Muhammad Huzaifa AI 333873 List Ass

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1.1 List Assignment

1.1.1 1) Write a program that accepts a list from user and print the alternate element of list.

[5]:
```
lst=[]
uinpt=0

while True:
    uinpt=input("Enter anything.When done press q to exit.").capitalize()
    if uinpt=="Q":
        break
    else:
        lst.append(uinpt)

print(lst)
```

```
Enter anything.When done press q to exit.mango
Enter anything.When done press q to exit.banana
Enter anything.When done press q to exit.apricot
Enter anything.When done press q to exit.guava
Enter anything.When done press q to exit.watermelon
Enter anything.When done press q to exit.melon
Enter anything.When done press q to exit.q
['Mango', 'Banana', 'Apricot', 'Guava', 'Watermelon', 'Melon']
```

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

[1]:
```
lst=[]
uinpt=0

while True:
    uinpt=input("Enter anything. When done press q to exit").capitalize()
    if uinpt=="Q":
        break
    else:
```

```
        lst.append(uinpt)

rlst=[]

for item in lst:
    rlst.insert(0,item)

print(lst,rlst)
```

```
Enter anything. When done press q to exithuzaifa
Enter anything. When done press q to exitzorain
Enter anything. When done press q to exitebad
Enter anything. When done press q to exitahad
Enter anything. When done press q to exitq
['Huzaifa', 'Zorain', 'Ebad', 'Ahad'] ['Ahad', 'Ebad', 'Zorain', 'Huzaifa']
```

1.1.3 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.

[8]:
```
lst=[]
uinpt=0

while True:
    uinpt=input("Enter numbers. When done press q to exit").capitalize()
    if uinpt=="Q":
        break
    else:
        lst.append(uinpt)

lnum=lst[0]

for num in lst:
    if num>lnum:
        lnum=num

print(lst,f"The largest number in list is {lnum}.")
```

```
Enter numbers. When done press q to exit45
Enter numbers. When done press q to exit75
Enter numbers. When done press q to exit80
Enter numbers. When done press q to exit40
Enter numbers. When done press q to exit10
Enter numbers. When done press q to exit12
Enter numbers. When done press q to exitq
['45', '75', '80', '40', '10', '12'] The largest number in list is 80.
```

1.1.4 4) Write a program that rotates the element of a list so that the element at the first index moves to these cond 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.

[22]:
```
def rotate_list(lst):
    if len(lst) > 0:

        first_element = lst[0]


        for i in range(1, len(lst)):
            lst[i - 1] = lst[i]

        lst[-1] = first_element
    return lst

lst=[]
uinpt
while True:
    uinpt=input("Type or press q.").capitalize()
    if uinpt=="Q":
        break
    else:
        lst.append(uinpt)

# Rotate the list
rotated_lst = rotate_list(lst)


print("Rotated list:", rotated_lst)
```

```
Type or press q.1
Type or press q.2
Type or press q.3
Type or press q.4
Type or press q.5
Type or press q.6
Type or press q.q
Rotated list: ['2', '3', '4', '5', '6', '1']
```

1.1.5 5) Write a program that input a string and ask user to delete a given word from a string.

[23]:
```
def remove_word_from_string(input_string, word_to_remove):

    modified_string = input_string.replace(word_to_remove, "")
```

```
    modified_string = " ".join(modified_string.split())

    return modified_string


input_string = input("Enter a string: ")


word_to_remove = input("Enter the word you want to delete: ")


modified_string = remove_word_from_string(input_string, word_to_remove)


print("Modified string:", modified_string)
```

```
Enter a string: My name is Khan
Enter the word you want to delete: Khan
Modified string: My name is
```

1.1.6 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.

[31]:
```
lst=[]
inpt=0

for a in range(0,3):
    inpt=input("Enter the mm/dd/yyyy.").capitalize()
    lst.append(inpt)


print("Today is",lst[0],lst[1],lst[2])
```

```
Enter the mm/dd/yyyy.march
Enter the mm/dd/yyyy.24
Enter the mm/dd/yyyy.2021
Today is March 24 2021
```

1.1.7 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"

[36]:
```
cstring=0
lst=input("Enter the sentence")

cstring=" ".join([word.capitalize() for word in lst.split()])
```

```
print(cstring)
```

```
Enter the sentenceroses are red
Roses Are Red
```

1.1.8 8) Find the sum of each row of matrix of size m x n. For example for the following matrix output will be like this :

[1]:
```
# Define the matrix
matrix = [
    [2, 11, 7, 12],
    [5, 2, 9, 15],
    [8, 3, 10, 42]
]

# Loop through each row and calculate the sum
for i, row in enumerate(matrix, start=1):
    row_sum = sum(row)
    print(f"Sum of row {i} = {row_sum}")
```

```
Sum of row 1 = 32
Sum of row 2 = 31
Sum of row 3 = 63
```

1.1.9 9) Write a program to add two matrices of size n x m.

[3]:
```
# Function to add two matrices
def add_matrices(matrix1, matrix2):
    # Check if dimensions match
    if len(matrix1) != len(matrix2) or len(matrix1[0]) != len(matrix2[0]):
        print("Matrices dimensions do not match!")
        return None

    # Initialize the result matrix
    result = [[0 for _ in range(len(matrix1[0]))] for _ in range(len(matrix1))]

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

    return result

# Example matrices
matrix1 = [
    [1, 2, 3],
    [4, 5, 6],
```

```
    [7, 8, 9]
]

matrix2 = [
    [9, 8, 7],
    [6, 5, 4],
    [3, 2, 1]
]

# Add the matrices
result_matrix = add_matrices(matrix1, matrix2)

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

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

1.1.10 10) Write a program to multiply two matrices.

[4]:
```
# Function to multiply two matrices
def multiply_matrices(matrix1, matrix2):
    # Check if multiplication is possible
    if len(matrix1[0]) != len(matrix2):
        print("Matrix multiplication not possible! Number of columns in Matrix␣
 ↪1 must equal the number of rows in Matrix 2.")
        return None

    # Initialize the result matrix
    result = [[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[i][j] += matrix1[i][k] * matrix2[k][j]

    return result

# Example matrices
matrix1 = [
    [1, 2, 3],
```

```
    [4, 5, 6],
    [7, 8, 9]
]

matrix2 = [
    [9, 8, 7],
    [6, 5, 4],
    [3, 2, 1]
]

# Multiply the matrices
result_matrix = multiply_matrices(matrix1, matrix2)

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

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