AI Assignments

ARTIFICIAL INTELLIGENCE

2024

Name: BASIT IQBAL
Reg No: FA21-BSE-050

Submitted To:
Mam Zaib un Nisa

Comsats University Islamabad Abbottabad Campus

INTRODUCTION

SUBMITTED BY:

- Basit Iqbal (Fa21-bse-050)

REGISTRATION NO:

- (Fa21-bse-050)

Course Name:

- Artificial Intelligence

Submitted to:

- Mam Zaib un Nisa

University:

- Comsats University Islamabad Abbottabad Campus

Submission Date:

- 6th March 2024

Assignment Number:

- One

Question No: 01

Calculate the multiplication and sum of two numbers. If the product is less than or equal to 1000, return the product; otherwise, return their sum?

Answer:

```
def task1(n1,n2):
    pr = n1*n2
    if(pr<=1000):
        print("Product is ")
        return pr
    else:
        print("Sum is ")
        return n1+n2

while True:
    n1 = int(input(("Enter 1st Num : ")))
    n2 = int(input(("Enter 2nd Num : ")))
    print(n1, " and ", n2 , " : ",task1(n1,n2))
    ch= input("Do you want to run again : (y/n)")

    if(ch !='Y' or ch !='y'):
        break
```

Question No: 02

Print the sum of the current number and the previous number for the first 10 numbers.

Answer:

```
import random

ranNum = random.randint(1,100)


sumOfLess=0
sumOfGreat=0
print(ranNum)
```

```
for i in range(ranNum-1, ranNum-11, -1):
   sumOfLess+=i


for i in range(ranNum+1, ranNum+11):
  sumOfGreat+=i

print("Sum of Previous 10 Num then ", ranNum, " are ", sumOfLess)
print("Sum of Greater 10 Num then ", ranNum, " are ", sumOfGreat)
```

Question No: 03

Print characters from a string that are present at even index numbers?

Answer:

```
string = input("Enter the String : ")

for i in range(0, len(string), 2):
    print(string[i],end="")
```

Question No: 04

Write a program to get a string from user and remove the first n characters from a string and return a new string.

Answer:

```
string = input("Enter the String: ")
delete = int(input("Enter the number of characters you want to delete: "))

# Option 1: Print without removing from original string
print("Approach no 01:")
print(string[delete:])

# Option 2: Create a new string with characters removed
print("\nApproach No 02:")
new_string = string[delete:]
print(new_string)
```

```
# Option 3: Reassign string with removed characters (if desired)
print("\nApproach No 03:")
string = string[delete:]  # Reassigning to modify the original string
print(string)
```

Question No: 05

Write a program to generate a random number between 1-100 and find whether it is even or odd.

Answer:

```
import random

ranNum = random.randint(1,100)

def even(n):
    if(n%2==0):
        return 'EVEN'
    else:
        return 'ODD'

isEven = even(ranNum)
print("Random Number generated is ", ranNum, " and it is ", isEven)
```

Question No: 06

Write a program to declare an array of integers and print its elements. Implement a function to find the sum of all elements in an integer array?

Answer:

```
def Sum(x):
    sum =0
    for i in x:
        sum+=i
    return sum

x=[1,2,3,4,5]
print("Element of x are : ", x)
```

```
print("Sum : ", Sum(x))
```

Question No: 07

Create two arrays of equal length and perform element-wise addition.

Answer:

```
x = [1,2,3,4,5]
y = [6,7,8,9,10]
z = []

for i in range(len(x)):
    z.append(x[i] + y[i])

print ("x = ", x)
print("y = ", y)
print("z = ", z)
```

Question No: 08

Write a function to remove duplicates from an array and return the unique elements.

Answer:

```
def removeDuplicate(x):
    y = []
    for i in x:
        if i not in y:
            y.append(i)
    return y


x=[1,1,2,2,2,3,3,3,3]

print(removeDuplicate(x))
```

Question No: 09

Implement a function to check if two strings are anagrams using arrays.

Answer:

```python
def are_anagrams(str1, str2):
    # Remove spaces and convert both strings to lowercase
    str1 = str1.replace(" ", "").lower()
    str2 = str2.replace(" ", "").lower()

    # If lengths are different, they cannot be anagrams
    if len(str1) != len(str2):
        return False

    # Create arrays to store character counts
    count1 = [0] * 256  # Assuming ASCII characters
    count2 = [0] * 256

    # Increment count for each character in str1
    for char in str1:
        count1[ord(char)] += 1

    # Increment count for each character in str2
    for char in str2:
        count2[ord(char)] += 1

    # Compare character counts
    for i in range(256):
        if count1[i] != count2[i]:
            return False

    return True

# Test the function
string1 = "listen"
string2 = "silent"
print(are_anagrams(string1, string2))  # Output: True
```

Question No: 10

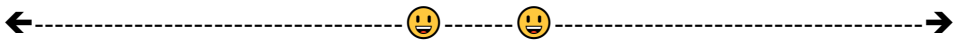
Write a program to calculate the area of a triangle?

Answer:

```
b= float(input("Enter the width of Triangle : "))
h = float(input("Enter the height of Trinagle : "))

area = 0.5 * b * h

print("Area of Triangle : ", area)
```



The End....!