Lab 1: Basic If Statements in Python

Objective:

Learn how to use basic `if` statements to make decisions in Python.

Scenario:

You are writing a simple program to determine if a person is eligible to vote based on their age.

Instructions:

1. Write a Python script that:
    - Asks the user for their age.
    - Checks if the user is at least 18 years old.
    - Prints a message stating whether the user is eligible to vote.

Code Template:

```python
# Input: Ask the user for their age
age = int(input("Enter your age: "))

# Basic if statement to check eligibility
if age >= 18:
    print("You are eligible to vote!")
else:
    print("You are not eligible to vote yet.")
```

Explanation:

1. The `input()` function is used to take the user's age as input.
2. The `if` condition checks if the age is greater than or equal to 18 (`age >= 18`).
3. If the condition is `True`, the program prints `"You are eligible to vote!"`.
4. If the condition is `False`, the program prints `"You are not eligible to vote yet."`.

Sample Run:

Input: 20
Output: You are eligible to vote!

Input: 16
Output: You are not eligible to vote yet.

Lab 2: Advanced If Statements in Python

Objective:

Learn to use nested `if` statements and logical operators for complex decision-making.

Scenario:

You are building a grading system that assigns grades based on a student's percentage.

Instructions:

1. Write a Python script that:
   o Asks the user for their percentage score.
   o Checks the following conditions:
     ▪ If the score is greater than or equal to 90, print `"Grade: A"`.
     ▪ If the score is between 80 and 89, print `"Grade: B"`.
     ▪ If the score is between 70 and 79, print `"Grade: C"`.
     ▪ If the score is between 60 and 69, print `"Grade: D"`.
     ▪ If the score is below 60, print `"Grade: F"`.

Code Template:

```
# Input: Ask the user for their percentage score
score = float(input("Enter your percentage score: "))

# Advanced if-elif-else structure for grading
if score >= 90:
    print("Grade: A")
elif 80 <= score < 90:
    print("Grade: B")
elif 70 <= score < 80:
    print("Grade: C")
elif 60 <= score < 70:
```

```
    print("Grade: D")
else:
    print("Grade: F")
```

Explanation:

1. The `input()` function takes the user's score as input.
2. The `if` statement checks if the score is greater than or equal to 90 (`score >= 90`) for grade A.
3. The `elif` statements are used for checking ranges:
   - `80 <= score < 90` for grade B.
   - `70 <= score < 80` for grade C.
   - `60 <= score < 70` for grade D.
4. If none of the above conditions are met, the `else` block assigns grade F.

Sample Runs:

Input: `92`
Output: `Grade: A`

Input: `85`
Output: `Grade: B`

Input: `58`
Output: `Grade: F`

Both labs provide a progressive understanding of how to implement decision-making using `if` statements in Python.