****

**Tribhuvan University**

**Faculty of Humanities and Social Science**

**Numerical Methods**

**A LAB REPORT**

**Submitted To**

**Department of Computer Application**

**Shahid Smarak College**

*In partial fulfillment of the requirements in the Bachelors in Computer Application*

Submitted By :

Amir Maharjan

TU Regd.No :

Exam Roll No :

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Internal Supervisor**

**Sandesh Bista**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**External Supervisor**

**Kirtipur Kathmandu**

Table of Contents

[**Question 1:** WAP to compute the interpolation value at a specified value, given a set of table points using the natural cubic spline interpolation 1](#_Toc143797280)

[**Question 2:** WAP to implement Bisection Method 2](#_Toc143797281)

[**Question 3:** WAP to implement Newton Raphson Method 3](#_Toc143797282)

[**Question 4:** WAP to implement secant method for solving non-linear equations**.** 4](#_Toc143797283)

[**Question 5:** WAP to implement Fixed Point iteration method for solving non-linear equation. 5](#_Toc143797284)

[**Question 6:** WAP to find the solution using gauss elimination method for system of linear equations. 6](#_Toc143797285)

[**Question 7:** WAP to find the solution using Gauss Jordan Method for system of linear equations. 7](#_Toc143797286)

[**Question 8:** WAP to find matrix inverse using gauss Jordan method for solving system of linear system**.** 8](#_Toc143797287)

[**Question 9:** WAP to implement Gauss-Saidel method for solving of non-linear equations. 9](#_Toc143797288)

[**Question 10:** WAP to implement Newton’s forward interpolation 10](#_Toc143797289)

[**Question 11:** WAP to implement Lagrange Interpolation 11](#_Toc143797290)

[**Question 12:** WAP to implement regression model 12](#_Toc143797291)

[**Question 13:** WAP to find integration of a function using trapezoidal rule 13](#_Toc143797292)

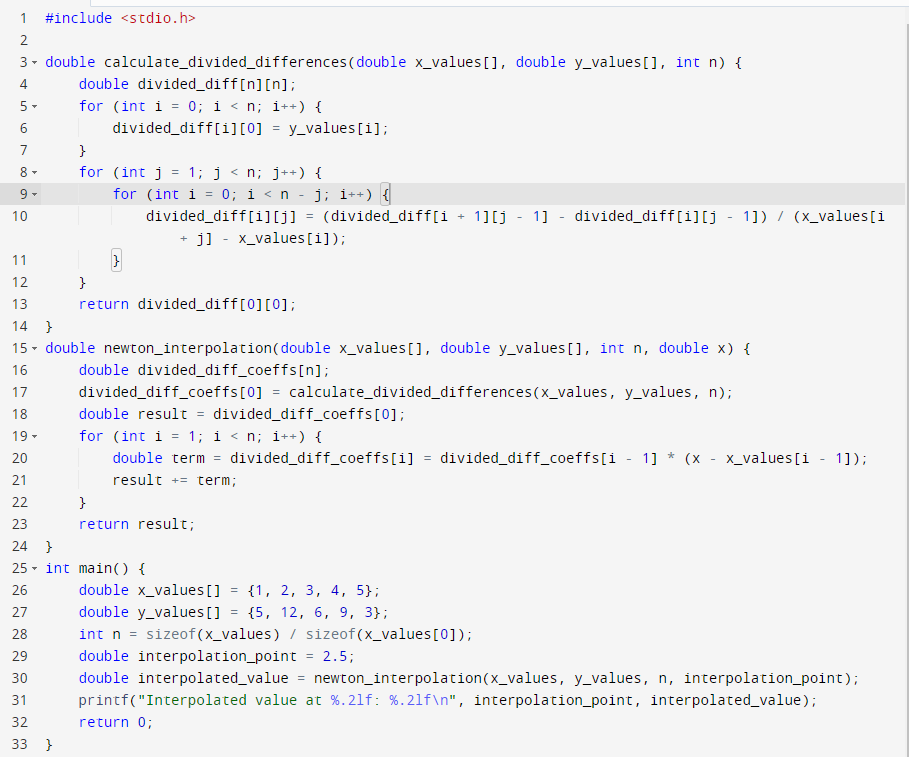
[**Question 14:** WAP to find the integration of a function using Simpson 1/3 rule. 14](#_Toc143797293)

[**Question 15:** WAP to find integration of a function using Simpson 3/8 rule**.** 15](#_Toc143797294)

# **Question 1: WAP to compute the interpolation value at a specified value, given a set of table points using the natural cubic spline interpolation**

**Objective:** To compute the interpolation value at a specified value, given a set of table points using the natural cubic spline interpolation

**Program:**



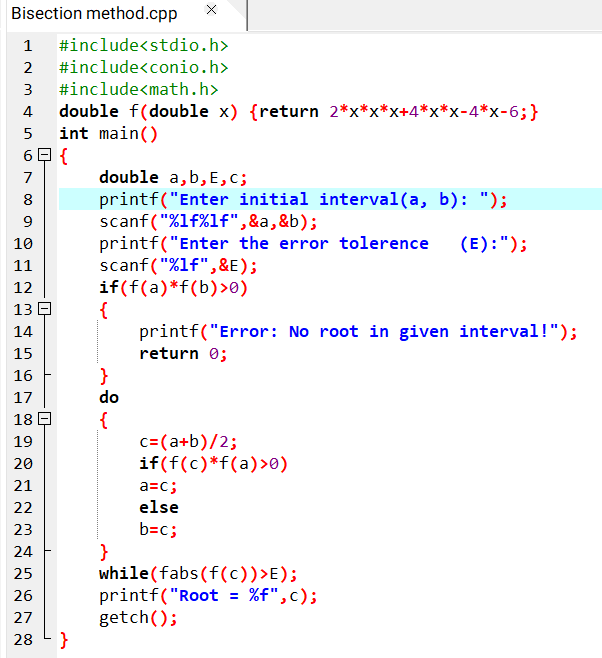
Output:



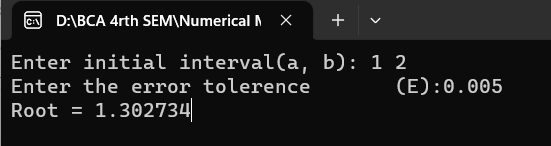
# **Question 2: WAP to implement Bisection Method**

**Objective:** To implement bisection method.

**Program:**

****

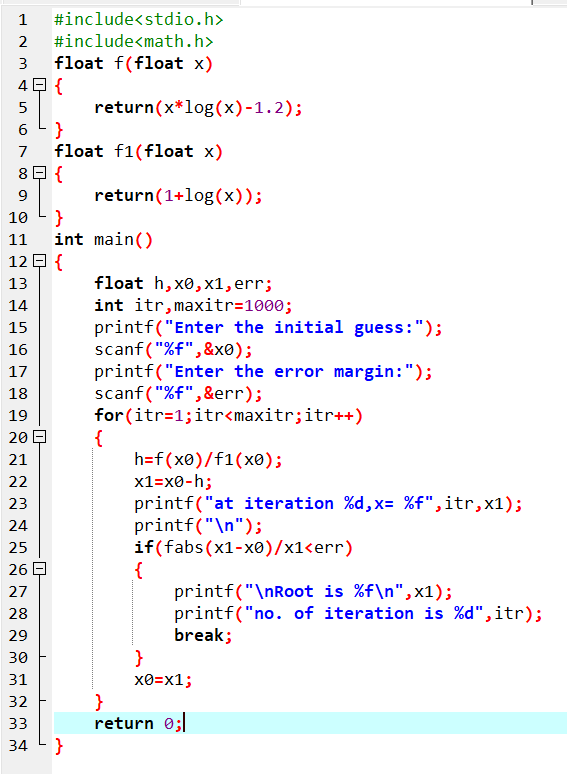
**Output:**

****

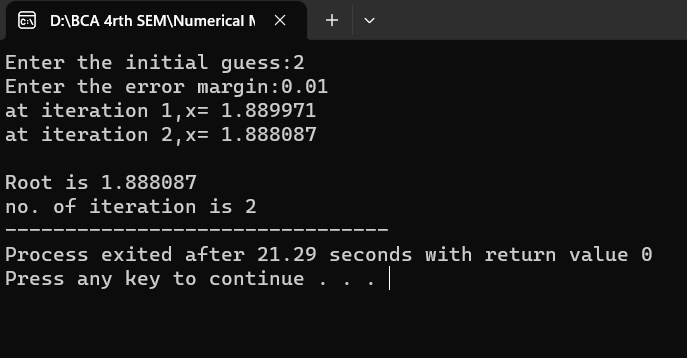
# **Question 3: WAP to implement Newton Raphson Method**

**Objective:** To implement Newton Raphson Method

**Program:**



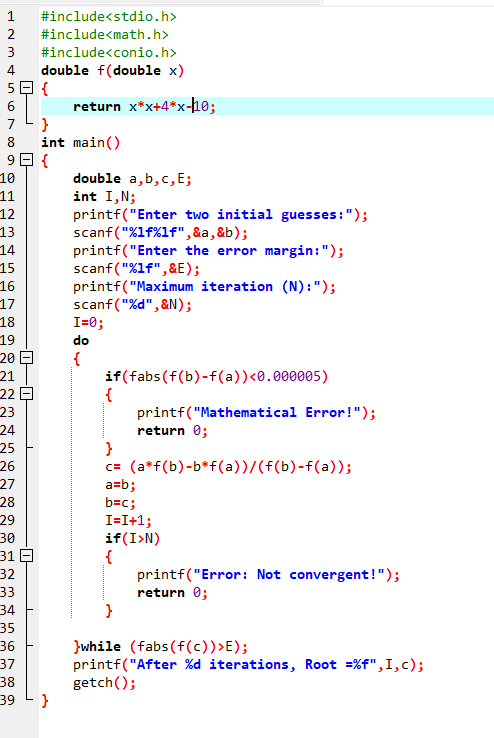
**Output:**

****

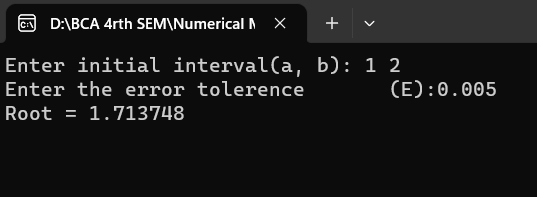
# **Question 4: WAP to implement secant method for solving non-linear equations.**

**Objective:** To implement secant method for solving non-linear equations.

**Program:**

****

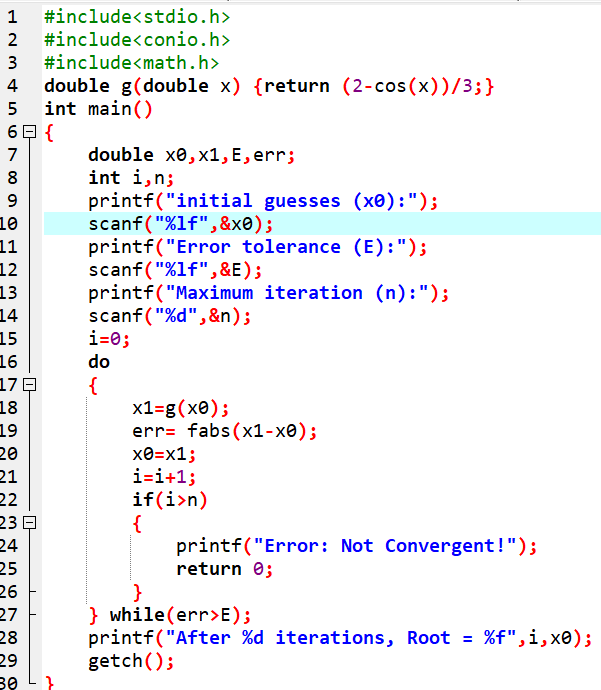
**Output:**

****

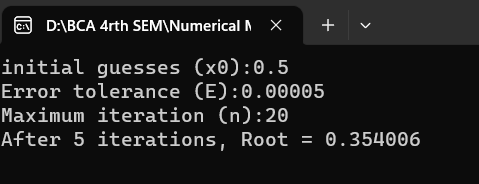
# **Question 5: WAP to implement Fixed Point iteration method for solving non-linear equation.**

**Objective:** To implement Fixed Point iteration method for solving non-linear equation.

**Program:**

****

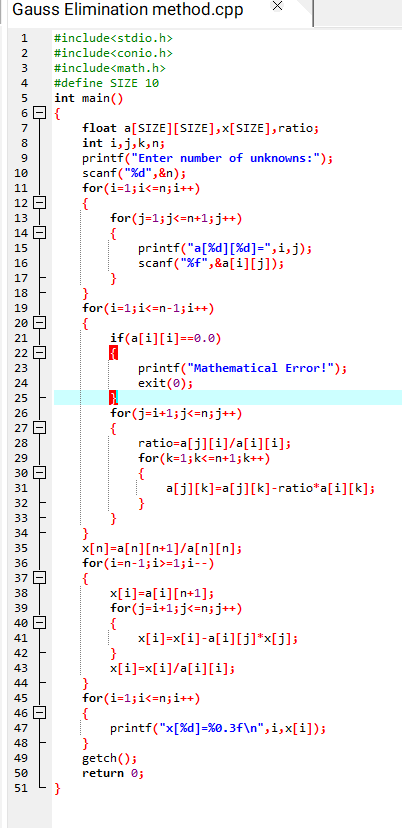
**Output:**

****

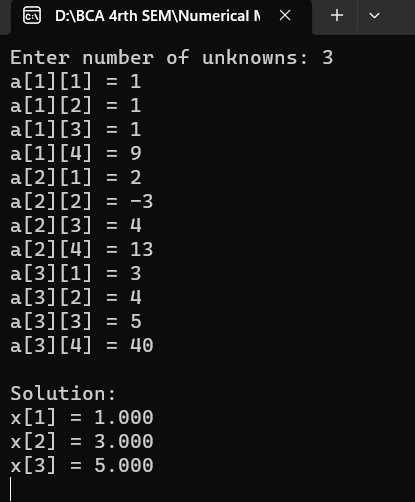
# **Question 6: WAP to find the solution using gauss elimination method for system of linear equations.**

**Objective:** To find the solution using Gauss Elimination Method for systems of linear equations.

**Program:**

****

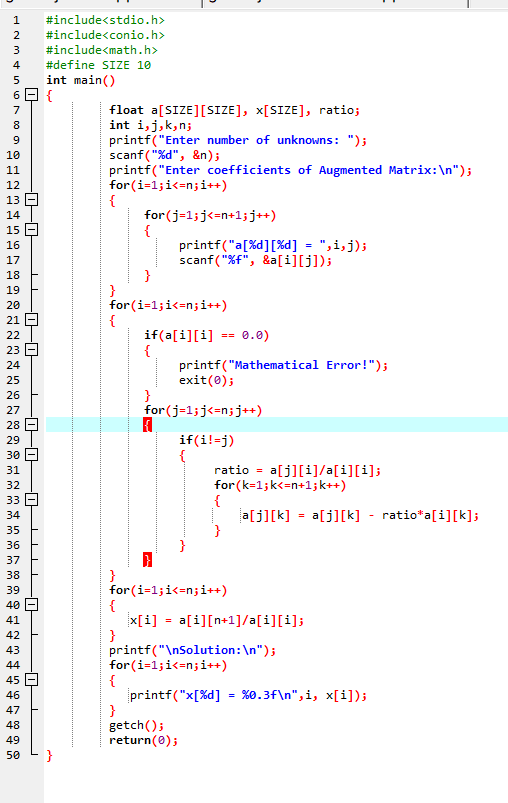
**Output:**

****

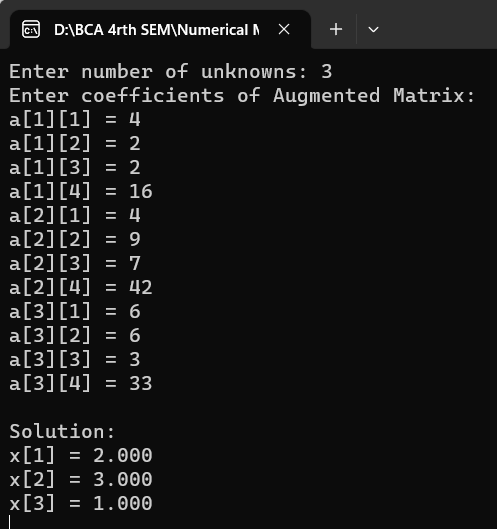
# **Question 7: WAP to find the solution using Gauss Jordan Method for system of linear equations.**

**Objective:** find the solution using Gauss Jordan Method for system of linear equations.

**Program:**

****

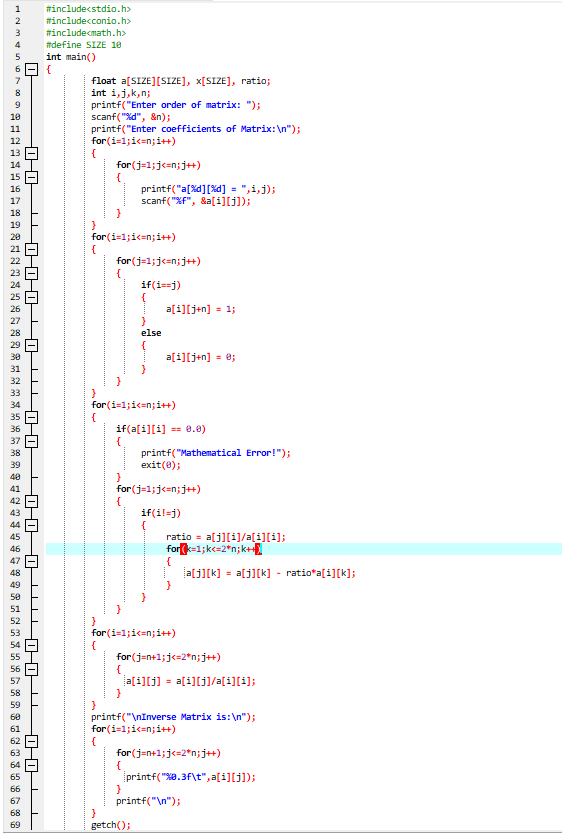
**Output:**

****

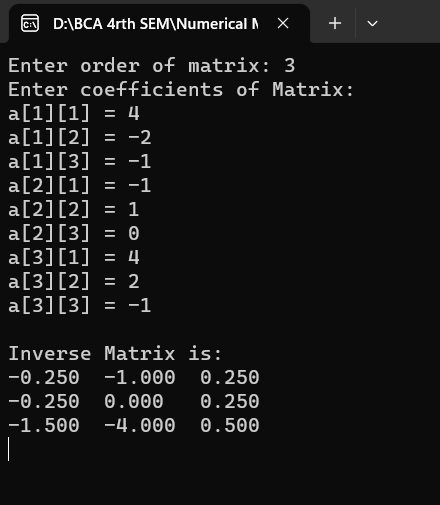
# **Question 8: WAP to find matrix inverse using gauss Jordan method for solving system of linear system.**

**Objective:** To find matrix inverse using gauss Jordan method for solving system of linear system.

**Program:**

****

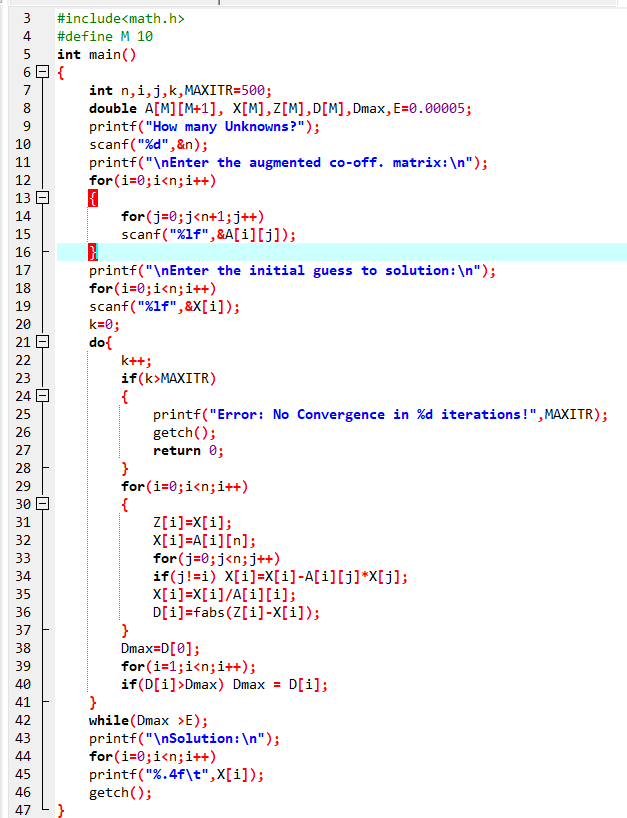
**Output:**

****

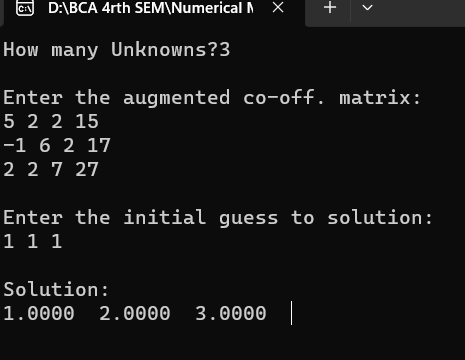
# **Question 9: WAP to implement Gauss-Saidel method for solving of non-linear equations.**

**Objective:** To implement Gauss-Saidel method for solving of non-linear equations.

**Program**

****

**Output**

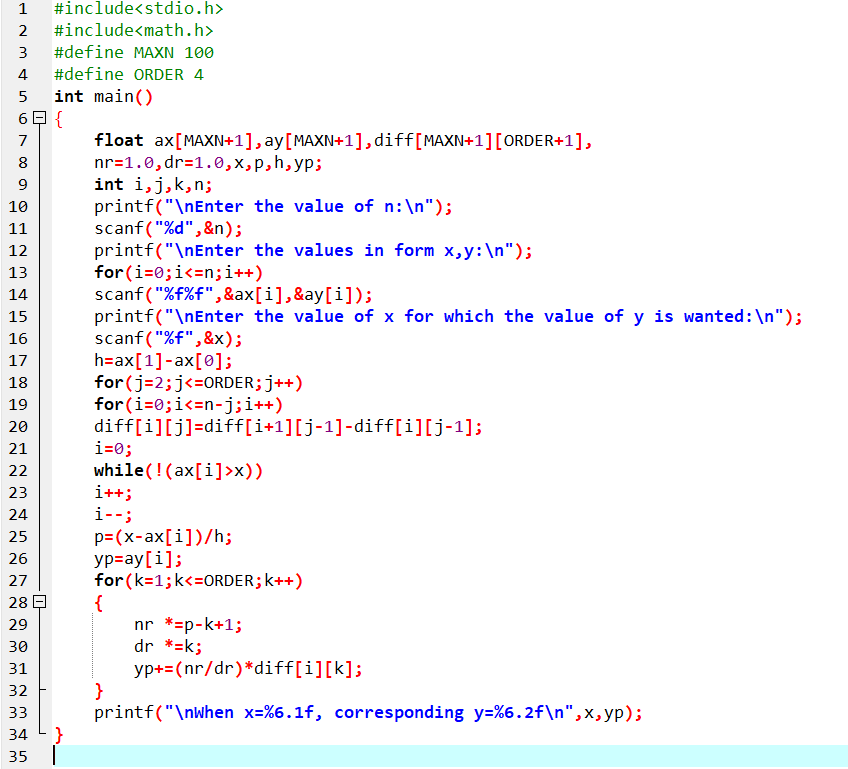
****

# 

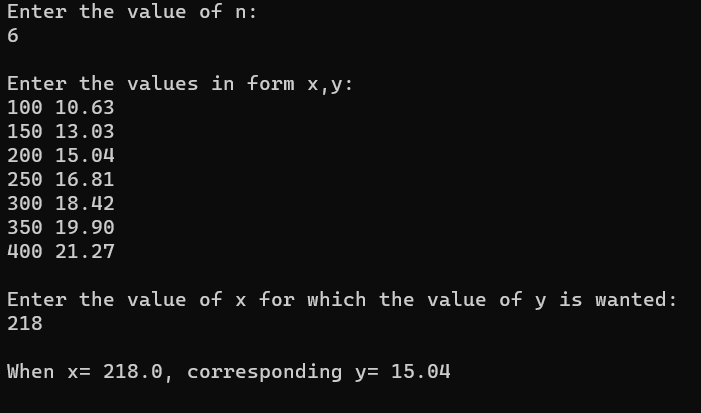
# **Question 10: WAP to implement Newton’s forward interpolation**

**Objective:** To implement Newton’s forward interpolation

**Program**

****

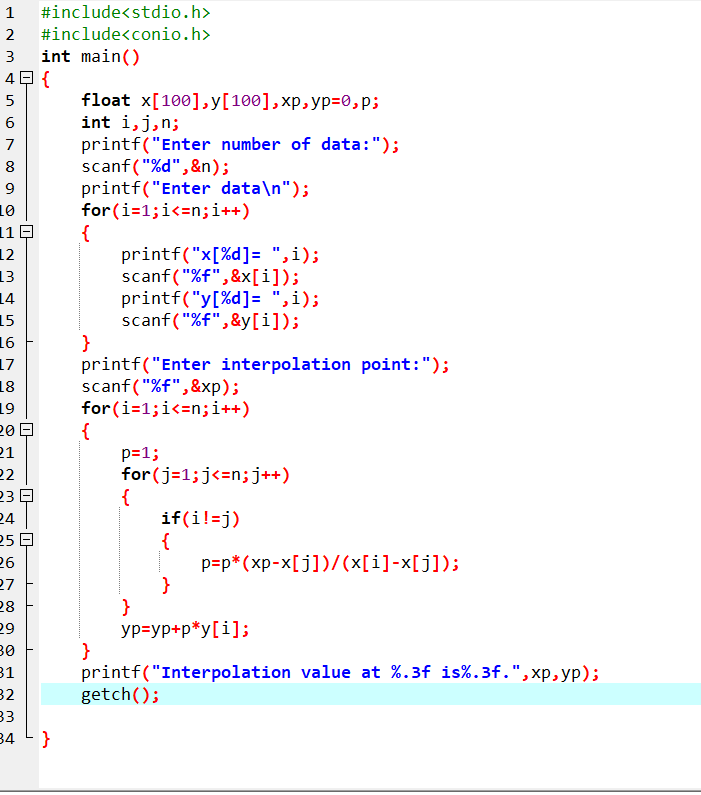
**Output**

****

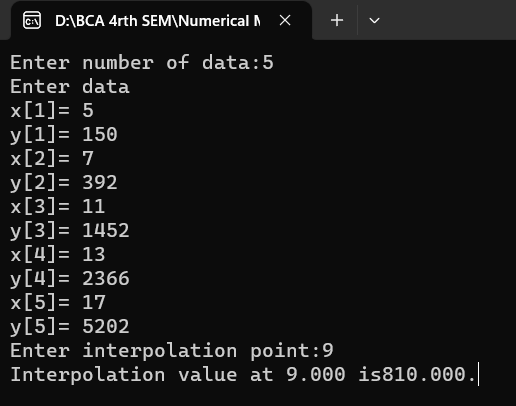
# **Question 11: WAP to implement Lagrange Interpolation**

**Objective:** To implement Lagrange Interpolation

**Program**

****

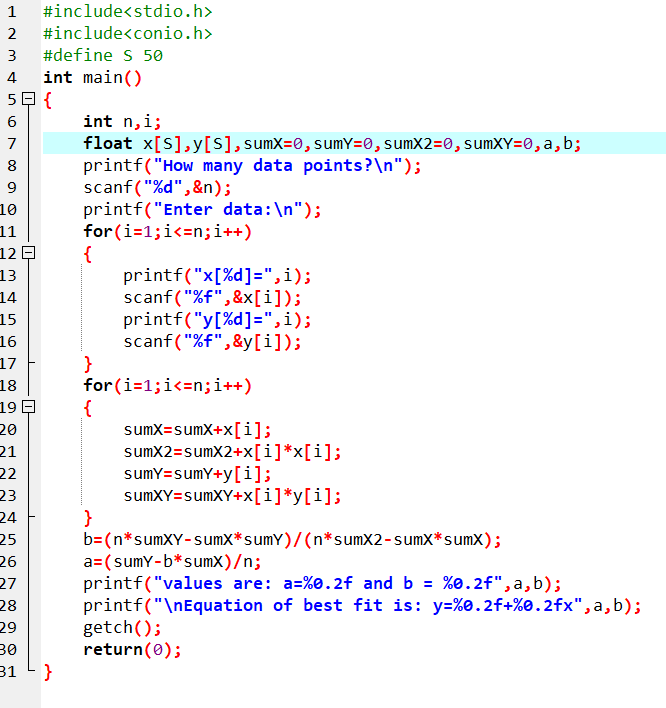
**Output**

****

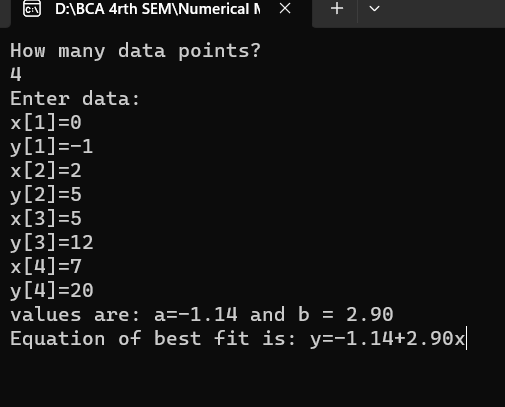
# **Question 12: WAP to implement regression model**

**Objective:** To implement regression model

**Program**

****

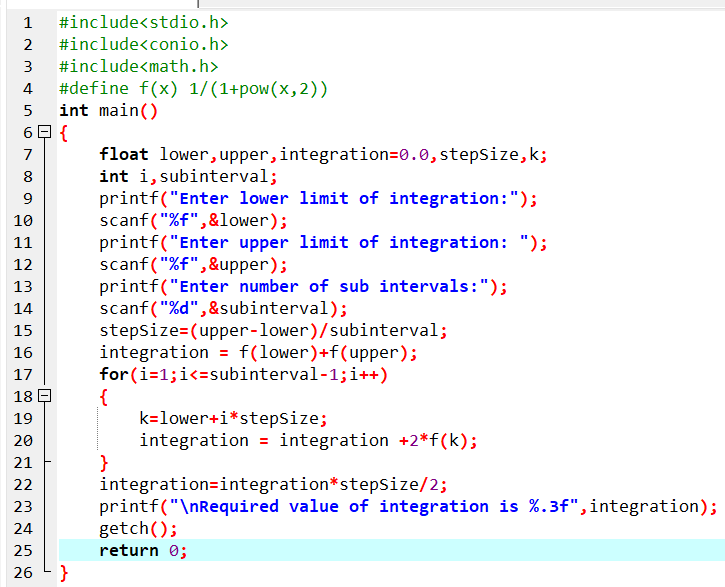
**Output**

****

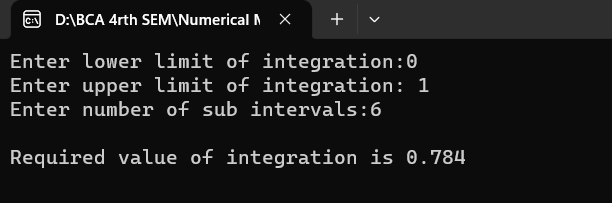
# **Question 13: WAP to find integration of a function using trapezoidal rule**

**Objective:** To find integration of a function using trapezoidal rule

**Program**

****

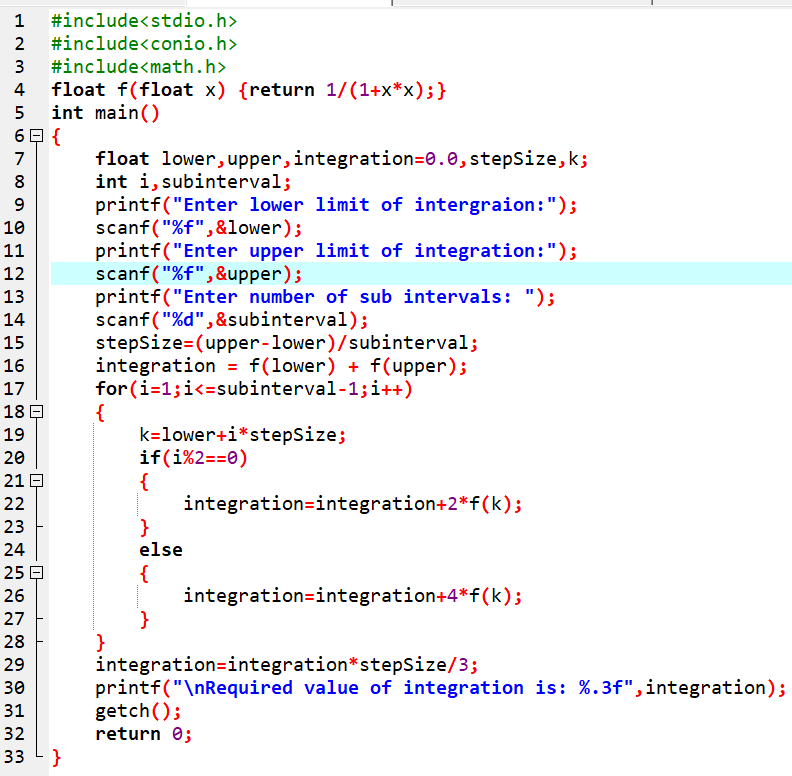
**Output**

****

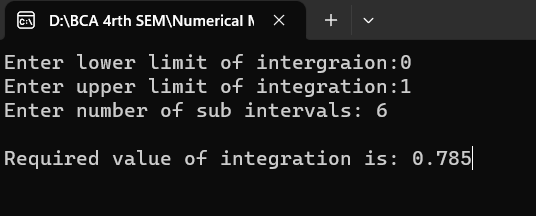
# **Question 14: WAP to find the integration of a function using Simpson 1/3 rule.**

**Objective:** To find the integration of a function using Simpson 1/3 rule.

**Program**

****

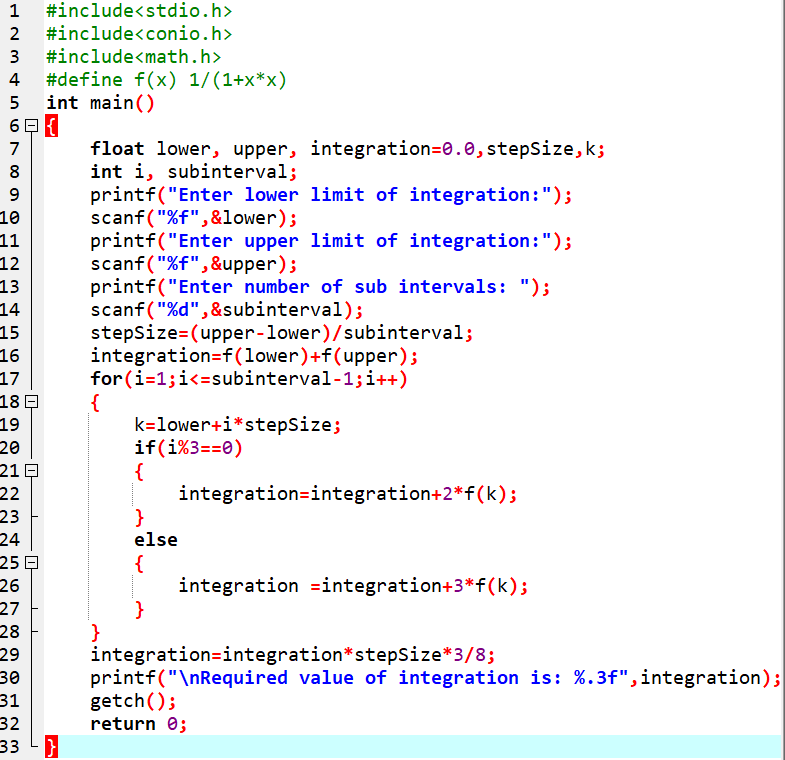
**Output**

****

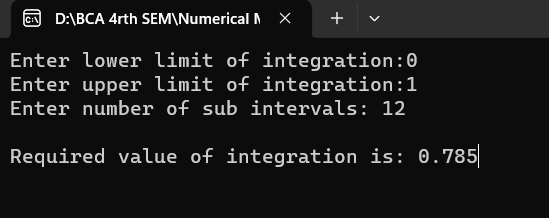
# **Question 15: WAP to find integration of a function using Simpson 3/8 rule.**

**Objective:** To find integration of a function using Simpson 3/8 rule.

**Program**

****

**Output**

****