Kalyani Government Engineering College

Department of Computer Application
Python Programming Lab – MCAN191
Year: 2023-2024
Semester: 1st Semester
Assignment 5
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5.1 Write a program that accepts a list from user and print the alternate element of list.

Code:

```
mylist = []
size = int(input('How many elements you want to enter? '))

print('Enter',str(size),'elements')

for i in range(size):
    data = int(input())
    mylist.append(data)

print('Alternate elements are:')

for i in range(0,size,2):
    print(mylist[i])
```

Output:

```
How many elements you want to enter? 4
Enter 4 elements
87
9
-97
56
Alternate elements are:
87
-97
```

5.2Write a program that accepts a list from user. Your program should reverse the content of list and display it. Do not use reverse() method

Code:

```
mylist = []
size = int(input('How many elements you want to enter? '))

print('Enter',str(size),'elements')

for i in range(size):
    data = int(input())
    mylist.append(data)

print("Reverse")
print(mylist[::-1])
```

Output:

```
How many elements you want to enter? 4
Enter 4 elements
78
32
-98
73
Reverse
[73, -98, 32, 78]
```

5.3 Find and display the largest number of a list without using built-in function max(). Your program should ask the user to input values in list from keyboard.

Code:

```
mylist = []
size = int(input('How many elements you want to enter? '))

print('Enter',str(size),'elements')

for i in range(size):
    data = int(input())
    mylist.append(data)
m=-sys.maxsize-1

for i in range(len(mylist)):
    if mylist[i]>m:
        m=mylist[i]
print("Maximum",m)
```

Output:

```
How many elements you want to enter? 4
```

```
Enter 4 elements
-52
89
-910
0
Maximum 89
```

5.4 Write a program that rotates the element of a list so that the element at the first index moves to the second index, the element in the second index moves to the third index, etc., and the element in the last index moves to the first index.

```
\textbf{Code:}
l=[20,-98,72,0,-1]
print("Before",l)
m=[]
n=[]
for i in range(len(l)-1):
    m.extend(l[i+1:])
    m.extend(l[:i+1])
    n=m
    m=[]
print("After",n)
```

Output:

```
Before [20, -98, 72, 0, -1]
After [-1, 20, -98, 72, 0]
```

5.5 Write a program that input a string and ask user to delete a given word from a string

Code:

```
s=input("Enter the string\n")
temp=s.split()
c=input("Enter the word to be deleted\n")
flag=0
for i in s.split():
    if i==c:
        temp.remove(c)
        flag=1
        break

if flag:
```

```
    print(" ".join(temp))
else:
    print("Not found")
```

Output:

```
Enter the string
madhu is good boy
Enter the word to be deleted
is
madhu good boy
```

5.6 Write a program that reads a string from the user containing a date in the form mm/dd/yyyy. It should print the date in the form March 12, 2021

Code:

```
mydate = input('Enter a date(mm/dd/yyyy): ')
datelist = mydate.split('/')

month = int(datelist[0])
day = int(datelist[1])
year = int(datelist[2])

if month == 1:
    month = 'January'
elif month == 2:
    month = 'February'
elif month == 3:
    month = 'March'
elif month == 4:
    month = 'April'
elif month == 5:
    month = 'May'
elif month == 6:
    month = 'June'
elif month == 7:
    month = 'July'
elif month == 8:
    month = 'August'
elif month == 9:
    month = 'September'
elif month == 2:
    month = 'October'
elif month == 2:
    month = 'November'
```

```
elif month == 12:
    month = 'December'

newdate = month + ' ' + str(day) + ',' + str(year)

print(newdate)
```

Output:

```
Enter a date(mm/dd/yyyy): 12/04/2022
December 4,2022
```

5.7 Write a program with a function that accepts a string from keyboard and create a new string after converting character of each word capitalized. For instance, if the sentence is "stop and smell the roses." the output should be "Stop And Smell The Roses"

Code:

```
def capitalize_words(sentence):
    words = sentence.split()
    capitalized_words = [word.capitalize() for word in words]

    modified_sentence = ' '.join(capitalized_words)

    return modified_sentence
user_input = input("Enter a sentence: ")

result = capitalize_words(user_input)
print("Modified Sentence:", result)
```

Output:

```
Enter a sentence: Abc is the first
Modified Sentence: Abc Is The First
```

5.8 Find the sum of each row of matrix of size m x n

Code:

```
n = int(input("Enter the number of rows:"))
m = int(input("Enter the number of columns:"))

matrix = []

print("Enter values in matrix :")
for i in range(n):
```

```
    data =[]
    for j in range(m):
         data.append(int(input()))
    matrix.append(data)

for i in range(n):
    for j in range(m):
        print(matrix[i][j], end = " ")
    print()

for i in range(n):
    sum = 0
    for j in range(m):
        sum = sum + matrix[i][j]
    print('Sum of row',i+1,':',sum)
```

Output:

```
Enter the number of rows:3
Enter the number of columns:2
Enter values in matrix :
1
3
5
2
4
6
1 3
5 2
4 6
Sum of row 1 : 4
Sum of row 2 : 7
Sum of row 3 : 10
```

5.9 Write a program to add two matrices of size n x m

Code:

```
def add_matrices(matrix1, matrix2):
    # Check if the matrices have the same dimensions
    if len(matrix1) != len(matrix2) or len(matrix1[0]) != len(matrix2[0]):
        print("Matrices must have the same dimensions for addition.")
        return None

    # Initialize a result matrix with zeros
    result_matrix = [[0 for _ in range(len(matrix1[0]))] for _ in range(len(matrix1))]
```

```
    # Perform matrix addition
    for i in range(len(matrix1)):
        for j in range(len(matrix1[0])):
            result_matrix[i][j] = matrix1[i][j] + matrix2[i][j]

    return result_matrix

# Example matrices
matrix_a = [
    [1, 2, 3],
    [4, 5, 6],
    [7, 8, 9]
]

matrix_b = [
    [9, 8, 7],
    [6, 5, 4],
    [3, 2, 1]
]

# Call the function to add matrices
result_matrix = add_matrices(matrix_a, matrix_b)

# Print the result matrix
if result_matrix:
    print("Resultant Matrix:")
    for row in result_matrix:
        print(row)
```

Output:

```
Resultant Matrix:
[10, 10, 10]
[10, 10, 10]
[10, 10, 10]
```

5.10 Write a program to multiply two matrices

Code:

```
def multiply_matrices(matrix1, matrix2):
    # Check if matrices can be multiplied
    if len(matrix1[0]) != len(matrix2):
        print("Matrices cannot be multiplied. Invalid dimensions.")
        return None

    # Initialize a result matrix with zeros
```

```
    result_matrix = [[0 for _ in range(len(matrix2[0]))] for _ in range(len(matrix1))]

    # Perform matrix multiplication
    for i in range(len(matrix1)):
        for j in range(len(matrix2[0])):
            for k in range(len(matrix2)):
                result_matrix[i][j] += matrix1[i][k] * matrix2[k][j]

    return result_matrix

# Example matrices
matrix_a = [
    [1, 2, 3],
    [4, 5, 6],
    [7, 8, 9]
]

matrix_b = [
    [9, 8, 7],
    [6, 5, 4],
    [3, 2, 1]
]

# Call the function to multiply matrices
result_matrix = multiply_matrices(matrix_a, matrix_b)

# Print the result matrix
if result_matrix:
    print("Resultant Matrix:")
    for row in result_matrix:
        print(row)
```

Output:

```
Resultant Matrix:
[30, 24, 18]
[84, 69, 54]
[138, 114, 90]
```