202151160_Lab4

1)

Objective : To write a program to generate multiplication table of any integer read through the keyboard (using while loop).

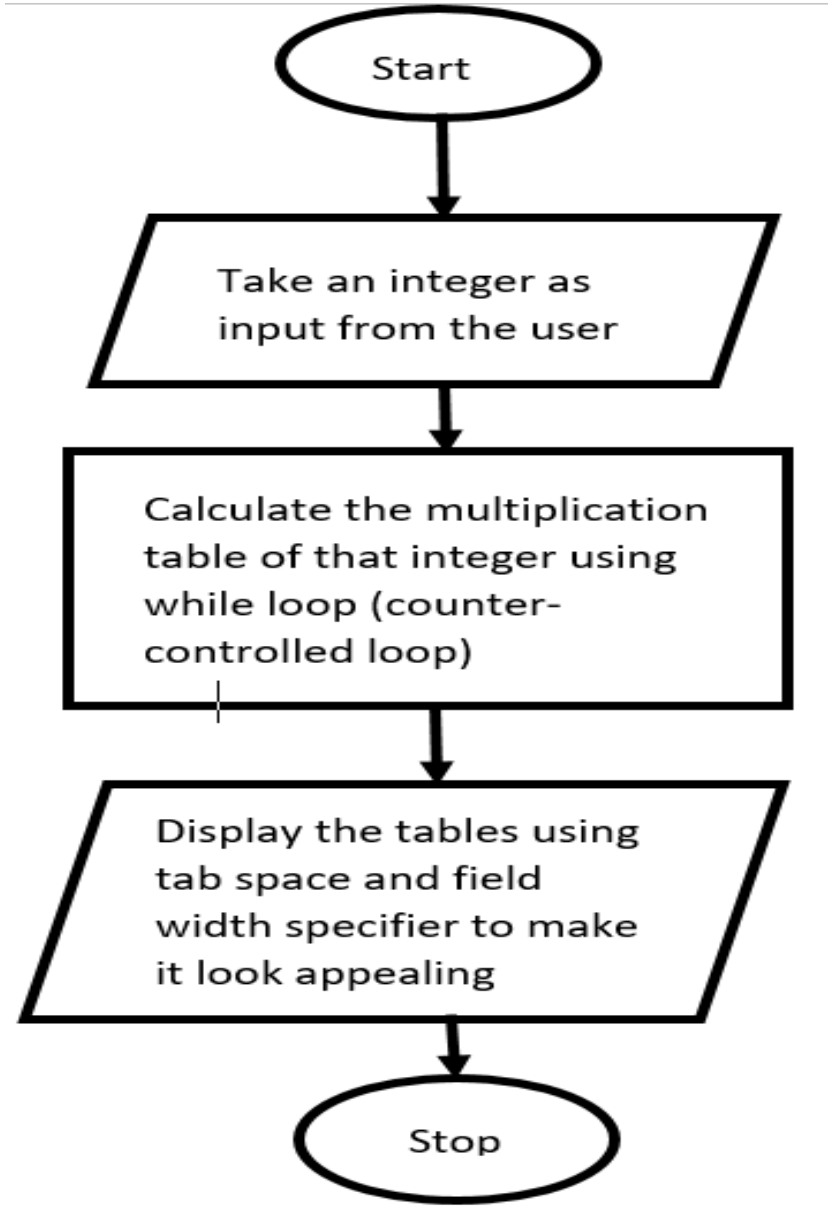
Software used : Online GDB Compiler and Debugger for C (IDE)

Methodology : The program uses a counter variable (variable b in the code below) to execute the while loop a finite number of times. It's a counter-controlled loop and executes the compound statements within while loop ten times thereby calculating and displaying the multiplication table of the integer input by the user.

Algorithm :

Step 1) Start
Step 2) take an integer from the user
Step 3) use a counter-controlled while loop to calculate the table of input integer
Step 4) display the multiplication table by using tab spaces and field width specifiers
Step 5) Stop

Flowchart :

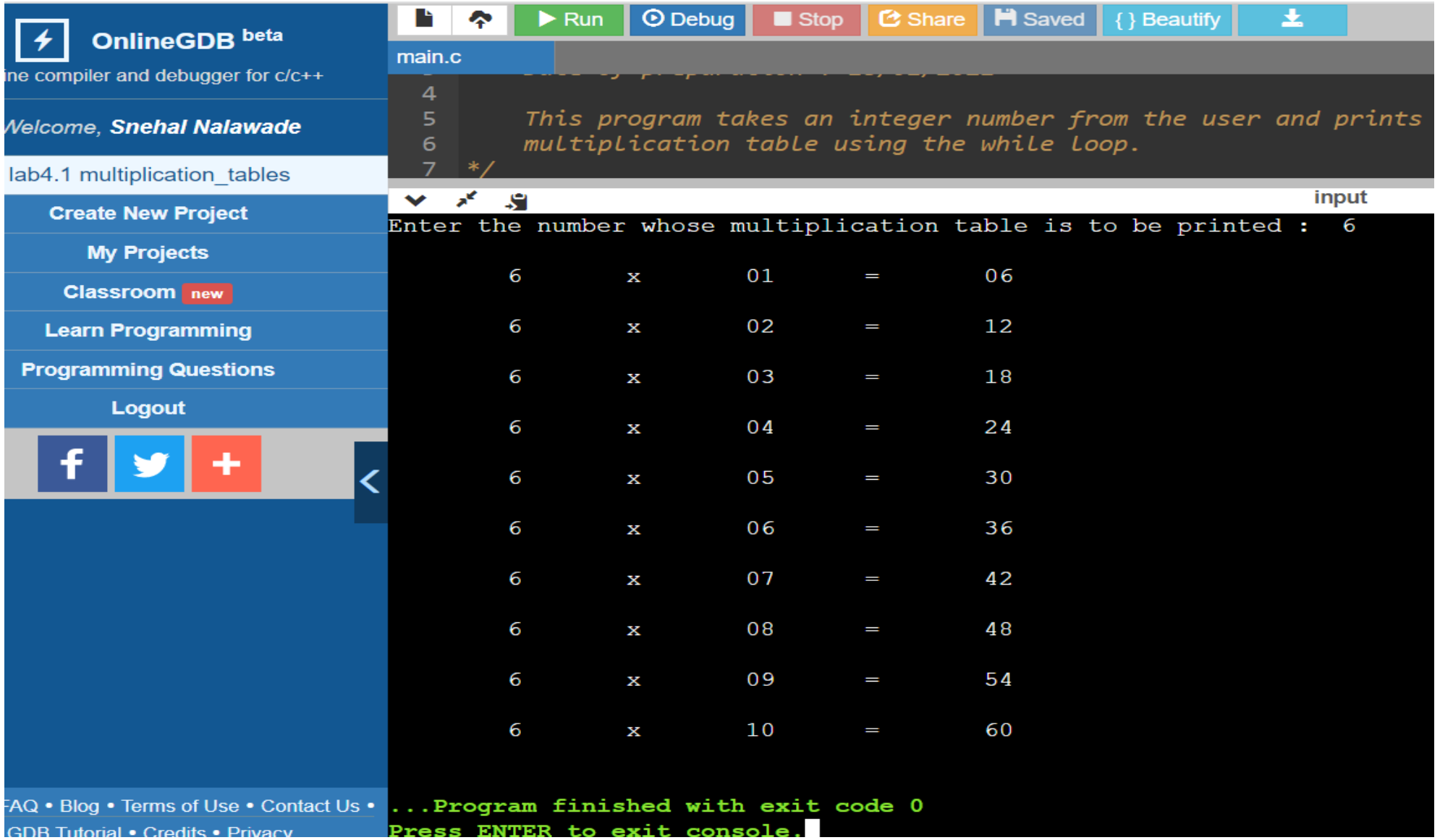

Start
Take an integer as input from the user
Calculate the multiplication table of that integer using while loop (counter-controlled loop)
Display the tables using tab space and field width specifier to make it look appealing
Stop

```
/*  This C program is prepared by Snehal Nalawade
    Roll no. : 202151160
    Date of preparation : 18/01/2021

    This program takes an integer number from the user and prints it's multiplication table
using the while loop.
*/

#include <stdio.h>
int main(void)
{
    int a, b=1, c;    // declaring variables
    printf("Enter the number whose multiplication table is to be printed :\t");
    scanf("%d", &a);  // taking input from the user and store it in variable a
    while(b<=10)
  {              // opening of wwhile loop
     c=a*b;
     printf("\n\t%d\tx\t%02d\t=\t%02d\n",a,b,c);
     b++;        // increment of value of b by one
  }            // closing of the while loop
     return 0;
}              // closing of the main function
```

Output :


OnlineGDB beta
ine compiler and debugger for c/c++
Welcome, Snehal Nalawade
lab4.1 multiplication_tables
Create New Project
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GDB Tutorial • Credits • Privacy
Run
Debug
Stop
Share
Saved
{ } Beautify
main.c
4
5 This program takes an integer number from the user and prints
6 multiplication table using the while loop.
7 */
input
Enter the number whose multiplication table is to be printed : 6
6 x 01 = 06
6 x 02 = 12
6 x 03 = 18
6 x 04 = 24
6 x 05 = 30
6 x 06 = 36
6 x 07 = 42
6 x 08 = 48
6 x 09 = 54
6 x 10 = 60
...Program finished with exit code 0
Press ENTER to exit console.

2)

Objective : To write a program which converts temperature from degree centigrade(C) to Fahrenheit(F) or vice versa. The program should have a provision to let the user choose whether he/she wants to convert C to F or vice versa.

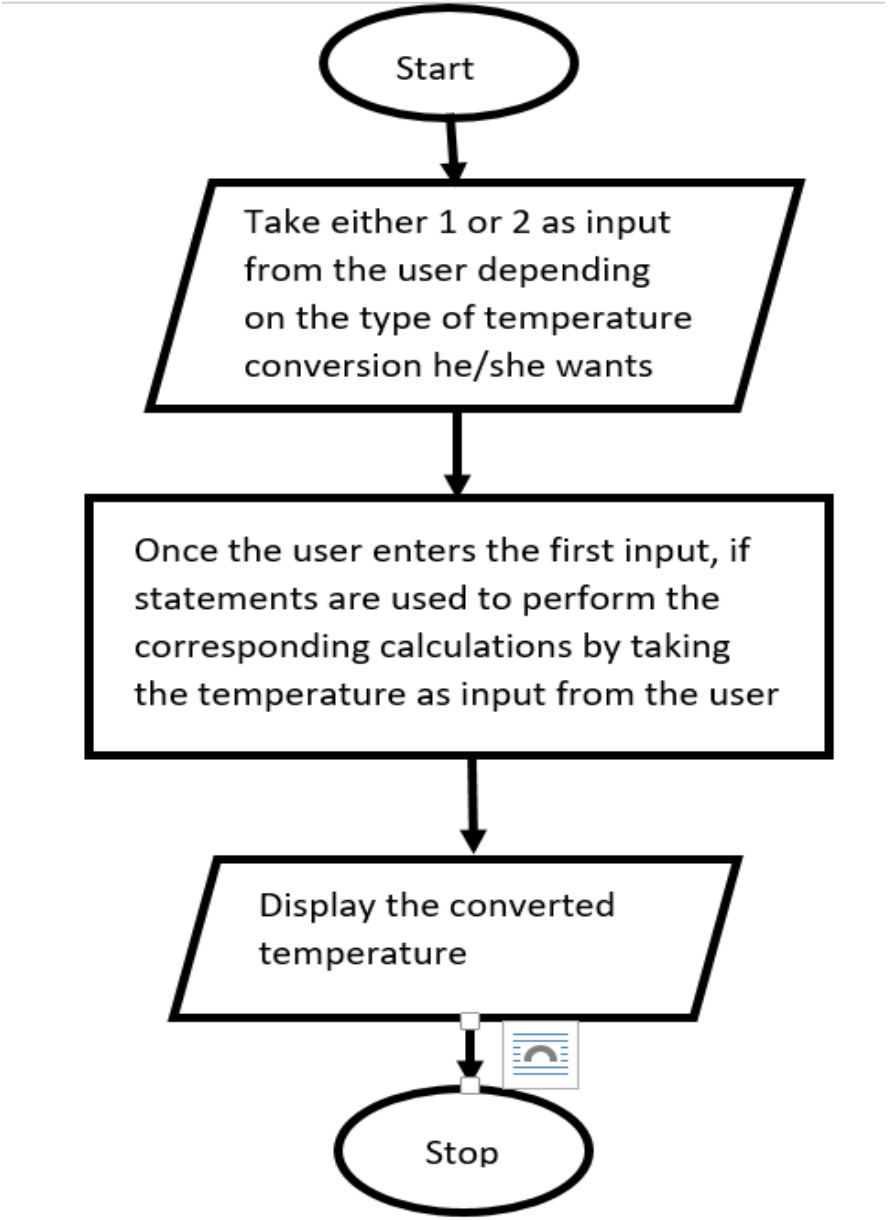
Software used : Online GDB Compiler and Debugger for C (IDE)

Methodology : the program will first ask the user to enter either 1 or 2 from the keyboard in order to choose whether he/she wants to convert temperature from degree centigrade to Fahrenheit or vice versa. According to the input of the user, the program performs the corresponding conversions by using the if statements.

Algorithm :

Step 1) Start
Step 2) take input from user– user should enter 1 for C to F and 2 for F to C
Step 3) use if statements to take input from user perform the temperature conversion in accordance with the former input by the user.
Step 4) display the result
Step 5) Stop

Flowchart :


Start
Take either 1 or 2 as input from the user depending on the type of temperature conversion he/she wants
Once the user enters the first input, if statements are used to perform the corresponding calculations by taking the temperature as input from the user
Display the converted temperature
Stop

Source code :

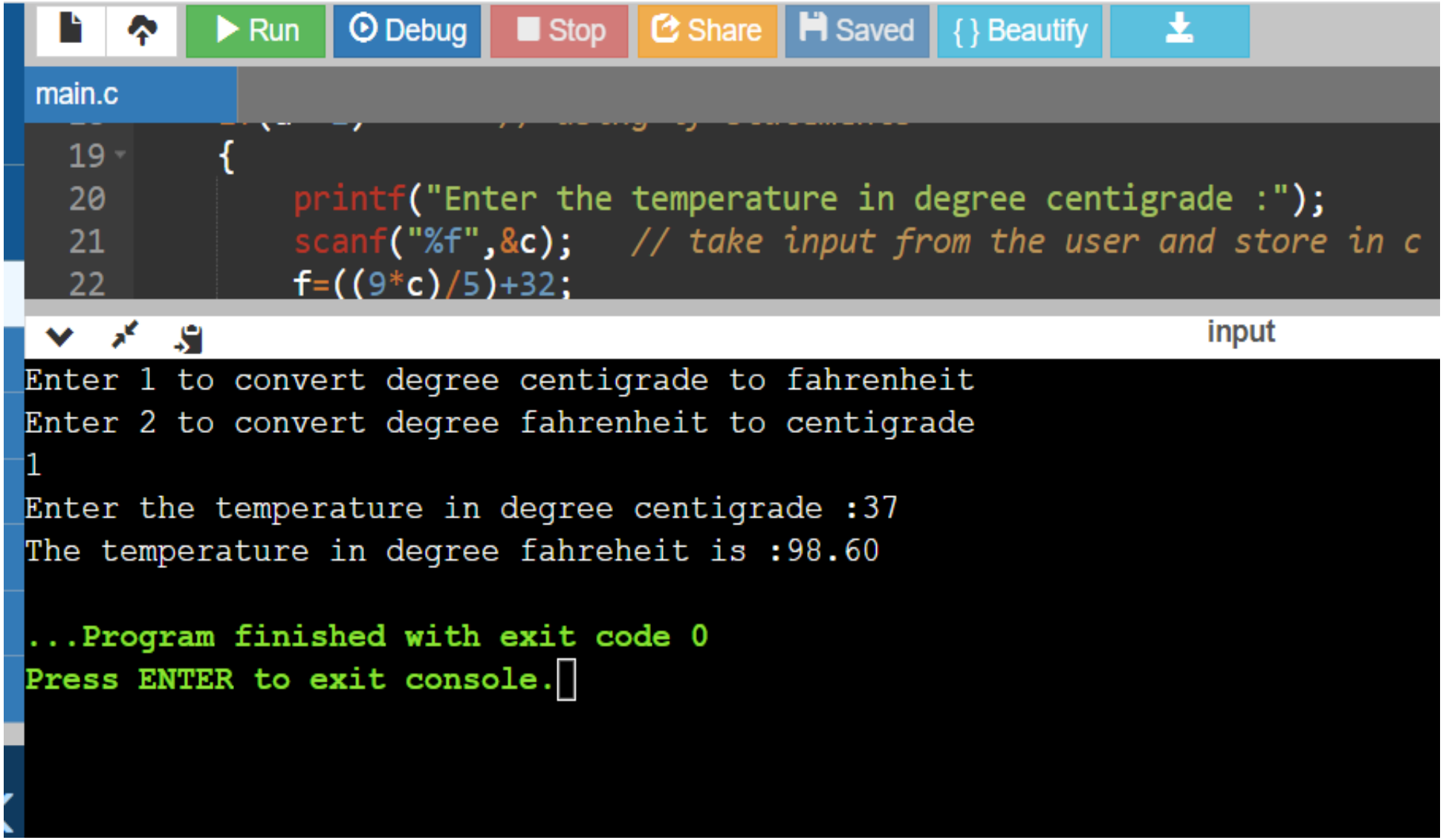
```
/*   This C program is prepared by Snehal Nalawade
     Roll no. : 202151160
     Date of preparation : 18/01/2021

    This program first asks the user to choose whether he/she wants to convert degree centigrade to
Fahrenheit or vice versa by entering either 1 or 2 respectively. Once the user enters number according to his
choice, the program then asks the user to enter the temperature accordingly and thereafter displays the
corresponding output after calculation. This program is written using if statements.
*/

#include <stdio.h>
int main()
 {              // opening of the main function
       int a;       // declare variable a
       float c, f;
       printf("Enter 1 to convert degree centigrade to fahrenheit\nEnter 2 to convert degree fahrenheit to
centigrade\n");
      scanf("%d",&a);
     if(a==1)      // using if statements
```

```
 {
    printf("Enter the temperature in degree centigrade :");
    scanf("%f",&c);   // take input from the user and store in c
   f=((9*c)/5)+32;
   printf("The temperature in degree fahreheit is :%0.2f",f);
  }
if(a==2)
  {
    printf("Enter the temperature in degree fahrenheit :");
    scanf("%f",&f);
    c=(5*(f-32))/9;
    printf("The temperature in degree centigrade is :%0.2f",c);
   }
  if(a!=1 && a!=2)
    printf("Invalid input");
  return 0;
}            // closing of the main function
```

Output :


Run
Debug
Stop
Share
Saved
{ } Beautify
main.c
19 {
20 printf("Enter the temperature in degree centigrade :");
21 scanf("%f",&c); // take input from the user and store in c
22 f=((9*c)/5)+32;
input
Enter 1 to convert degree centigrade to fahrenheit
Enter 2 to convert degree fahrenheit to centigrade
1
Enter the temperature in degree centigrade :37
The temperature in degree fahreheit is :98.60
...Program finished with exit code 0
Press ENTER to exit console.

3)

Objective : To find the greatest number among the three numbers entered by the user.

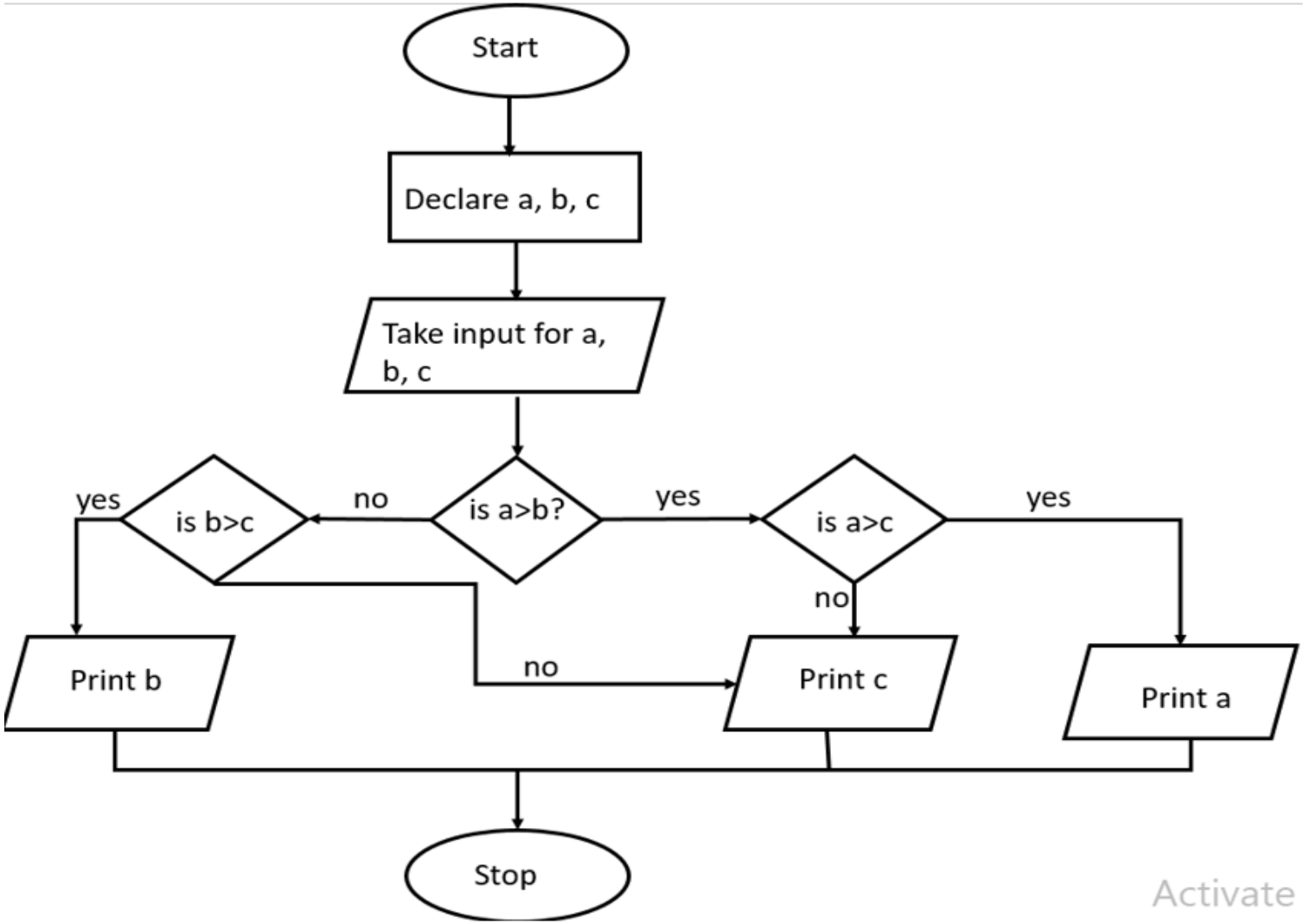
Software used : Online GDB Compiler and Debugger for C (IDE)

Methodology : the program takes three values as input from the user, finds the greatest one among them by using nested-if statements and then displays the result.

Algorithm :

Step 1) Start
Step 2) take three inputs from the user
Step 3) compare their values by using nested-if statements
Step 4) display the greatest value among them
Step 5) Stop

Flowchart :



Source code :

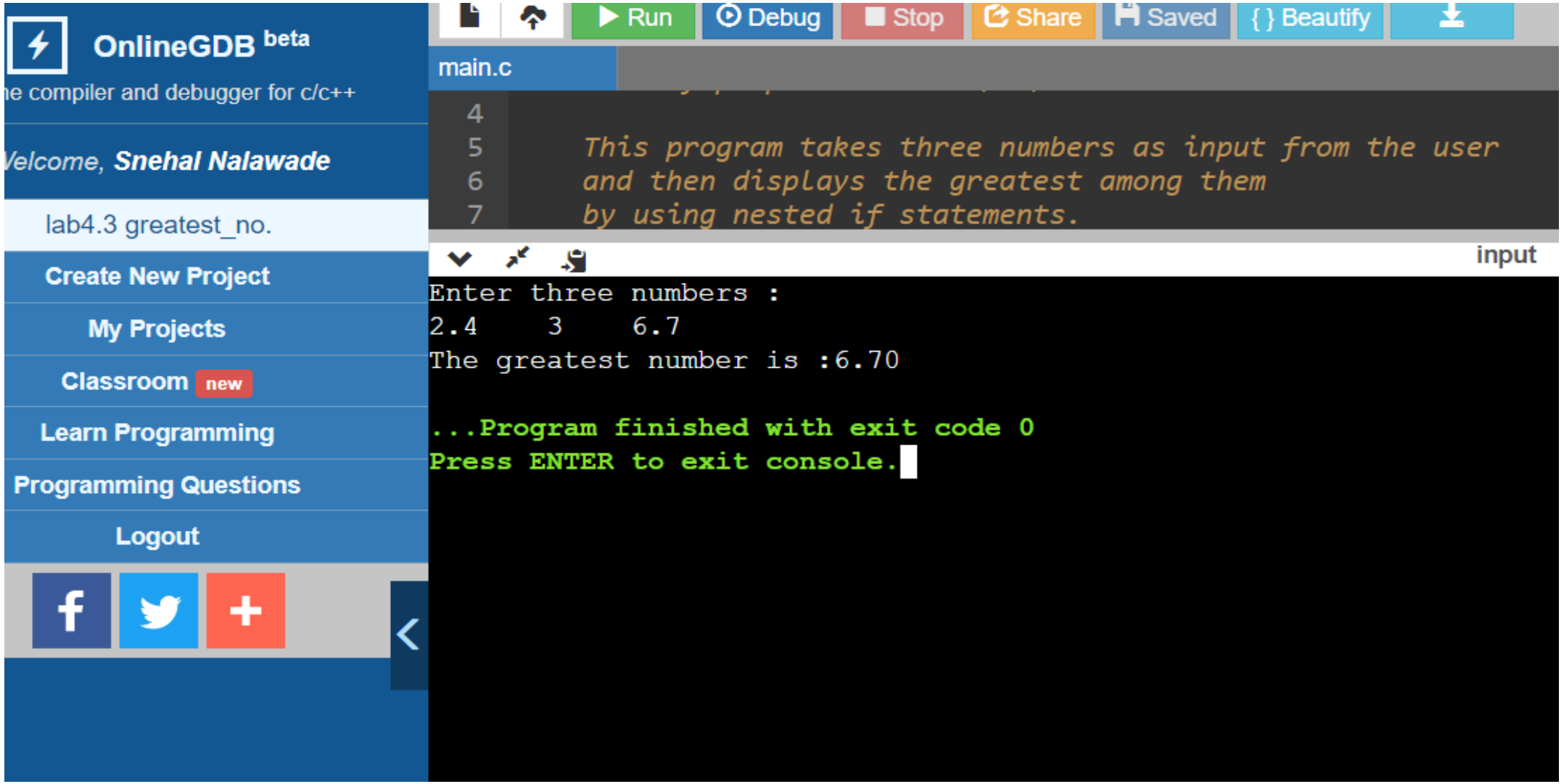
```
/*    This C program is prepared by Snehal Nalawade
      Roll no. : 202151160
      Date of preparation : 18/01/2021

      This program takes three numbers as input from the user and then displays the greatest among
       them by using nested if statements.
*/

 #include <stdio.h>
 int main()
 {                  // opening of the main function
  float a,b,c;      // declaring variables
  printf("Enter three numbers :\n");
  scanf("%f%f%f",&a,&b,&c);    // taking input from the user
  printf("The greatest number is :");
  if(a>b)           // start of nested-if statements
    {
     if(a>=c)
     printf("%0.2f",a); // field width specifier used to limit the result upto two decimal values
```

```
 if(a<c)
        printf("%0.2f",c);
       }
if(a<=b)
   {
      if(c<b)
       printf("%0.2f",b);
       if(c>b)
        printf("%0.2f",c);
    }
   return 0;
}                  // closing of the main function
```

Output :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elcome, Snehal Nalawade
lab4.3 greatest_no.
Create New Project
My Projects
Classroom new
Learn Programming
Programming Questions
Logout
Run
Debug
Stop
Share
Saved
{ } Beautify
main.c
4
5 This program takes three numbers as input from the user
6 and then displays the greatest among them
7 by using nested if statements.
input
Enter three numbers :
2.4 3 6.7
The greatest number is :6.70
...Program finished with exit code 0
Press ENTER to exit console.

Thank you