

CSE 352 - LAB 1

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Objective Questions:

Question 1 - A) 3, 1

Question 2 - D) All of the above

Question 3 - C) True and False are valid Boolean literals.

Question 4 - A) [2, 3, 4]

Question 5 - A) set()

Coding Problems:

Question 1

Code:

```
q1.py x
q1.py > ...
1  # initialise int and float
2  x = 12
3  print("x: ", x , "type: " ,type(x))
4
5  y = 2.5
6  print("y: ", y , "type: " ,type(y))
7
8  # sum , diff , product
9  print("Difference: ", x-y)
10 print("Sum: ",x+y)
11 print("Product: ",x*y)
12
13 # update x using shorthand
14 x += 2
15 print("Updated x: " , x)
16
```

Result:

```
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS POLYGLOT NOTEBOOK GITLENS SPELL CHECKER 1
● arnav@arnav-IdeaPad-Gaming-3-15ACH6:~/Desktop/Computer Graphics Lab/LAB 1$ python3 q1.py
x: 12 type: <class 'int'>
y: 2.5 type: <class 'float'>
Difference: 9.5
Sum: 14.5
Product: 30.0
Updated x: 14
○ arnav@arnav-IdeaPad-Gaming-3-15ACH6:~/Desktop/Computer Graphics Lab/LAB 1$
```

Question 2

Code:

```
q2.py x
q2.py > ...
1  # function definition
2  def format_string ( name , age):
3      # using format()
4      output1 = "My name is {} and I am {} years old".format(name , age)
5      print(output1)
6      # using f string
7      output2 = f"My name is {name} and I am {age} years old"
8      print(output2)
9      return
10
11 # calling function
12 format_string("Arnav" , 21)
13
```

Result:

```
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS POLYGLOT NOTEBOOK GITLENS SPELL CHECKER 1
● arnav@arnav-IdeaPad-Gaming-3-15ACH6:~/Desktop/Computer Graphics Lab/LAB 1$ python3 q2.py
My name is Arnav and I am 21 years old
My name is Arnav and I am 21 years old
○ arnav@arnav-IdeaPad-Gaming-3-15ACH6:~/Desktop/Computer Graphics Lab/LAB 1$
```

Question 3

Code:

```
q3.py x
q3.py > ...
1  # Create a list of numbers from 1 to 10
2  numbers = list(range(1, 11))
3
4  # Print the square of each number using list comprehension
5  squares = [x**2 for x in numbers]
6  print("Squares of numbers:", squares)
7
8  # Extract all even numbers from the list using slicing
9  even_numbers = numbers[1::2]
10 print("Even numbers:", even_numbers)
```

Result:

```
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS POLYGLOT NOTEBOOK GITLENS SPELL CHECKER
● arnav@arnav-IdeaPad-Gaming-3-15ACH6:~/Desktop/Computer Graphics Lab/LAB 1$ python3 q3.py
Squares of numbers: [1, 4, 9, 16, 25, 36, 49, 64, 81, 100]
Even numbers: [2, 4, 6, 8, 10]
○ arnav@arnav-IdeaPad-Gaming-3-15ACH6:~/Desktop/Computer Graphics Lab/LAB 1$
```

Question 4

Code:

```
q4.py x
q4.py > add_student
1 # Creates a dictionary to store student names and their marks.
2 def create_student_dictionary():
3     students = {
4         "Alice": 90,
5         "Bob": 85,
6         "Charlie": 95
7     }
8     return students
9
10 # Adds a new student to the dictionary.
11 def add_student(students, name, marks):
12     students[name] = marks
13     print(f"Added student {name} with {marks} marks.")
14
15 # Retrieves the marks of a specific student.
16 def get_student_marks(students, name):
17     if name in students:
18         return students[name]
19     else:
20         return "Student not found."
21
22 # Prints the dictionary in sorted order of names.
23 def print_sorted_students(students):
24     for name in sorted(students):
25         print(f"{name}: {students[name]}")
26
27 # Create the initial dictionary
28 student_dict = create_student_dictionary()
29 print("Original Dictionary:")
30 print(student_dict)
31
32 # Add a new student
33 add_student(student_dict, "David", 88)
34
35 # Get marks of a student
36 student_name = "Alice"
37 marks = get_student_marks(student_dict, student_name)
38 print(f"Marks for {student_name}: {marks}")
39
40 # Print students in sorted order
41 print("Students in sorted order:")
42 print_sorted_students(student_dict)
```

Result:

```
PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL  PORTS  POLYGLOT NOTEBOOK  GITLENS  SPELL CHECKER

● arnav@arnav-IdeaPad-Gaming-3-15ACH6:~/Desktop/Computer Graphics Lab/LAB 1$ python3 q4.py
Original Dictionary:
{'Alice': 90, 'Bob': 85, 'Charlie': 95}
Added student David with 88 marks.
Marks for Alice: 90
Students in sorted order:
Alice: 90
Bob: 85
Charlie: 95
David: 88
○ arnav@arnav-IdeaPad-Gaming-3-15ACH6:~/Desktop/Computer Graphics Lab/LAB 1$
```

Question 5

Code:

```
q5.py x
q5.py > [x] x
1  # Create two sets of integers
2  set1 = set()
3  set2 = set()
4
5  for x in range(1 , 7):
6      set1.add(x)
7
8  for x in range(6 , 9):
9      set2.add(x)
10
11 # Perform set operations
12 union_set = set1.union(set2)
13 intersection_set = set1.intersection(set2)
14 difference_set1 = set1.difference(set2)
15 difference_set2 = set2.difference(set1)
16
17 # Print results
18 print("Set 1:", set1)
19 print("Set 2:", set2)
20 print("Union:", union_set)
21 print("Intersection:", intersection_set)
22 print("Difference of Set 1 from Set 2:", difference_set1)
23 print("Difference of Set 2 from Set 1:", difference_set2)
24
25 # Find unique elements from both sets
26 unique_elements = list(set1.symmetric_difference(set2))
27 print("Unique elements:", unique_elements)
28
```

Result:

```
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS POLYGLOT NOTEBOOK GITLENS SPELL CHECKER
• arnav@arnav-IdeaPad-Gaming-3-15ACH6:~/Desktop/Computer Graphics Lab/LAB 1$ python3 q5.py
Set 1: {1, 2, 3, 4, 5, 6}
Set 2: {8, 6, 7}
Union: {1, 2, 3, 4, 5, 6, 7, 8}
Intersection: {6}
Difference of Set 1 from Set 2: {1, 2, 3, 4, 5}
Difference of Set 2 from Set 1: {8, 7}
Unique elements: [1, 2, 3, 4, 5, 7, 8]
• arnav@arnav-IdeaPad-Gaming-3-15ACH6:~/Desktop/Computer Graphics Lab/LAB 1$
```

Question 6

Code:

```
q6.py x
q6.py > ...
1 def tuple_operations(input_tuple):
2     if not input_tuple:
3         return None, None, None # Handle empty tuple
4
5     max_value = max(input_tuple)
6     min_value = min(input_tuple)
7     sum_value = sum(input_tuple)
8
9     return max_value, min_value, sum_value
10
11 # Example usage:
12 my_tuple = (10, 5, 20, 3, 8)
13 max_val, min_val, sum_val = tuple_operations(my_tuple)
14
15 print(f"Maximum: {max_val}")
16 print(f"Minimum: {min_val}")
17 print(f"Sum: {sum_val}")
```

Result:

```
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS POLYGLOT NOTEBOOK GITLENS SPELL CHECKER
• arnav@arnav-IdeaPad-Gaming-3-15ACH6:~/Desktop/Computer Graphics Lab/LAB 1$ python3 q6.py
Maximum: 20
Minimum: 3
Sum: 46
• arnav@arnav-IdeaPad-Gaming-3-15ACH6:~/Desktop/Computer Graphics Lab/LAB 1$
```

For code files , refer here:

<https://github.com/arnavjain2710/Computer-Graphics-Lab/tree/main/LAB%201>