

Lab – Programming Language for Business Analytics



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Task # 01:

Input:

```
my_name = "Adeel Ahmad"  
print(my_name)
```

Output:

```
Adeel Ahmad
```

Task # 02:

Input:

```
a = 5  
b = 3  
print("Sum of a + b= ",a + b)
```

Output:

```
Sum of a + b= 8
```

Task # 03:

Input:

```
integer_var = 10  
float_var = 3.14  
  
print(type(integer_var))  
print(type(float_var))
```

Output:

```
<class 'int'>  
<class 'float'>
```

Task # 04:

Input:

```
greeting = "Hello, Python"  
print("Length =", len(greeting))
```

Output:

```
Length = 13
```

Task # 05:

Input:

```
x = 7  
print("Square of 7=", x ** 2)
```

Output:

```
Square of 7= 49
```

Task # 06:

Input:

```
user_input = input("Enter something: ")  
print(type(user_input))
```

Output:

```
Enter something: 18  
<class 'str'>
```

Task # 07:

Input:

```
is_active = True

if is_active:
    print("The value is True")
else:
    print("The value is False")
```

Output:

```
The value is True
```

Task # 08:

Input:

```
name = "Adeel Ahmad"
age = 19
print(f"My name is {name} and I am {age} years old.")
```

Output:

```
My name is Adeel Ahmad and I am 19 years old.
```

Task # 09:

Input:

```
x = 10
x_float = float(x)
print(x_float)
```

Output:

```
10.0
```

Task # 10:

Input:

```
z = 3 + 4j
print("Real part:", z.real)
print("Imaginary part:", z.imag)
```

Output:

```
Real part: 3.0
Imaginary part: 4.0
```

Task # 11:

Input:

```
a = 8
b = 4

addition = a + b
subtraction = a - b
multiplication = a * b
division = a / b

print("Addition:", addition)
print("Subtraction:", subtraction)
print("Multiplication:", multiplication)
print("Division:", division)
```

Output:

```
Addition: 12
Subtraction: 4
Multiplication: 32
Division: 2.0
```

Task # 12:

Input:

```
a = 17
b = 5

result = a // b
print("Floor Division=",result)
```

Output:

```
Floor Division= 3
```

Task # 13:

Input:

```
a = 17
b = 5

remainder = a % b
print("Modulus=",remainder)
```

Output:

```
Modulus= 2
```

Task # 14:

Input:

```
base = 4
exponent = 3

result = base ** exponent
print("Power of Number=",result)
```

Output:

```
Power of Number= 64
```

Task # 15:

Input:

```
a = 7
b = 10

print(a > b)
print(a < b)
print(a == b)
print(a != b)
```

Output:

```
False
True
False
True
```

Task # 16:

Input:

```
x = 5
y = 10
print((x > 3) and (y < 15))
print((x > 3) or (y > 20))
print(not(x > 3))
```

Output:

```
True
True
False
```

Task # 17:

Input:

```
result = 2 + 3 * 4
print(result)

result = (2 + 3) * 4
print(result)
```

Output:

```
14
20
```

Task # 18:

Input:

```
x = 10
x += 5
print("After += 5:", x)
x -= 3
print("After -= 3:", x)
```

Output:

```
After += 5: 15
After -= 3: 12
```


Task # 19:

Input:

```
num1 = float(input("Enter the first number: "))  
num2 = float(input("Enter the second number: "))  
  
average = (num1 + num2) / 2  
print("The average is:", average)
```

Output:

```
Enter the first number: 8  
Enter the second number: 9  
The average is: 8.5
```

Task # 20:

Input:

```
num = 7  
result = "Even" if num % 2 == 0 else "Odd"  
print("Result=", result)
```

Output:

```
Result= Odd
```

Task # 21:

Input:

```
num = float(input("Enter a number: "))

if num > 0:
    print("The number is positive.")
elif num < 0:
    print("The number is negative.")
else:
    print("The number is zero.")
```

Output:

```
Enter a number: 8
The number is positive.
```

Task # 22:

Input:

```
num = int(input("Enter an integer: "))

if num % 2 == 0:
    print(f"{num} is even.")
else:
    print(f"{num} is odd.")
```

Output:

```
Enter an integer: 9
9 is odd.
```

Task # 23:

Input:

```
age = int(input("Enter your age: "))

if age >= 18:
    print("You are an adult.")
else:
    print("You are a minor.")
```

Output:

```
Enter your age: 19
You are an adult.
```

Task # 24:

Input:

```
a = float(input("Enter the first number: "))
b = float(input("Enter the second number: "))
c = float(input("Enter the third number: "))

if a >= b and a >= c:
    largest = a
elif b >= a and b >= c:
    largest = b
else:
    largest = c

print(f"The largest number is: {largest}")
```

Output:

```
Enter the first number: 100
Enter the second number: 100
Enter the third number: 200
The largest number is: 200.0
```

Task # 25:

Input:

```
marks = float(input("Enter the marks: "))

if marks >= 90:
    grade = "A"
elif marks >= 80:
    grade = "B"
elif marks >= 70:
    grade = "C"
elif marks >= 60:
    grade = "D"
else:
    grade = "F"

print(f"Your grade is: {grade}")
```

Output:

```
Enter the marks: 65
Your grade is: D
```

Task # 26:

Input:

```
year = int(input("Enter a year: "))

if (year % 4 == 0 and year % 100 != 0) or (year % 400 == 0):
    print(f"{year} is a leap year.")
else:
    print(f"{year} is not a leap year.")
```

Output:

```
Enter a year: 2016
2016 is a leap year.
```

Task # 27:

Input:

```
temperature = float(input("Enter the temperature in Celsius: "))

if temperature >= 30:
    print("Hot")
elif 15 <= temperature < 30:
    print("Warm")
else:
    print("Cold")
```

Output:

```
Enter the temperature in Celsius: 25
Warm
```

Task # 28:

Input:

```
password = "secret123"
user_input = input("Enter the password: ")

if user_input == password:
    print("Access Granted")
else:
    print("Access Denied")
```

Output:

```
Enter the password: 123
Access Denied
```

Task # 29:

Input:

```
char = input("Enter a single character: ").lower()

if len(char) == 1 and char.isalpha():
    if char in "aeiou":
        print(f"{char} is a vowel.")
    else:
        print(f"{char} is a consonant.")
else:
    print("Please enter a single alphabetic character.")
```

Output:

```
Enter a single character: p
p is a consonant.
```

Task # 30:

Input:

```
day_num = int(input("Enter a number (1-7): "))

if day_num == 1:
    print("Monday")
elif day_num == 2:
    print("Tuesday")
elif day_num == 3:
    print("Wednesday")
elif day_num == 4:
    print("Thursday")
elif day_num == 5:
    print("Friday")
elif day_num == 6:
    print("Saturday")
elif day_num == 7:
    print("Sunday")
else:
    print("Invalid number! Please enter a number between 1 and 7.")
```

Output:

```
Enter a number (1-7): 5
Friday
```

Task # 31:

Input:

```
fruits = ["apple", "banana", "cherry", "date"]  
print(fruits)
```

Output:

```
['apple', 'banana', 'cherry', 'date']
```

Task # 32:

Input:

```
fruits = ["apple", "banana", "cherry"]  
  
fruits.append("date")  
print("After append:", fruits)  
fruits.remove("banana")  
print("After remove:", fruits)
```

Output:

```
After append: ['apple', 'banana', 'cherry', 'date']  
After remove: ['apple', 'cherry', 'date']
```

Task # 33:

Input:

```
numbers = [2, 4, 6, 8, 10]  
total = sum(numbers)  
print("Sum of all numbers:", total)
```

Output:

```
Sum of all numbers: 30
```

Task # 34:

Input:

```
numbers = [15, 42, 7, 23, 89, 2]

max_num = max(numbers)
min_num = min(numbers)
print("Maximum number:", max_num)
print("Minimum number:", min_num)
```

Output:

```
Maximum number: 89
Minimum number: 2
```

Task # 35:

Input:

```
fruits = ["apple", "banana", "cherry", "date", "elderberry", "fig",
          "grape"]

first_three = fruits[:3]
last_three = fruits[-3:]
print("First three elements:", first_three)
print("Last three elements:", last_three)
```

Output:

```
First three elements: ['apple', 'banana', 'cherry']
Last three elements: ['elderberry', 'fig', 'grape']
```


Task # 36:

Input:

```
fruits = ["apple", "banana", "cherry", "date"]  
print("Before replacement:", fruits)  
fruits[1] = "blueberry"  
print("After replacement:", fruits)
```

Output:

```
Before replacement: ['apple', 'banana', 'cherry', 'date']  
After replacement: ['apple', 'blueberry', 'cherry', 'date']
```

Task # 37:

Input:

```
fruits = ["apple", "banana", "cherry", "date"]  
reversed_list = fruits[::-1]  
print("Reversed list (slicing):", reversed_list)  
  
fruits = ["apple", "banana", "cherry", "date"]  
fruits.reverse()  
print("Reversed list (reverse method):", fruits)
```

Output:

```
Reversed list (slicing): ['date', 'cherry', 'banana', 'apple']  
Reversed list (reverse method): ['date', 'cherry', 'banana', 'apple']
```

Task # 38:

Input:

```
fruits = ["apple", "banana", "cherry", "banana", "date", "banana"]  
  
count_banana = fruits.count("banana")  
print(f"'banana' appears {count_banana} times in the list.")
```

Output:

```
'banana' appears 3 times in the list.
```

Task # 39:

Input:

```
list1 = [1, 2, 3]  
list2 = [4, 5, 6]  
  
combined_list = list1 + list2  
print("Combined list:", combined_list)
```

Output:

```
Combined list: [1, 2, 3, 4, 5, 6]
```

Task # 40:

Input:

```
squares = [x**2 for x in range(1, 11)]  
print(squares)
```

Output:

```
[1, 4, 9, 16, 25, 36, 49, 64, 81, 100]
```

Task # 41:

Input:

```
my_tuple = ("apple", "banana", "cherry", "date")

for item in my_tuple:
    print(item)
```

Output:

```
apple
banana
cherry
date
```

Task # 42:

Input:

```
my_tuple = ("apple", "banana", "cherry")

fruit1, fruit2, fruit3 = my_tuple
print("Fruit 1:", fruit1)
print("Fruit 2:", fruit2)
print("Fruit 3:", fruit3)
```

Output:

```
Fruit 1: apple
Fruit 2: banana
Fruit 3: cherry
```

Task # 43:

Input:

```
my_tuple = ("apple", "banana", "cherry", "banana", "date", "banana")  
  
first_index = my_tuple.index("banana")  
banana_count = my_tuple.count("banana")  
print("First index of 'banana':", first_index)  
print("Count of 'banana':", banana_count)
```

Output:

```
First index of 'banana': 1  
Count of 'banana': 3
```

Task # 44:

Input:

```
my_tuple = ("apple", "banana", "cherry")  
  
temp_list = list(my_tuple)  
temp_list[1] = "blueberry"  
modified_tuple = tuple(temp_list)  
print("Modified tuple:", modified_tuple)
```

Output:

```
Modified tuple: ('apple', 'blueberry', 'cherry')
```

Task # 44:

Input:

```
tuple1 = (1, 2, 3)
tuple2 = (4, 5, 6)

combined_tuple = tuple1 + tuple2
print("Concatenated tuple:", combined_tuple)
```

Output:

```
Concatenated tuple: (1, 2, 3, 4, 5, 6)
```