**Pf lab assignment 2**

Q. Write pseudo code to find the smallest number among three given variables. Implement a Decision-making structure to compare the variables.

**Pseudo code:**

Start

Input num1

Input num2

Input num3

If(num1<num2)

Then

If(num1<num3) then

Smallest=num1

Else

Smallest=num3

End if

Else

If(num2<num3) then

Smallest=num2

Else

Smallest=num3

End if

End if

Output Smallest

End

Q. Create pseudo code to subtract two numbers without using the - operator. (Hint: Use addition and complement techniques.)

**Pseudo code:**

Start

Input num1

Input num2

Ones\_comp= NOT(num2)

Twos\_comp=Ones\_comp +1

Difference=num1+twos\_comp

Output Difference

End

Q. Develop pseudo code for a basic calculator that performs multiplication and division. The Pseudo code should prompt the user for two numbers and an operator, then display the result of the operation.

**Pseudo code:**

Start

Input num1

Input num2

Input sign

If (sign==\*) then

Result=num1\*num2

Else if (sign==/) then

Result=num1/num2

Else

Output “invalid output”

End if

Output Result

End

Q. Write an algorithm to determine whether a number is a prime number. The algorithm should iterate through possible divisors and determine if the number has any divisors other than 1 and itself.

**Algorithm:**

1. Start

2. Input a number num

3. Check If num <= 1, then

Output "num is not a prime number"

End if

4. Check If N = 2, then

Output "num is a prime number"

End if

5. For i = 2 to num/2, increment i by 1, perform

Check If num % i == 0, then

Output "num is not a prime number"

End if

6. Output "num is a prime number"

7. End

Q. Develop an algorithm for a program that takes two numbers as input and finds the Greatest Common Divisor (GCD) of the two numbers using the Euclidean algorithm.

**Algorithm:**

1. Start

2. Input two numbers: num1 and num2

Check if num1>=num2 then

Gnum=num1

Snum=num2

Else num1<num2 then

Gnum=num2

Snum=num1

3. While (snum2 ≠ 0), do

temp= Snum

Snum = Gnum % Snum

Gnum = Temp

4. Output Gnum as the GCD

5. End