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Section: B

Subject: Programming Language

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```python
programming.py > ...
1    name = "Iqra"
2    print("My name is:", name)
3    a = 10
4    b = 5
5    print("Sum:", a + b)
6
7    num1 = 7
8    num2 = 7.5
9    print("Type of num1:", type(num1))
10   print("Type of num2:", type(num2))
11
12   greeting = "Hello, Python"
13   print("Length of string:", len(greeting))
14
15   x = 6
16   print("Square of x:", x ** 2)
17
18   user_input = input("Enter something: ")
19   print("Data type of input:", type(user_input))
20
21
```

```
My name is: Iqra
Sum: 15
Type of num1: <class 'int'>
Type of num2: <class 'float'>
Length of string: 13
Square of x: 36
Enter something: hi
Data type of input: <class 'str'>
PS C:\Users\zaina\.vscode\flower>
```

```python
programming.py > ...
1    is_active = True
2    print("Is active True?", is_active == True)
3
4
5    name="iqra"
6    age = 19
7    print(f"My name is {name} and I am {age} years old.")
8
9
10   x = 10
11   x = float(x)
12   print("Converted to float:", x)
13
14
15   complex_num = 4 + 3j
16   print("Real part:", complex_num.real)
17   print("Imaginary part:", complex_num.imag)
18
19
```

```
PS C:\Users\zaina\.vscode\flower> & C:/Users/zaina/AppData/Local/Programs/Python/Python313/python.exe c:/Users/zaina/.vscode/flower/programming.py
Is active True? True
My name is iqra and I am 19 years old.
Converted to float: 10.0
Real part: 4.0
Imaginary part: 3.0
PS C:\Users\zaina\.vscode\flower>
```

```python
programming.py > ...
1
2    a, b = 12, 4
3    print("Addition:", a + b)
4    print("Subtraction:", a - b)
5    print("Multiplication:", a * b)
6    print("Division:", a / b)
```

```python
   7
   8    print("Floor Division:", a // b)
   9
  10    print("Remainder:", a % b)
  11
  12    print("Power:", a ** b)
  13
  14    a=8
  15    b=6
  16    print("a > b:", a > b)
  17    print("a < b:", a < b)
  18    print("a == b:", a == b)
  19    print("a != b:", a != b)
  20
  21
```

```
Division: 3.0
Floor Division: 3
Remainder: 0
Power: 20736
a > b: True
a < b: False
a == b: False
a != b: True
PS C:\Users\zaina\.vscode\flower>
```

● programming.py > ...
```python
   1    a=12
   2    b=4
   3    print("a > b:", a > b)
   4    print("a < b:", a < b)
   5    print("a == b:", a == b)
   6    print("a != b:", a != b)
   7
   8    print("a > 5 and b < 10:", a > 5 and b < 10)
   9    print("a > 20 or b < 10:", a > 20 or b < 10)
  10    print("not(a > b):", not (a > b))
  11
  12    # 17. Demonstrate operator precedence
  13    result = 5 + 3 * 2 ** 2
  14    print("Operator precedence result:", result)
  15
  16    # 18. Use compound assignment operators
  17    num = 10
  18    num += 5
  19    print("After += :", num)
  20    num -= 3
  21    print("After -= :", num)
  22
  23
```

```
PS C:\Users\zaina\.vscode\flower> & C:/Users/zaina/AppData/Local/Programs/Python/Python313/python.exe c:/Users/zaina/.vscode/flower/programming.py
a > b: True
a < b: False
a == b: False
a != b: True
a > 5 and b < 10: True
a > 20 or b < 10: True
not(a > b): False
Operator precedence result: 17
After += : 15
After -= : 12
PS C:\Users\zaina\.vscode\flower>
```

● programming.py > ...
```python
   1    num = int(input("Enter a number: "))
   2    print("Even" if num % 2 == 0 else "Odd")
   3
   4    num = int(input("Enter a number: "))
   5    if num > 0:
   6        print("Positive")
   7    elif num < 0:
   8        print("Negative")
   9    else:
  10        print("Zero")
  11
  12    num = int(input("Enter a number: "))
```

```
13    if num % 2 == 0:
14        print("Even Number")
15    else:
16        print("Odd Number")
17
18
```

```
PS C:\Users\zaina\.vscode\flower> & C:/Users/zaina/AppData/Local/Programs/Python/Python313/python.exe c:/Users/zaina/.vscode/flower/programming.py
Enter a number: 7
Odd
Enter a number: 6
Positive
Enter a number: 5
Odd Number
PS C:\Users\zaina\.vscode\flower>
```

● programming.py > ...

```python
1     age = int(input("Enter your age: "))
2     if age >= 18:
3         print("You are an adult.")
4     else:
5         print("You are a minor.")
6
7     a, b, c = 15, 25, 10
8     if a >= b and a >= c:
9         print("Largest number is:", a)
10    elif b >= a and b >= c:
11        print("Largest number is:", b)
12    else:
13        print("Largest number is:", c)
14    19
15    marks = int(input("Enter your marks: "))
16    if marks >= 90:
17        grade = "A"
18    elif marks >= 80:
19        grade = "B"
20    elif marks >= 70:
21        grade = "C"
22    elif marks >= 60:
23        grade = "D"
24    else:
```

```
PS C:\Users\zaina\.vscode\flower> & C:/Users/zaina/AppData/Local/Programs/Python/Python313/python.exe c:/Users/zaina/.vscode/flower/programming.py
Enter your age: 19
You are an adult.
Largest number is: 25
Enter your marks: 16
Your grade is: F
PS C:\Users\zaina\.vscode\flower>
```

● programming.py > ...

```python
10    elif 20 <= temp < 30:
11        print("Warm")
12    else:
13        print("Cold")
14
15    password = input("Enter password: ")
16    if password == "python123":
17        print("Access Granted")
18    else:
19        print("Access Denied")
20
21    ch = input("Enter a character: ").lower()
22    if ch in "aeiou":
23        print("Vowel")
24    else:
25        print("Consonant")
26
27
```

```
PS C:\Users\zaina\.vscode\flower> & C:/Users/zaina/AppData/Local/Programs/Python/Python313/python.exe c:/Users/zaina/.vscode/flower/programming.py
Enter a year: 2006
Not a Leap Year
Enter temperature: 8
Cold
Enter password: iqra
Access Denied
Enter a character: b
Consonant
PS C:\Users\zaina\.vscode\flower>
```

```python
programming.py > ...
1   day_num = int(input("Enter day number (1-7): "))
2   days = ["Monday", "Tuesday", "Wednesday", "Thursday", "Friday", "Saturday", "Sunday"]
3   if 1 <= day_num <= 7:
4       print("Day is:", days[day_num - 1])
5   else:
6       print("Invalid number")
7
8   fruits = ["apple", "banana", "mango", "orange"]
9   print("Fruits:", fruits)
10
11  fruits.append("grape")
12  print("After adding grape:", fruits)
13  fruits.remove("banana")
14  print("After removing banana:", fruits)
15
16  numbers = [10, 20, 30, 40, 50]
17  print("Sum of numbers:", sum(numbers))
18
19
```

```
PS C:\Users\zaina\.vscode\flower> & C:/Users/zaina/AppData/Local/Programs/Python/Python313/python.exe c:/Users/zaina/.vscode/flower/programming.py
Enter day number (1-7): 6
Day is: Saturday
Fruits: ['apple', 'banana', 'mango', 'orange']
After adding grape: ['apple', 'banana', 'mango', 'orange', 'grape']
After removing banana: ['apple', 'mango', 'orange', 'grape']
Sum of numbers: 150
PS C:\Users\zaina\.vscode\flower>
```

```python
programming.py > ...
1   numbers = [12, 45, 23, 89, 56, 10]
2   print("Maximum element:", max(numbers))
3   print("Minimum element:", min(numbers))
4
5   print("First three elements:", numbers[:3])
6   print("Last three elements:", numbers[-3:])
7
8   numbers[2] = 100  # replace element at index 2
9   print("After replacing index 2:", numbers)
10
11  numbers.reverse()  # you can also use numbers[::-1]
12  print("Reversed list:", numbers)
13
14  count_list = [1, 2, 2, 3, 2, 4, 5, 2]
15  print("Count of 2 in list:", count_list.count(2))
16
17  list1 = ["apple", "banana", "mango"]
18  list2 = ["orange", "grape", "cherry"]
19  combined_list = list1 + list2
20  print("Combined list:", combined_list)
21
22  squares = [x**2 for x in range(1, 11)]
23  print("List of squares (1-10):", squares)
24
25  my_tuple = (10, 20, 30, 40, 50)
26  print("Tuple elements:", my_tuple)
```

```
Minimum element: 10
First three elements: [12, 45, 23]
Last three elements: [89, 56, 10]
After replacing index 2: [12, 45, 100, 89, 56, 10]
```

```
After replacing index 2: [12, 45, 100, 89, 56, 10]
Reversed list: [10, 56, 89, 100, 45, 12]
Count of 2 in list: 4
Combined list: ['apple', 'banana', 'mango', 'orange', 'grape', 'cherry']
List of squares (1-10): [1, 4, 9, 16, 25, 36, 49, 64, 81, 100]
Tuple elements: (10, 20, 30, 40, 50)
```

```python
1   nums = (1, 2, 2, 3, 4)
2   print(nums.index(3))
3   print(nums.count(2))
4
5   t = (1, 2, 3)
6   lst = list(t)
7   lst[1] = 10
8   t = tuple(lst)
9   print(t)
10
11  t1 = (1, 2)
12  t2 = (3, 4)
13  t3 = t1 + t2
14  print(t3)
15
16
17
18
```

PROBLEMS   OUTPUT   DEBUG CONSOLE   TERMINAL   PORTS

```
PS C:\Users\shahg> & C:/Users/shahg/AppData/Local/Microsoft/WindowsApps/python3.11.exe c:/Users/shahg/Untitled-1.py
3
2
(1, 10, 3)
(1, 2, 3, 4)
PS C:\Users\shahg>
```