

# Dhaka International University



## DEPARTMENT OF CSE

### LAB REPORT

**COURSE NAME** : Structured Programming Language Lab

**COURSE CODE** : 0613 - 102

**REPORT NO** :

**REPORT ON** : C Programs for Conditional Statement – Even/odd, Positive/Negative/zero, Minimum/Equal , Maximum/Equal.

| <u>SUBMITTED BY</u>  | <u>SUBMITTED TO</u>                      |
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Lab Report : C programs for conditional statements - Even or Odd, Positive or Negative or Zero, Maximum or zero, and Minimum or zero.

#### ■ Objective :

- Understand how to use conditional statements like if-else and if-else if in C programming.
- Implement programs to :
  1. Identify even or odd numbers
  2. Determine if a number is positive, negative or zero.
  3. Find the maximum of two numbers or check if they are equal.
  4. Find the minimum of two numbers or check if they are equal.

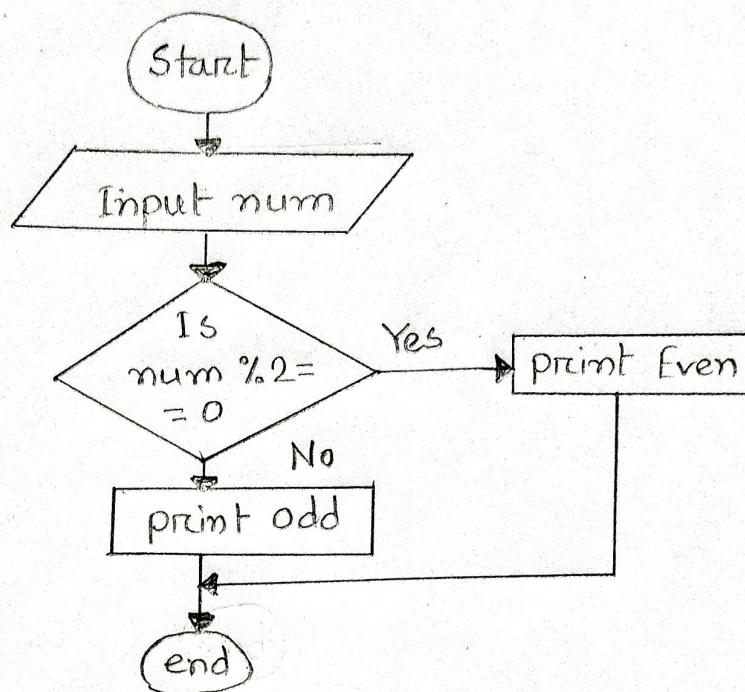
#### ■ Introduction :

Each of these programs demonstrates the use of conditional statements to make decisions based on user inputs.

##### Program 01 : Even or Odd Number

... Explanation : The program checks if a number is divisible by 2 using the modulus (%) operator. If the remainder is 0, the number is even; otherwise, it is odd.

... Flowchart :



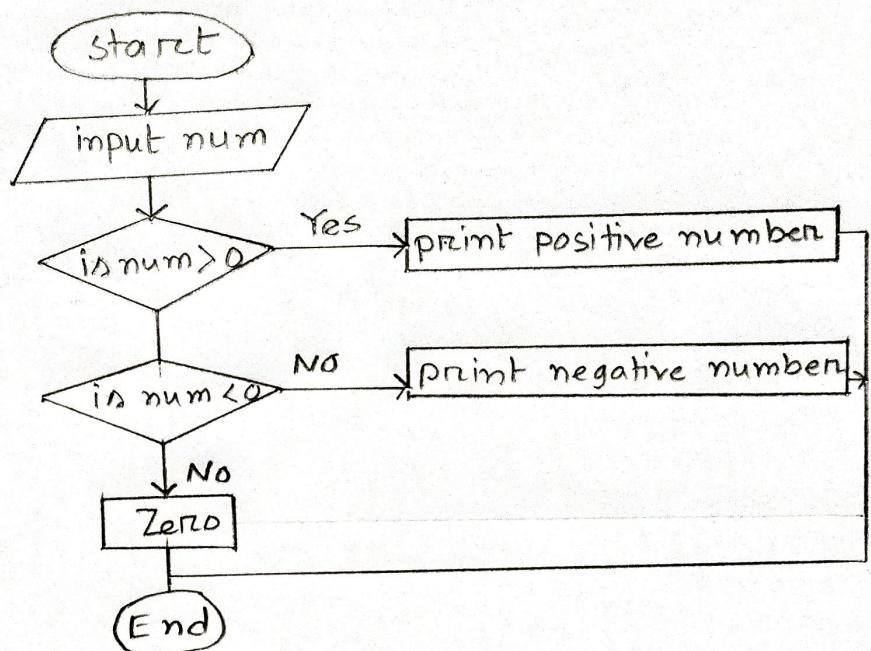
... Algorithm :

1. start
2. Input num.
3. Is num % 2 == 0
  - i. Yes, print Even.
  - ii. No, print odd.
4. Stop

Program 2 : Positive , Negative or Zero

... Explanation : This program checks whether a given number is greater than 0 (positive) , Less than '0' (negative) or exactly 0.

... Flowchart:



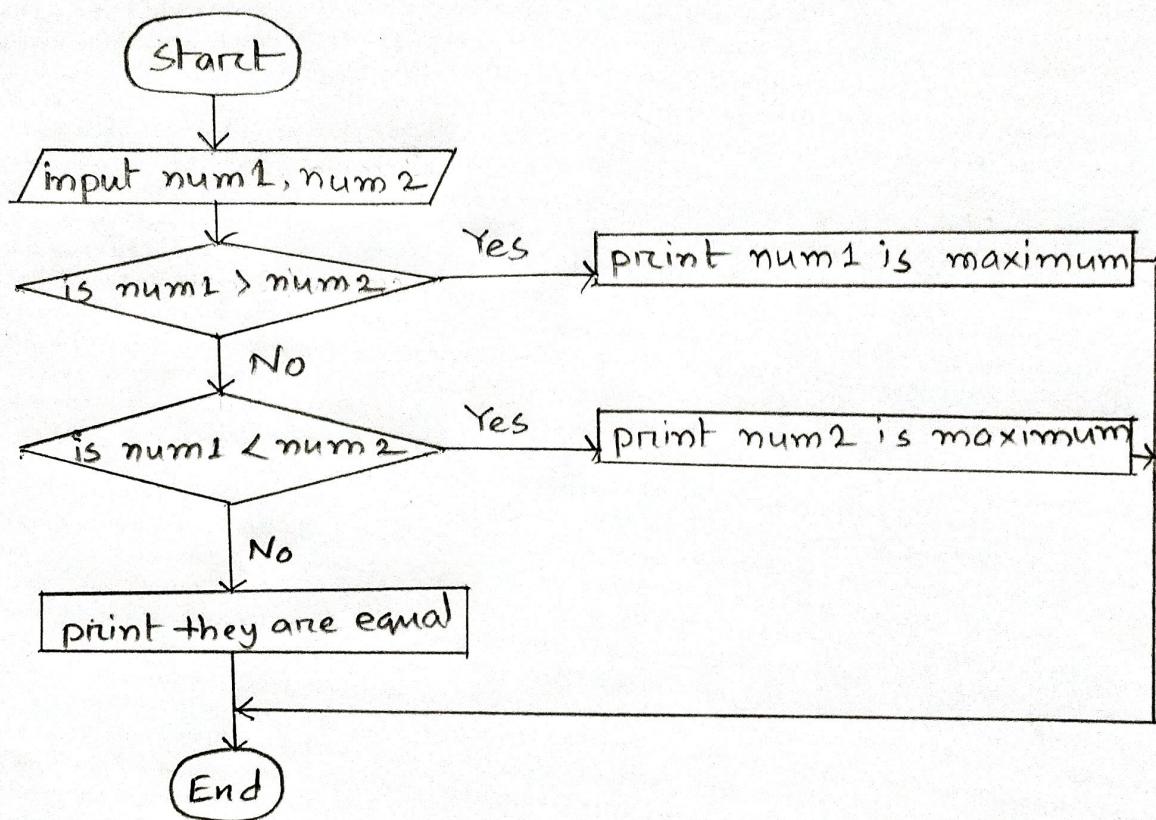
... Algorithm:

1. Start
2. Input num
3. Is num > 0:
  - i. Yes, print positive number and end
  - ii. No, go to '4'
4. Is num < 0:
  - i. Yes, print negative number and end
  - ii. No, go to '5'
5. Otherwise:
  - i. print zero and end .

### Program 03: Maximum or Equal Numbers

... Explanation: The program compares two numbers and determines which one is larger or if they are equal.

... Flowchart:



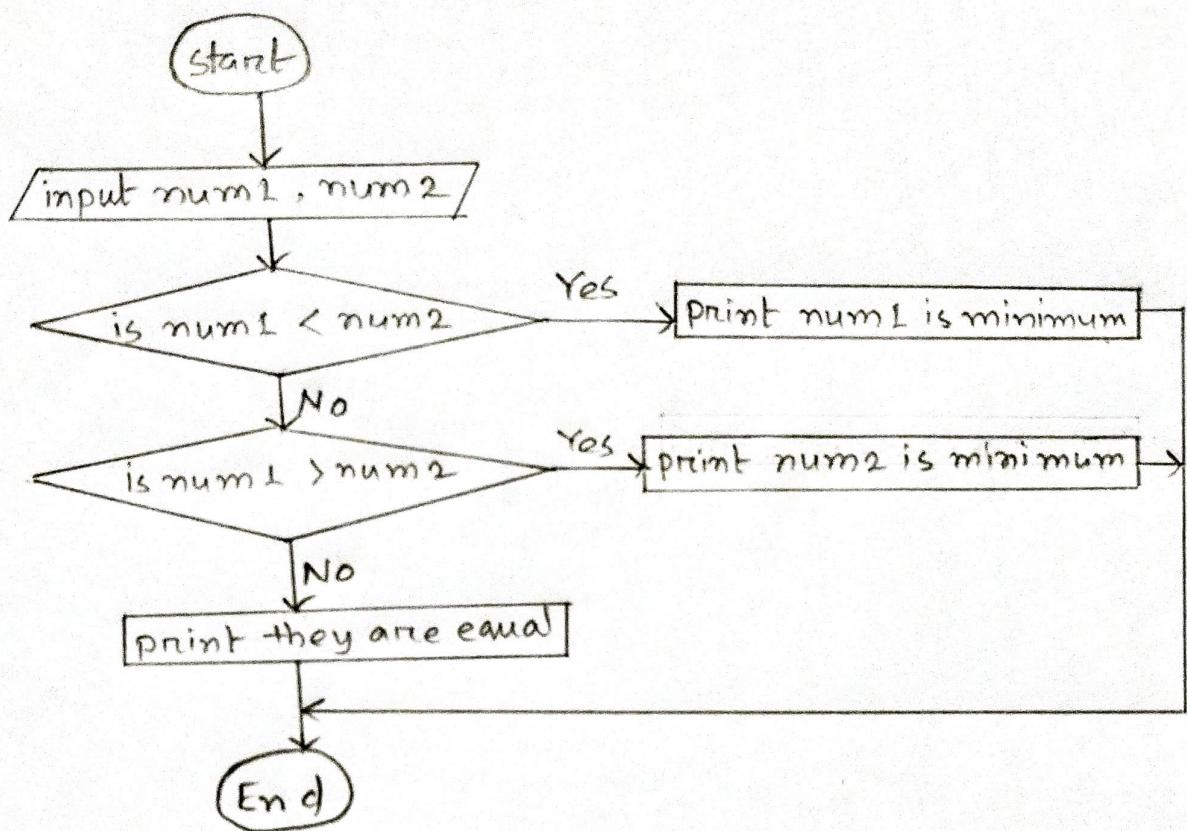
... Algorithm:

1. start
2. Input Num1, Num2
3. Is Num1 > Num2:
  - i. Yes, print Num1 is maximum and end
  - ii. No, go to 4
4. Is Num1 < Num2:
  - i. Yes, Print Num2 is maximum and end
  - ii, No, go to 5
5. Otherwise
  - i. print they are equal and end

## Program 4: Minimum or Equal Number

... Explanation : This program compares two numbers and determines which one is smaller or if they are equal.

... Flowchart :



... Algorithm :

1. Start
2. Input num1, num2
3. If num1 < num2 :
  - i. print num1 is minimum and end
  - ii. No, go to 4
4. If num1 > num2 :
  - i. Yes, print num2 is minimum and end
  - ii. No, goto 5
5. Otherwise
  - i. print they are equal.

## Discussion:

01. Even or Odd Number

... code:

```
#include <stdio.h>
int main() {
    int x;
    printf("Enter a number : ");
    scanf("%d", &x);
    if (x % 2 == 0)
    {
        printf("%d is Even.\n", x);
    }
    else
    {
        printf("%d is Odd.\n", x);
    }
    return 0;
}
```

... output:

Enter a number : 5

5 is Odd.

... Explanation:

- Header: stdio.h for input/output operation
- Variable: to find even or odd - 'x'
- conditional operation: to determine even/odd - using if-else statement
- return 0: returns to main function.
- printf(): prints output in the console
- scanf(): gets inputs from user.

## Q2. Positive, Negative or Zero

... Code:

```
# include <stdio.h>
int main () {
    int num;
    printf ("Enter a number : ");
    scanf ("%d", &num);
    if (num > 0)
        printf ("The number is positive");
    else if (num < 0)
        printf ("The number is negative");
    else
        printf ("The number is zero");
    return 0;
}
```

... Output:

Enter a number : -3

The number is negative

... Explanation

- `#include <stdio.h>`: For input / output operations
- `num`: declared as variable to find positive-negative-zero
- `scanf()`: For collecting input from user
- `if - else if`: conditional statement to find result
- `printf()`: prints output in the console
- `return 0`: Returns to main function

### Q3. Maximum or Equal:

... code :

```
#include <stdio.h>
int main () {
    int num1, num2;
    printf("Enter two numbers : ");
    scanf("%d %d", &num1, &num2);

    if (num1 > num2)
        printf("%d is the maximum.", num1);
    else if (num1 < num2)
        printf("%d is the maximum.", num2);
    else
        printf("Both numbers are equal.");
    return 0;
}
```

Output :

Enter two numbers : 85 59

85 is the maximum.

Explanation :

- #include <stdio.h>: For input / output operations.
- variables : num1, num2 to store value from user.
- printf(): prints result in the console.
- scanf(): gets input from user.
- if - elseif : conditional statement to find result
- return 0 : Returns to main function.

#### Q4. Minimum or Equal

... Code :

```
#include <stdio.h>
int main () {
    int num1 , num2;
    printf (" Enter two numbers : ");
    scanf ("%d %d" , &num1 , &num2);

    if (num1 < num2)
        { printf ("%d is the minimum.\n" , num1);
        }
    else if (num1 > num2)
        { printf ("%d is the minimum.\n" , num2);
        }
    else
        { printf ("Both numbers are equal.\n" );
        }
    return 0;
}
```

... Output :

Enter two numbers : 29 33

29 is the minimum.

... Explanation :

- #include <stdio.h> : For input / output operations .
- variables : num1 , num2 to store value from user .
- printf () : prints output in the console
- scanf () : gets inputs from user .
- if - elseif : conditional statement to find result .
- return 0 : Returns to main function .

Conclusion : In this section we will discuss about the challenges we encountered as 'limitations' and the use of these program as 'Applications.'

### • • Limitations :

- Integer Limitations : These programs deal with integers. They cannot handle floating point numbers without modifying the code.
- Multiple Inputs : These programs handle only two inputs at a time when determining maximum, minimum or equality.
- No Error Handling : The program do not handle invalid inputs like non-integer values.

### • • Applications :

- Mathematical Problems : The even-odd program can be used to solve problems related to divisibility.
- Real-World Calculations : The positive-negative-zero program can be used in financial calculations, such as determining profits/losses.
- Decision Making : Maximum or Minimum comparison program can be used in decision-making algorithms, such as finding the highest or lowest value in a dataset.

These programs demonstrate how conditional statement can be used to solve problems and decision making.

## References :

- c standard Library Documentation
- google classroom - lab material 4 and 5
- openai.com
- github.com
- Teach yourself C by Herbert Schildt
- learn.microsoft.com.