

**Exercises Lab-1**  
**MCA171 Python Programming**

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**2447253 MCA-B**

**QUESTIONS:**

- (1) Declare a python datatype list and do the following:
- (a) Write a Python program to sum all the items of the list.
  - (b) Write a Python program to multiply all the items.
  - (c) Write a Python program to get the largest number from a list. (d) Write a Python program to get the smallest number from a list.
- (2) Let A=['abc', 'xyz', 'aba', 1221'] be a given string, and write a Python program that prints the string or strings and their index from the given list, ensuring that the first and last characters of the strings to be printed are identical.
- (3) Write a python program to print patterns given below:

**A**  
**A B**  
**A B C**  
**A B C D**  
**A B C D E**

\*  
 \*\*  
 \*\*\*  
 \*\*\*\*  
 \*\*\*\*\*

(4) Write a Python program to convert the given list to a list of dictionaries.

ListColour= ["Black", "Red", "Maroon", "Yellow"], ["000000", "FF0000", "800000", "FFFF00"]

1

2

Expected Output: {'colorName': 'Black', 'colorCode': '000000'}, {'colorName': 'Red', 'colorCode': 'FF0000'}, {'colorName': 'Maroon', 'colorCode': '800000'}, {'colorName': 'Yellow', 'colorCode': 'FFFF00'}

(5) Write a Python program to print all the even numbers and their squares within the given range.

(a) range(1,50)

(b) range(1,100)

(6) Write a Python program to read a four-digit number and find its

(a) Sum of digits

(b) Reverse

(7) Write a program to find the area of a triangle. Then find the area of two arbitrary triangles by entering the three sides both using the input function (input()). Print the total area enclosed by both triangles and each triangle's contribution (%) towards it.

Hint: area of a triangle:

$$A = \frac{p}{s} s(s - a)(s - b)(s - c) \quad s = \frac{a + b + c}{2}$$

- (8) Given a dictionary containing the following information about 10 different people:

```
people = [
    {"name": "John Doe", "age": 30, "blood_group": "A+"},
    {"name": "Jane Smith", "age": 25, "blood_group": "B-"},
    {"name": "Emily Davis", "age": 40, "blood_group": "O+"},
    {"name": "Michael Brown", "age": 35, "blood_group": "AB-"},
    {"name": "William Johnson", "age": 28, "blood_group": "A-"},
    {"name": "Emma Wilson", "age": 22, "blood_group": "B+"},
    {"name": "Oliver Martinez", "age": 33, "blood_group": "O-"},
    {"name": "Sophia Anderson", "age": 27, "blood_group": "AB+"},
    {"name": "James Thomas", "age": 45, "blood_group": "A+"},
    {"name": "Isabella Lee", "age": 38, "blood_group": "B-"}
]
```

Write a Python program that prints each person's name, age, and blood group in a formatted manner. Each person's information should be separated by a line of dashes (-).

3

(Dictionary given in this problem can be found from the attached notepad)  
) Expected output:

```
Name: John Doe
Age: 30
Blood Group: A+
-----
Name: Jane Smith
Age: 25
Blood Group: B-
-----
```

- (9) Write a Python program to extract the rear elements from a tuple string as depicted in the following figure:

```
Input:
("python", "learn", "includehelp")

Output:
["n", "n", "p"]
```

- (10) Declare a list/tuple containing all the twelve months. Write a Python program that converts a month name entered via the Python console to the number of days in that month (Consider leap year as well the code):

Expected Output:

```
Enter the month name: July
The number of days in July is: 31
```

```
Enter the month name: February
Enter the year: 2024
The number of days in February is: 29
```

## OUTPUT FOR MENU-DRIVEN CODE:

```
"IDLE Shell 3.12.4"
File Edit Shell Debug Options Window Help
Python 3.12.4 (tags/v3.12.4:8e8a4ba, Jun 6 2024, 19:30:16) [MSC v.1940 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
= RESTART: C:/Users/digi_/OneDrive/Desktop/2447253_lab1.py

Menu:
1. Perform list operations (sum, multiply, largest, smallest)
2. Print strings with identical first and last characters
3. Print patterns
4. Convert list to a list of dictionaries
5. Print even numbers and their squares (1-50)
6. Print even numbers and their squares (1-100)
7. Sum and reverse digits of a four-digit number
8. Calculate the area of two triangles and their percentage contribution
9. Print person information from a dictionary
10. Extract last elements from a tuple
11. Find the number of days in a month
12. Exit
Enter your choice: 1
Sum of all the items of the list: 139
Product of all the items: 424972800
The largest number from the list is: 34
The smallest number from the list is: 8

Menu:
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6. Print even numbers and their squares (1-100)
7. Sum and reverse digits of a four-digit number
8. Calculate the area of two triangles and their percentage contribution
9. Print person information from a dictionary
10. Extract last elements from a tuple
11. Find the number of days in a month
12. Exit
Enter your choice: 2
The strings with identical first and last characters:
aba
1221
```

```
IDLE Shell 3.12.4
File Edit Shell Debug Options Window Help

1221
Menu:
1. Perform list operations (sum, multiply, largest, smallest)
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4. Convert list to a list of dictionaries
5. Print even numbers and their squares (1-50)
6. Print even numbers and their squares (1-100)
7. Sum and reverse digits of a four-digit number
8. Calculate the area of two triangles and their percentage contribution
9. Print person information from a dictionary
10. Extract last elements from a tuple
11. Find the number of days in a month
12. Exit
Enter your choice: 3
  A
  A B
  A B C
  A B C D
  A B C D E
*
* *
* * *
* * * *
* * * * *

Menu:
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6. Print even numbers and their squares (1-100)
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8. Calculate the area of two triangles and their percentage contribution
9. Print person information from a dictionary
10. Extract last elements from a tuple
11. Find the number of days in a month
12. Exit
```

```
IDLE Shell 3.12.4
File Edit Shell Debug Options Window Help

12. Exit
Enter your choice: 4
({'colorName': 'Black', 'colorCode': '000000'})
({'colorName': 'Red', 'colorCode': 'FF0000'})
({'colorName': 'Maroon', 'colorCode': '800000'})
({'colorName': 'Yellow', 'colorCode': 'FFFF00'})

Menu:
1. Perform list operations (sum, multiply, largest, smallest)
2. Print strings with identical first and last characters
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4. Convert list to a list of dictionaries
5. Print even numbers and their squares (1-50)
6. Print even numbers and their squares (1-100)
7. Sum and reverse digits of a four-digit number
8. Calculate the area of two triangles and their percentage contribution
9. Print person information from a dictionary
10. Extract last elements from a tuple
11. Find the number of days in a month
12. Exit
Enter your choice: 5
Even number: 2, Square: 4
Even number: 4, Square: 16
Even number: 6, Square: 36
Even number: 8, Square: 64
Even number: 10, Square: 100
Even number: 12, Square: 144
Even number: 14, Square: 196
Even number: 16, Square: 256
Even number: 18, Square: 324
Even number: 20, Square: 400
Even number: 22, Square: 484
Even number: 24, Square: 576
Even number: 26, Square: 676
Even number: 28, Square: 784
Even number: 30, Square: 900
Even number: 32, Square: 1024
Even number: 34, Square: 1156
Even number: 36, Square: 1296
Even number: 38, Square: 1444
Even number: 40, Square: 1600
```

```
IDLE Shell 3.12.4
File Edit Shell Debug Options Window Help
Even number: 30, Square: 900
Even number: 32, Square: 1024
Even number: 34, Square: 1156
Even number: 36, Square: 1296
Even number: 38, Square: 1444
Even number: 40, Square: 1600
Even number: 42, Square: 1764
Even number: 44, Square: 1936
Even number: 46, Square: 2116
Even number: 48, Square: 2304
Even number: 50, Square: 2500

Menu:
1. Perform list operations (sum, multiply, largest, smallest)
2. Print strings with identical first and last characters
3. Print patterns
4. Convert list to a list of dictionaries
5. Print even numbers and their squares (1-50)
6. Print even numbers and their squares (1-100)
7. Sum and reverse digits of a four-digit number
8. Calculate the area of two triangles and their percentage contribution
9. Print person information from a dictionary
10. Extract last elements from a tuple
11. Find the number of days in a month
12. Exit
Enter your choice: 6
Even number: 2, Square: 4
Even number: 4, Square: 16
Even number: 6, Square: 36
Even number: 8, Square: 64
Even number: 10, Square: 100
Even number: 12, Square: 144
Even number: 14, Square: 196
Even number: 16, Square: 256
Even number: 18, Square: 324
Even number: 20, Square: 400
Even number: 22, Square: 484
Even number: 24, Square: 576
Even number: 26, Square: 676
Even number: 28, Square: 784
Even number: 30, Square: 900

lin 156 Col 28
```

```
IDLE Shell 3.12.4
File Edit Shell Debug Options Window Help
Even number: 30, Square: 900
Even number: 32, Square: 1024
Even number: 34, Square: 1156
Even number: 36, Square: 1296
Even number: 38, Square: 1444
Even number: 40, Square: 1600
Even number: 42, Square: 1764
Even number: 44, Square: 1936
Even number: 46, Square: 2116
Even number: 48, Square: 2304
Even number: 50, Square: 2500
Even number: 52, Square: 2704
Even number: 54, Square: 2916
Even number: 56, Square: 3136
Even number: 58, Square: 3364
Even number: 60, Square: 3600
Even number: 62, Square: 3844
Even number: 64, Square: 4096
Even number: 66, Square: 4356
Even number: 68, Square: 4624
Even number: 70, Square: 4900
Even number: 72, Square: 5184
Even number: 74, Square: 5476
Even number: 76, Square: 5776
Even number: 78, Square: 6084
Even number: 80, Square: 6400
Even number: 82, Square: 6724
Even number: 84, Square: 7056
Even number: 86, Square: 7396
Even number: 88, Square: 7744
Even number: 90, Square: 8100
Even number: 92, Square: 8464
Even number: 94, Square: 8836
Even number: 96, Square: 9216
Even number: 98, Square: 9604
Even number: 100, Square: 10000

Menu:
1. Perform list operations (sum, multiply, largest, smallest)
2. Print strings with identical first and last characters
3. Print patterns
```

```
IDLE Shell 3.12.4
File Edit Shell Debug Options Window Help
3. Print patterns
4. Convert list to a list of dictionaries
5. Print even numbers and their squares (1-50)
6. Print even numbers and their squares (1-100)
7. Sum and reverse digits of a four-digit number
8. Calculate the area of two triangles and their percentage contribution
9. Print person information from a dictionary
10. Extract last elements from a tuple
11. Find the number of days in a month
12. Exit
Enter your choice: 7
Enter a four-digit number: 2447
Sum of digits: 17
Reverse of digits: 7442

Menu:
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5. Print even numbers and their squares (1-50)
6. Print even numbers and their squares (1-100)
7. Sum and reverse digits of a four-digit number
8. Calculate the area of two triangles and their percentage contribution
9. Print person information from a dictionary
10. Extract last elements from a tuple
11. Find the number of days in a month
12. Exit
Enter your choice: 8
Enter sides of first triangle (a b c): 12 17 20
Enter sides of second triangle (a b c): 23 27 25
Area of first triangle: 101.67
Area of second triangle: 267.15
Total area: 368.81
Contribution of first triangle: 27.57%
Contribution of second triangle: 72.43%

Menu:
1. Perform list operations (sum, multiply, largest, smallest)
2. Print strings with identical first and last characters
3. Print patterns
```

```
IDLE Shell 3.12.4
File Edit Shell Debug Options Window Help
4. Convert list to a list of dictionaries
5. Print even numbers and their squares (1-50)
6. Print even numbers and their squares (1-100)
7. Sum and reverse digits of a four-digit number
8. Calculate the area of two triangles and their percentage contribution
9. Print person information from a dictionary
10. Extract last elements from a tuple
11. Find the number of days in a month
12. Exit
Enter your choice: 9
Name: John Doe, Age: 30, Blood Group: A+
Name: Jane Smith, Age: 25, Blood Group: B-
Name: Emily Davis, Age: 40, Blood Group: O+
Name: Michael Brown, Age: 35, Blood Group: AB-
Name: William Johnson, Age: 28, Blood Group: A-
Name: Emma Wilson, Age: 22, Blood Group: B+
Name: Oliver Martinez, Age: 33, Blood Group: O-
Name: Sophia Anderson, Age: 27, Blood Group: AB+
Name: James Thomas, Age: 45, Blood Group: A+
Name: Isabella Lee, Age: 38, Blood Group: B-

Menu:
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4. Convert list to a list of dictionaries
5. Print even numbers and their squares (1-50)
6. Print even numbers and their squares (1-100)
7. Sum and reverse digits of a four-digit number
8. Calculate the area of two triangles and their percentage contribution
9. Print person information from a dictionary
10. Extract last elements from a tuple
11. Find the number of days in a month
12. Exit
Enter your choice: 10
Last characters of each string in the tuple: ['n', 'n', 'p']

Menu:
1. Perform list operations (sum, multiply, largest, smallest)
2. Print strings with identical first and last characters
3. Print patterns
```

```
IDLE Shell 3.12.4
File Edit Shell Debug Options Window Help
3. Print patterns
4. Convert list to a list of dictionaries
5. Print even numbers and their squares (1-50)
6. Print even numbers and their squares (1-100)
7. Sum and reverse digits of a four-digit number
8. Calculate the area of two triangles and their percentage contribution
9. Print person information from a dictionary
10. Extract last elements from a tuple
11. Find the number of days in a month
12. Exit
Enter your choice: 11
Enter the month name: febraury
Invalid month name.

Menu:
1. Perform list operations (sum, multiply, largest, smallest)
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4. Convert list to a list of dictionaries
5. Print even numbers and their squares (1-50)
6. Print even numbers and their squares (1-100)
7. Sum and reverse digits of a four-digit number
8. Calculate the area of two triangles and their percentage contribution
9. Print person information from a dictionary
10. Extract last elements from a tuple
11. Find the number of days in a month
12. Exit
Enter your choice: 11
Enter the month name: february
Enter the year: 2023
Number of days in February 2023 is 28.

Menu:
1. Perform list operations (sum, multiply, largest, smallest)
2. Print strings with identical first and last characters
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4. Convert list to a list of dictionaries
5. Print even numbers and their squares (1-50)
6. Print even numbers and their squares (1-100)
7. Sum and reverse digits of a four-digit number
8. Calculate the area of two triangles and their percentage contribution
```

```
IDLE Shell 3.12.4
File Edit Shell Debug Options Window Help
10. Extract last elements from a tuple
11. Find the number of days in a month
12. Exit
Enter your choice: 11
Enter the month name: febraury
Invalid month name.

Menu:
1. Perform list operations (sum, multiply, largest, smallest)
2. Print strings with identical first and last characters
3. Print patterns
4. Convert list to a list of dictionaries
5. Print even numbers and their squares (1-50)
6. Print even numbers and their squares (1-100)
7. Sum and reverse digits of a four-digit number
8. Calculate the area of two triangles and their percentage contribution
9. Print person information from a dictionary
10. Extract last elements from a tuple
11. Find the number of days in a month
12. Exit
Enter your choice: 11
Enter the month name: february
Enter the year: 2023
Number of days in February 2023 is 28.

Menu:
1. Perform list operations (sum, multiply, largest, smallest)
2. Print strings with identical first and last characters
3. Print patterns
4. Convert list to a list of dictionaries
5. Print even numbers and their squares (1-50)
6. Print even numbers and their squares (1-100)
7. Sum and reverse digits of a four-digit number
8. Calculate the area of two triangles and their percentage contribution
9. Print person information from a dictionary
10. Extract last elements from a tuple
11. Find the number of days in a month
12. Exit
Enter your choice: 12
Exiting...
>>>|
```