



Department: Computer Science & Engineering

Assignment – Lab 2

Semester : Fall 2021
Course Number : CSE366
Course Title : Artificial Intelligence
Course Instructor : Md Al-Imran

Student ID: 2019-1-60-093

Student Name: Md. Asad Chowdhury Dipu

Section: 01

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CSE366 Lab 2 Exercises

exercise 1

Write a program in Python to find the root of a quadratic equation.

```
In [1]: #quadratic equation  $ax^2 + bx + c = 0$ 

from math import sqrt
a=3
b=10
c=8
r = b**2 - 4*a*c

#when number of roots 2
if r > 0:
    root1 = (((-b) + sqrt(r))/(2*a))
    root2 = (((-b) - sqrt(r))/(2*a))
    print("Number of roots is 2 :", "X1: ",root1," X2",root2)
#when number of roots 1
elif r == 0:
    root = (-b) / 2*a
    print("Root: ", root)
#when number of roots 0
else:
    print("No roots")
```

Number of roots is 2 : X1: -1.3333333333333333 X2 -2.0

exercise 2

Write code to perform grade computation

```
In [2]: Numerical_Scores= 96
if (97 <= Numerical_Scores <= 100):
    print(" You have obtained Grade A+ = 4.00 ")
elif (90 <= Numerical_Scores < 97):
    print(" You have obtained Grade A = 4.00 ")
elif (87 <= Numerical_Scores < 90):
    print(" You have obtained Grade A- = 3.70 ")
elif (83 <= Numerical_Scores < 87):
    print(" You have obtained Grade B+ = 3.30 ")
elif (80 <= Numerical_Scores < 83):
    print(" You have obtained Grade B = 3.00 ")
elif (77 <= Numerical_Scores < 80):
    print(" You have obtained Grade B- = 2.70 ")
elif (73 <= Numerical_Scores < 77):
    print(" You have obtained Grade C = 2.00 ")
elif (67 <= Numerical_Scores < 70):
    print(" You have obtained Grade C- = 1.70 ")
elif (63 <= Numerical_Scores < 67):
    print(" You have obtained Grade D+ = 1.30 ")
elif (60 <= Numerical_Scores < 63):
    print(" You have obtained Grade D = 1.00 ")
elif ( 0 <= Numerical_Scores < 60):
    print(" You have obtained Grade F = 0.00 ")
else :
    print('Invalid Numerical Scores')
```

You have obtained Grade A = 4.00

exercise 3

Given two numeric lists or tuples x_vals and y_vals of equal length, compute their inner product using zip(). Additionally count the number of even numbers from 0 to 99. Furthermore given pairs = ((4, 5), (6, 7), (8, 9)) count the number of pairs (x, y) such that x and y are odd.

part1

```
In [3]: x_vals = [0, 9, 3]
        y_vals = [9, 3, 0]
        inner_product=0
        for x, y in zip(x_vals, y_vals):
            inner_product += x*y
        print(inner_product)
```

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part2

```
In [4]: count = 0
        for i in range(0, 99):
            if i % 2 == 0:
                count += 1
        print(count)
```

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part3

```
In [5]: pairs = ((4, 5), (6, 7), (8, 9))
        count = 0
        for x, y in pairs:
            if (x % 2 != 0 and y % 2 != 0) :
                count += 1
                print(x, " ", y) #print(x, " ", y)
        print(count)
```

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