### 6.3 Guess a word

Write a program which keeps prompting the user to guess a word. The user is allowed up to ten guesses. Write your code in such a way that the secret word and the number of allowed guesses are easy to change. If the user guess the right word get out of the loop (**hint: Use the reserved word break**) Print messages to give the user feedback. (Use while loop)

*Expected output:*

```
Welcome to our simple and easy game
You will be asked to guess our secret word

Our secret word is a name of a sport, Please enter your guess: basketball
Please try again :(
Our secret word is a name of a sport, Please enter your guess: soccer
Good Job :)
```