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EXPERIMENT 4

AIM: Experiment based on control statements (if, if else, nested if else)

Objective:

- To understand and implement decision-making in Python using control statements such as:

1. if statement
2. if-else statement
3. nested if-else statement

- These constructs allow the program to make decisions based on certain conditions.

Theory:

- Control statements are used to alter the flow of program execution based on conditions.
- They evaluate expressions and control which block of code gets executed.

1. if Statement:

- The if statement checks a condition.
- If the condition is True, the indented block below it is executed.
- If it is False, the block is skipped.
- Syntax:

```
if condition:
    # code block
```

- Example:

```
# IF Statement
a = 33
b = 200
if b > a:
   print("b is greater than a")        # Output: b is greater than a
```

2. if-else Statement:

- The if-else statement provides two alternative paths: one for when the condition is true, and another for when the condition is false.

- Syntax:

```
if condition:
  # executed if condition is True
else:
  # executed if condition is False
```

- Example:

```
# IF-ELSE Statement
x = 20
y = 20
if x > y:
   print("x is greater than y")
else:
   print("x is not greater than y")      # Output: x is not greater than y
```

3. nested if-else Statement:

- A nested if-else is when an if or else block contains another if-else.
- This is useful when you need to check multiple conditions one after the other.
- Syntax:

```
if condition1:
if condition2:

  # executed if both condition1 and condition2 are True

  else:

    # executed if condition1 is True and condition2 is False

else:

  # executed if condition1 is False
```

- Example:

```
# NESTED IF-ELSE Statement
marks = 75
if marks >= 90:
   print("Grade A")
elif marks >= 80:
   print("Grade B")
elif marks >= 70:
   print("Grade C")
elif marks >= 60:
   print("Grade D")
else:
   print("Fail")        # Output: Grade C
```

Code:

1. if statement:

if statement example

if 10 > 5:

    print("10 greater than 5")

print("Program ended")

Output:

```
# if statement example
if 10 > 5:
    print("10 greater than 5")
print("Program ended")
```

```
10 greater than 5
Program ended
```

2. if.else statement:

if.else statement example

x = 3

if x == 4:

    print("Yes")

else:

    print("No")

Output:

```
# if..else statement example
x = 3
if x == 4:
    print("Yes")
else:
    print("No")
```

```
No
```

3. Nested if-else statement:

# if..else chain statement
letter = "A"
if letter == "B":

```
    print("letter is B")
else:
    if letter == "C":
        print("letter is C")
    else:
        if letter == "A":
            print("letter is A")
        else:
            print("letter isn't A, B and C")
```

Output:

```
# if..else chain statement
letter = "A"
if letter == "B":
    print("letter is B")
else:
    if letter == "C":
        print("letter is C")
    else:
        if letter == "A":
            print("letter is A")
        else:
            print("letter isn't A, B and C")
```

```
letter is A
```

Conclusion:

In this experiment, we learned how to use if, if-else, and nested if-else statements in Python to make decisions based on conditions. These control structures help direct the flow of a program effectively.

For Faculty use only:

Correction Parameters	**Formative Assessment [40%]**	**Timely completion of practical [40%]**	**Attendance/ Learning Attitude [20%]**	
Marks Obtained				