```
#include <bits/stdc++.h>
using namespace std;

class Matrix
{
public:
   void transpose(int matrix[3][3])
   {

      cout << "The Transpose matrix is: \n";
      for (int i = 1; i < 3; i++)
      {
         for (int j = 0; j < i; j++)
         {
            swap(matrix[i][j], matrix[j][i]);
         }
      }

      for (int i = 0; i < 3; i++)
      {
         for (int j = 0; j < 3; j++)
         {
            cout << matrix[i][j] << " ";
         }
         cout << endl;
      }
      system("pause");
   }

   void sum(int matrix1[3][3], int matrix2[3][3])
   {
      int matrix3[3][3];
      cout << "The addition of the two matrixes : \n";
      for (int i = 0; i < 3; i++)
      {
         for (int j = 0; j < 3; j++)
         {
            matrix3[i][j] = matrix1[i][j] + matrix2[i][j];
         }
      }
      for (int i = 0; i < 3; i++)
      {
         for (int j = 0; j < 3; j++)
         {
            cout << matrix3[i][j] << " ";
         }
         cout << endl;
      }
      system("pause");
   }

   void product(int matrix1[3][3], int matrix2[3][3])
   {
      int matrix3[3][3];
      int sum = 0;
```

```
        cout << "The multiplication of the two matrices: \n";

        for (int i = 0; i < 3; i++)
        {
            for (int j = 0; j < 3; j++)
            {
                sum = 0;
                for (int k = 0; k < 3; k++)
                {
                    sum += matrix1[i][k] * matrix2[k][j];
                }
                matrix3[i][j] = sum;
            }
        }

        for (int i = 0; i < 3; i++)
        {
            for (int j = 0; j < 3; j++)
            {
                cout << matrix3[i][j] << " ";
            }
            cout << endl;
        }
        system("pause");
    }
};

int main()
{
    Matrix obj;

    int matrix1[3][3], matrix2[3][3];

    cout << "Enter the matrix1 elements:" << endl;
    for (int i = 0; i < 3; i++)
    {
        for (int j = 0; j < 3; j++)
        {
            cin >> matrix1[i][j];
        }
    }
    cout << "Enter the matrix2 elements" << endl;
    for (int i = 0; i < 3; i++)
    {
        for (int j = 0; j < 3; j++)
        {
            cin >> matrix2[i][j];
        }
    }

    unsigned choice;

    while (1)
    {
        system("cls");
```

```
    cout << "Enter 1 to get the Sum of matrix1 and matrix2. \n";
    cout << "Enter 2 to get the Product of matrix1 and matrix2.  \n";
    cout << "Enter 3 to get the Transpose of matrix1 and matrix2.  \n";
    cout << "Enter any other value to exit. \n";
    cin >> choice;

    switch (choice)
    {
    case 1:
       obj.sum(matrix1, matrix2);
       break;

    case 2:
       obj.product(matrix1, matrix2);
       break;

    case 3:
       unsigned int key;
       cout << "Press 1 for matrix1 and 2 for matrix2 : ";
       cin >> key;

       if (key == 1)
          obj.transpose(matrix1);
       else if (key == 2)
          obj.transpose(matrix2);

       break;

    default:
       return 0;
    }
  }

  return 0;
}
```