Problem 1: Integers

Problem Statement:

Write pseudocode to create a program that determines whether a number is positive, negative, or zero. Use deductive reasoning to establish the logical flow of the program.

1. Identify the Premises (Logical Rules):

- If a number is **greater than 0**, it is **positive**.
- If a number is **less than 0**, it is **negative**.
- If a number is **equal to 0**, it is **zero**.

2. Analyze the Premises:

These conditions are **mutually exclusive** — a number can only be in **one of the three** categories.

We can check the conditions using a sequence of if, else if, and else statements.

3. Draw a Conclusion (Logical Flow):

- First, check if the number is greater than 0 → print "Positive"
- Then check if it is less than 0 → print "Negative"
- If neither, it must be 0 → print "Zero"

4. Test the Conclusion:

- Input: 10 → Output: Positive
- Input: -7 → Output: Negative
- Input: 0 → Output: Zero

5. Pseudocode:

```
Start
    Prompt user to enter a number
    Read number

    If number > 0 then
        Display "Positive"
    Else if number < 0 then
        Display "Negative"
```

```
    Else
        Display "Zero"
    End If
End
```

Problem 2: Senior Discount

Problem Statement:

Write pseudocode to create a program that checks whether a person is eligible for a senior citizen discount. The program should take the person's age as input. If the age is 65 or older, print "Eligible for senior discount"; otherwise, print "Not eligible for senior discount".

1. Identify the Premises (Logical Rules):

- If a person's **age is 65 or older**, they are **eligible** for a senior citizen discount.
- If the **age is less than 65**, they are **not eligible**.

2. Analyze the Premises:

There are only **two mutually exclusive outcomes** based on the person's age:

- 65 and above → eligible
- Below 65 → not eligible

3. Draw a Conclusion (Logical Flow):

- If age >= 65 → Print "Eligible for senior discount"
- Else → Print "Not eligible for senior discount"

4. Test the Conclusion:

- Input: 70 → Output: Eligible
- Input: 50 → Output: Not eligible
- Input: 65 → Output: Eligible

5. Pseudocode:

```
Start
    Prompt user to enter age
    Read age
```

```
    If age >= 65 then
        Display "Eligible for senior discount"
    Else
        Display "Not eligible for senior discount"
    End If
End
```