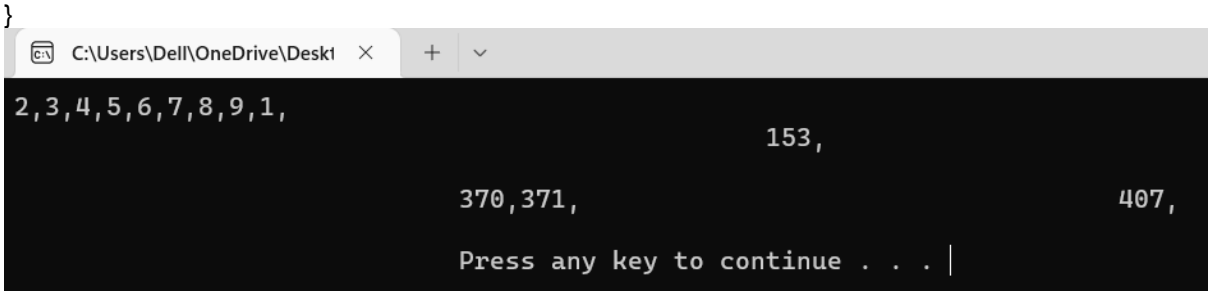
Task 1:

```
#include<iostream>
using namespace std;
int main()
{
   int num = 600;
   for (int i = 2; i < 10; i++)
      cout << i;

   for (int i = 1; i <= num; ++i)
   {
      int  j, sum1 = 0, sum2 = 0, sum = 0;
      j = i;

      while (j >= 10)

      {
         sum = j % 10;
         sum = sum * sum * sum;
         sum1 = sum1 + sum;
         j = j / 10;
      }
      sum1 = sum1 + (j * j * j);
      if (sum1 == i)
         cout << i;

      else
         cout << " ";

   }
   system("pause");

}
```



Task 2:

```
#include<iostream>
using namespace std;
int main()
{
   long long int b[100], a[100] = { 1,407,153, 370, 371, 407, 1634, 8208, 9474,
5474,75275,75275,752,772,8767,6796797,85876,76786,76786578,786786,786,76,76,7687,7845,2452,54
354,68,6545,524,5637,4534,786,543,12354,56354,453452,4545,54354,543453,54354,543,535335,3653,6
,12134,3,23,563,1,356,3,563,56,356,356,3,56 };
   for (int i = 1; i <= 100; ++i )
   {
      int  j, sum1 = 0, sum2 = 0, sum = 0;
      a[j]=a[i];
      if (a[j] < 1000)
      {
         while (a[j] >= 10)

         {
```

```
            sum = a[j] % 10;
            sum = sum * sum * sum;
            sum1 = sum1 + sum;
            a[j] = a[j] / 10;
        }
    }
    if (a[j] > 1000)
    {
        while (a[j] >= 1000)

        {
            sum = a[j] % 100;
            sum = sum * sum * sum * sum;
            sum1 = sum1 + sum;
            a[j] = a[j] / 100;
        }
    }
    sum1 = sum1 + (a[j]* a[j] * a[j]);
    if (sum1 == a[i])
        cout << a[i];

    else
        cout << " ";

  }
  system("pause");

}
```

Task 3:

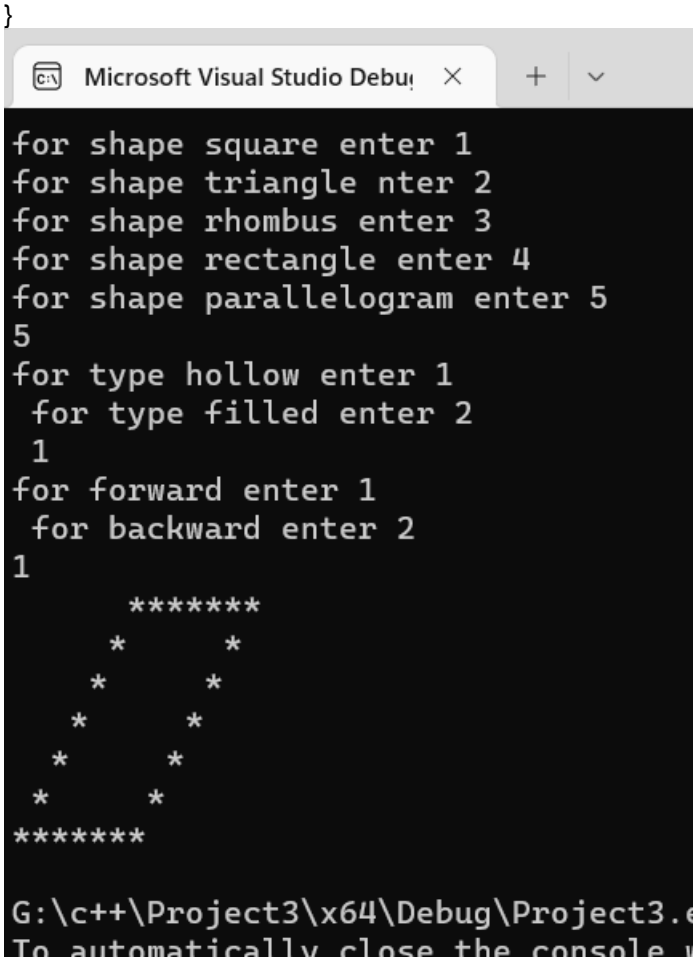
```
#include<iostream>
using namespace std;
int main()
{
        int sh, ty, fb;
        cout << "for shape square enter 1   \nfor shape triangle nter 2     \nfor shape rhombus enter 3
\nfor shape rectangle enter 4     \nfor shape parallelogram enter 5    \n";
        cin >> sh;
        cout << "for type hollow enter 1     \n for type filled enter 2     \n ";
        cin >> ty;
        cout << "for forward enter 1    \n for backward enter 2   \n";
        cin >> fb;
        if (sh == 1 && ty == 2)
        {
                for (int i = 1; i <= 3; i++)
                {
                        for (int j = 1; j <= 5; j++)
                        {
                                cout << "*";
                        }
                        cout << endl;
                }
        }
        else if (sh == 1 && ty == 1)
        {
                for (int i = 1; i <= 3; i++)
                {
                        for (int j = 1; j <= 5; j++)
                        {
                                if (i == 1 || i == 3 || j == 1 || j == 5)
```

```
                                        cout << "*";
                                else
                                        cout << " ";
                        }
                        cout << endl;
                }

        }
        else if (sh == 4 && ty == 2)
        {
                for (int i = 1; i <= 3; i++)
                {
                        for (int j = 1; j <= 9; j++)
                        {
                                cout << "*";
                        }
                        cout << endl;
                }
        }
        else if (sh == 4 && ty == 1)
        {
                for (int i = 1; i <= 3; i++)
                {
                        for (int j = 1; j <= 9; j++)
                        {
                                if (i == 1 || i == 3 || j == 1 || j == 9)
                                        cout << "*";
                                else
                                        cout << " ";
                        }
                        cout << endl;
                }
        }
        else if (sh == 2 && ty == 2)
        {
                for (int i = 1, j = 0; i <= 5; ++i, j = 0)
                {
                        for (int s = 1; s <= 5 - i; ++s)
                        {
                                cout << "  ";
                        }

                        while (j != 2 * i - 1)
                        {
                                cout << "* ";
                                ++j;
                        }
                        cout << endl;
                }
        }
        else if (sh == 2 && ty == 1)
        {
                for (int i = 1; i <= 5; i++)
                {
                        for (int j = 1; j <= (5 - i); j++)
                        {
                                cout << " ";
                        }
                        for (int k = 1; k <= i * 2 - 1; k++)
                        {
                                if (k == 1 || k == i * 2 - 1)
                                {
                                        cout << "*";
```

```
                        }
                        else if (i == 5)
                        {
                                cout << "*";
                        }
                        else
                        {
                                cout << " ";
                        }
                }
                cout << endl;
        }
}
else if (sh == 3 && ty == 2 && fb == 1)
{
        for (int i = 1; i <= 3; i++)
        {
                for (int j = 1; j <= 3; j++)
                {
                        if (i == 1 && j == 1)
                        {
                                cout << "  ";
                        }
                        if (i == 2 && j == 1)
                        {
                                cout << " ";
                        }
                        cout << "* ";
                }
                cout << endl;
        }
}
else if (sh == 3 && ty == 2 && fb == 2)
{

}
else if (sh == 3 && ty == 1 && fb == 1)
{
        for (int i = 1; i <= 3; i++)
        {

                for (int j = 1; j <= 3 - i; j++)
                {
                        cout << " ";
                }
                for (int j = 1; j <= 3; j++)
                {
                        if (i == 1 || i == 3 || j == 1 || j == 3)
                                cout << "*";
                        else
                                cout << " ";
                }
                cout << endl;
        }


}
else if (sh == 3 && ty == 1 && fb == 2)
{

}
else if (sh == 5 && ty == 2 && fb == 1)
{
```

```
		for (int i = 1; i <= 5; i++)
		{
			for (int j = 1; j < i; j++)
			{
				cout << " ";
			}
			for (int j = 1; j <= 8; j++)
			{
				if (i == 1 || i == 5 || j == 1 || j == 8)
				{
					cout << "*";
				}
				else {
					cout << " ";
				}
			}

			cout << endl;
		}
}

else if (sh == 5 && ty == 1 && fb == 1)
{
		for (int i = 1; i <= 7; i++)
		{
			for (int j = 1; j <= 7 - i; j++)
			{
				cout << " ";
			}
			for (int j = 1; j <= 7; j++)
			{
				if (i == 1 || i == 7 || j == 1 || j == 7)
					cout << "*";
				else
					cout << " ";
			}
			cout << endl;
		}
}
else if (sh == 5 && ty == 2 && fb == 2)
{
		for (int i = 1; i <= 5; i++)
		{
			for (int j = 1; j <= 5 - i; j++)
			{
				cout << " ";
			}
			for (int j = 1; j <= 9; j++)
			{
				if (i == 1 || i == 5 || j == 1 || j == 9)
				{
					cout << "*";
				}
				else
				{
					cout << " ";
				}
			}
			cout << endl;
		}
}
else if (sh == 5 && ty == 1 && fb == 2)
{
```

```
                for (int i = 1; i <= 5; i++)
                {
                        for (int j = 1; j < i; j++)
                        {
                                cout << " ";
                        }
                        for (int j = 1; j <= 12; j++)
                        {
                                if (i == 1 || i == 5 || j == 1 || j == 12)
                                {
                                        cout << "*";
                                }
                                else {
                                        cout << " ";
                                }
                        }

                        cout << endl;
                }
        }
}
```



Task 4:

```
#include<iostream>
using namespace std;
int main()
{
        int sh, ty, fb,t=0;
        char a[20][20];
        cout << "enter 2 for exit";
```

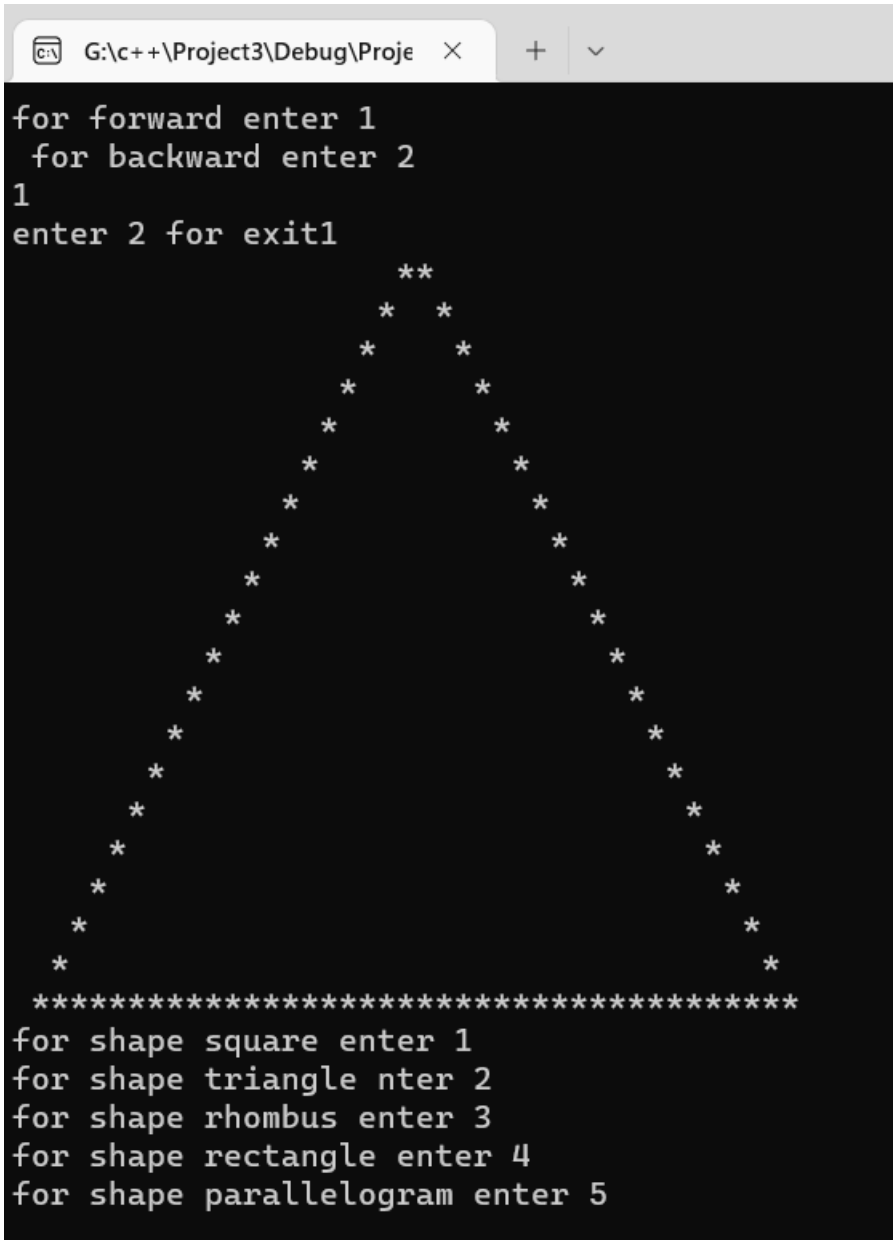
```
	cin >> t;
	while (t != 2)
	{
		cout << "for shape square enter 1   \nfor shape triangle nter 2     \nfor shape rhombus
enter 3    \nfor shape rectangle enter 4     \nfor shape parallelogram enter 5    \n";
		cin >> sh;
		cout << "for type hollow enter 1     \n for type filled enter 2     \n ";
		cin >> ty;
		cout << "for forward enter 1    \n for backward enter 2   \n";
		cin >> fb;
		cout << "enter 2 for exit";
		cin >> t;
		if (sh == 1 && ty == 2)
		{
			for (int i = 0; i < 20; i++)
			{
				for (int j = 0; j < 20; j++)
				{
					a[i][j] = '*';
					cout << a[i][j];
				}
				cout << endl;
			}
		}
		else if (sh == 1 && ty == 1)
		{
			for (int i=1;i<=20; i++)
			{
				for (int j =1; j <=20; j++)
				{
					if (i == 1 || i == 20 || j == 1 || j==20 )
					{
						a[i][j] = '*';
						cout << a[i][j];

					}
					else
					{
						a[i][j] = ' ';
						cout << a[i][j];
					}
				}
				cout << endl;
			}

		}
		else if (sh == 4 && ty == 2)
		{
			for (int i=0;i<20; i++)
			{
				for (int j=0;j<60; j++)
				{
					a[i][j] = '*';
					cout << a[i][j];
				}
				cout << endl;
			}
		}
		else if (sh == 4 && ty == 1)
		{
			for (int i=1;i<=20; i++)
			{
				for (int j=1;j<=60; j++)
```

```
                {
                        if (i == 1 || i == 20 || j == 1 || j == 60)
                        {
                                a[i][j] = '*';
                                cout << a[i][j];
                        }

                        else
                        {
                                a[i][j] = ' ';
                                cout << a[i][j];
                        }

                }
                cout << endl;
        }
}
else if (sh == 2 && ty == 2)
{
        for (int i = 1, j = 0; i <= 20; ++i, j = 0)
        {
                for (int s = 1; s <= 20 - i; ++s)
                {
                        a[i][s] = ' ';
                        cout << a[i][s];
                }

                while (j != 2 * i - 1)
                {
                        a[i][j] = '*';
                        cout << a[i][j];
                        ++j;
                }
                cout << endl;
        }
}
else if (sh == 2 && ty == 1)
{
        for (int i = 1; i <= 20; i++)
        {
                for (int j =0; j <= (20 - i); j++)
                {
                        a[i][j] = ' ';
                        cout << a[i][j];
                }
                for (int k = 0; k <= i * 2 - 1; k++)
                {
                        if (k == 0 || k == i * 2 - 1)
                        {
                                a[i][k] = '*';
                                cout << a[i][k];
                        }
                        else if (i == 20)
                        {
                                a[i][k] = '*';
                                cout << a[i][k];
                        }
                        else
                        {
                                a[i][k] = ' ';
                                cout << a[i][k];
                        }
                }
```

```
                cout << endl;
        }
}
else if (sh == 3 && ty == 2 && fb == 1)
{
        for (int i = 1; i <= 20; i++)
        {
                for (int j = 1; j <= 20 - i; j++)
                {
                        a[i][j] = ' ';
                        cout << a[i][j];
                }
                for (int k = 1; k <= 20; k++)
                {
                        a[i][k] = '*';
                        cout << a[i][k];
                }
                cout << endl;
        }
                cout << endl;

}
else if (sh == 3 && ty == 2 && fb == 2)
{
        for (int i = 1; i <= 20; i++)
        {
                for (int j = 1; j <= i; j++)
                {
                        a[i][j] = ' ';
                        cout << a[i][j];
                }
                for (int k = 1; k <= 20; k++)
                {
                        a[i][k] = '*';
                        cout << a[i][k];
                }
                cout << endl;
        }
}
else if (sh == 3 && ty == 1 && fb == 1)
{
        for (int i = 1; i <= 20; i++)
        {

                for (int j = 1; j <= 20 - i; j++)
                {
                        a[i][j] = ' ';
                        cout << a[i][j];
                }


                for (int j = 1; j <= 20; j++)
                {
                        if (i == 1 || i == 20 || j == 1 || j == 20)
                        {
                                a[i][j] = '*';
                                cout << a[i][j];
                        }
                        else
                        {
                                a[i][j] = ' ';
                                cout << a[i][j];
                        }
```

```
                }
                cout << endl;
        }


}
else if (sh == 3 && ty == 1 && fb == 2)
{
        for (int i = 1; i <= 20; i++)
        {

                for (int j = 1; j <= 20 - i; j++)
                {
                        a[i][j] = ' ';
                        cout << a[i][j];
                }


                for (int j = 1; j <= 20; j++)
                {
                        if (i == 1 || i == 20 || j == 1 || j == 20)
                        {
                                a[i][j] = '*';
                                cout << a[i][j];
                        }
                        else
                        {
                                a[i][j] = ' ';
                                cout << a[i][j];
                        }
                }
                cout << endl;
        }

}
else if (sh == 5 && ty == 2 && fb == 1)
{
        for (int i = 1; i <= 20; i++)
        {
                for (int j = 1; j <= 60 - i; j++)
                {
                        a[i][j] = ' ';
                        cout << a[i][j];
                }
                for (int k = 1; k <= 60; k++)
                {
                        a[i][k] = '*';
                        cout << a[i][k];
                }
                cout << endl;
        }
        cout << endl;
}
else if (sh == 5 && ty == 1 && fb == 1)
{
        for (int i = 1; i <= 20; i++)
        {

                for (int j = 1; j <= 60 - i; j++)
                {
                        a[i][j] = ' ';
                        cout << a[i][j];
                }
```

```
                        for (int j = 1; j <= 60; j++)
                        {
                                if (i == 1 || i == 20 || j == 1 || j == 60)
                                {
                                        a[i][j] = '*';
                                        cout << a[i][j];
                                }
                                else
                                {
                                        a[i][j] = ' ';
                                        cout << a[i][j];
                                }
                        }
                        cout << endl;
                }
        }
        else if (sh == 5 && ty == 2 && fb == 2)
        {
                for (int i = 1; i <= 20; i++)
                {
                        for (int j = 1; j <= 60 - i; j++)
                        {
                                a[i][j] = ' ';
                                cout << a[i][j];
                        }
                        for (int k = 1; k <= 60; k++)
                        {
                                a[i][k] = '*';
                                cout << a[i][k];
                        }
                        cout << endl;
                }
                cout << endl;
        }

    }
}
```

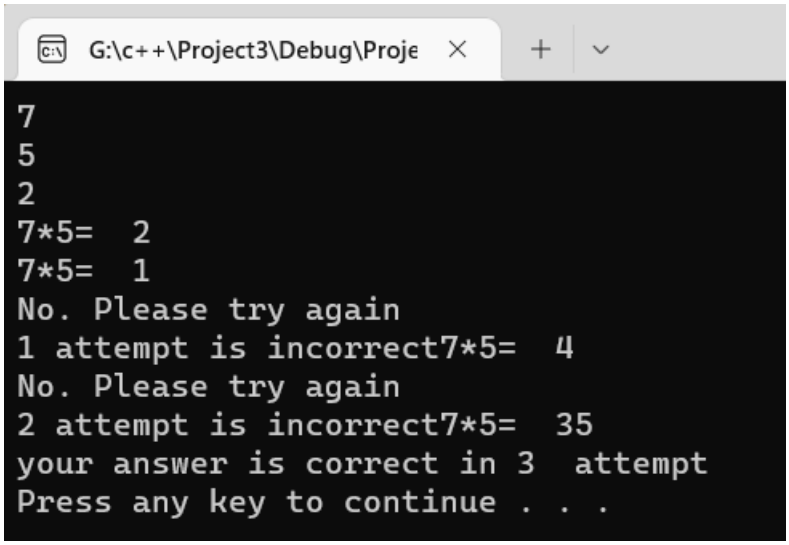


Task 5:

```
#include<iostream>
#include<cstdlib>
#include<ctime>
using namespace std;
int main()
{
	int n1, n2, func, n3;
	float ans;
	srand(time(0));
	n1 = (rand() % 9);
	cout << n1 << endl;
	n2 = (rand() % 9);
	cout << n2 << endl;
	n3 = (rand() % 4);
	cout << n3 << endl;
	switch (n3)
```

```
{
case 0:
{
	cout << n1 << "+" << n2 << "=  ";
	cin >> ans;
	if (ans == (n1 + n2))
	{
		cout << "very good! \n your answer is correct in 1st attempt";
	}
	else
	{
		cout << "no. please try again!  \n you have three attempts";
		for (int i = 1; i <= 3; i++)
		{
			cout << n1 << "+" << n2 << "=  ";
			cin >> ans;
			if (ans != (n1 + n2))
			{
				cout << "No. Please try again";
				cout << i << " attempt is incorrect";
			}
			else
				cout << "your answer is correct in " << i << "  attempt";
		}
		cout << endl;
	}
}
break;
case 1:
{
	cout << n1 << "-" << n2 << "=  ";
	cin >> ans;
	if (ans == (n1 - n2))
	{
		cout << "very good! \n your answer is correct in 1st attempt";
	}
	else
	{

		for (int i = 1; i <= 3; i++)
		{
			cout << n1 << "-" << n2 << "=  ";
			cin >> ans;
			if (ans != (n1 - n2))
			{
				cout << "No. Please try again" << endl;
				cout << i << " attempt is incorrect";
			}
			else
				cout << "your answer is correct in " << i << "  attempt";

		}
		cout << endl;
	}
	break;
}
case 2:
{
	cout << n1 << "*" << n2 << "=  ";
	cin >> ans;
	if (ans == (n1 * n2))
	{
		cout << "very good! \n your answer is correct in 1st attempt";
```

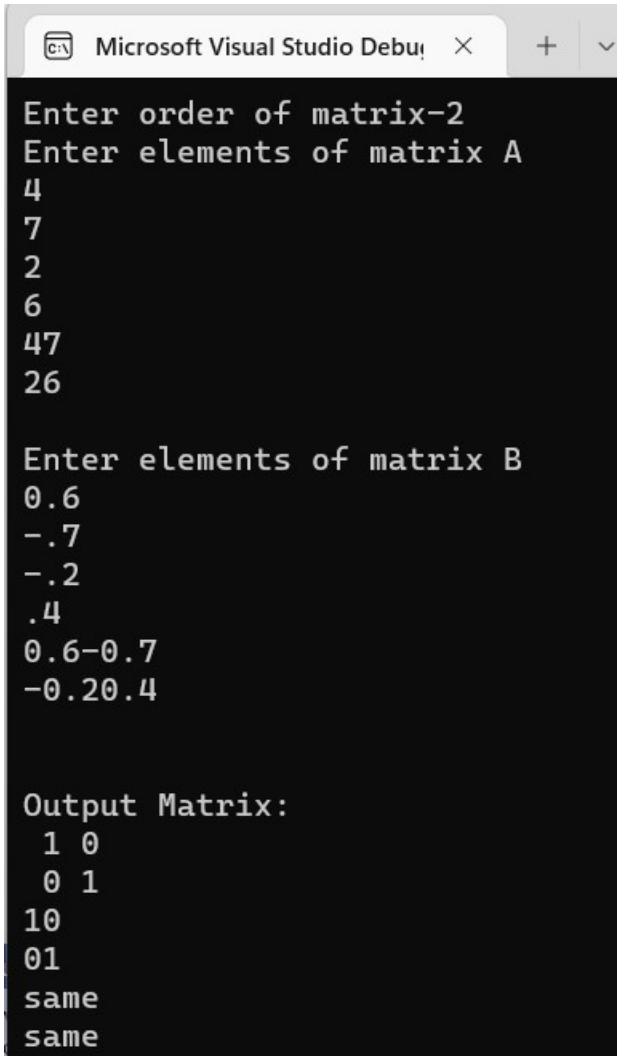
```
		}
		else
		{

			for (int i = 1; i <= 3; i++)
			{
				cout << n1 << "*" << n2 << "=  ";
				cin >> ans;
				if (ans != (n1 * n2))
				{
					cout << "No. Please try again" << endl;
					cout << i << " attempt is incorrect";
				}
				else
					cout << "your answer is correct in " << i << "  attempt";
			}
			cout << endl;
		}
		break;
	}
	case 3:
	{
		cout << n1 << "/" << n2 << "=  ";
		cin >> ans;
		if (ans == (n1 / n2))
		{
			cout << "very good! \n your answer is correct in 1st attempt";
		}
		else
		{

			for (int i = 1; i <= 3; i++)
			{
				cout << n1 << "/" << n2 << "=  ";
				cin >> ans;
				if (ans != (n1 / n2))
				{
					cout << "No. Please try again" << endl;
					cout << i << " attempt is incorrect";
				}
				else
					cout << "your answer is correct in " << i << "  attempt";
			}
			cout << endl;
		}
		break;
	}
	default:
		cout << "answers are  incorrect";
		break;
	}
	system("pause");
}
```



Task 6:

```
#include<iostream>
using namespace std;
int main()
{
	int i, j,n,k;
	float a[100][200], t,temp[100][200],b[100][200];
	cout << "Enter order of matrix-";
	cin >> n;
	cout << "Enter elements of matrix A" << endl;
	for (i = 0; i < n; i++)
		for (j = 0; j < n; j++)
			cin >> a[i][j];
	for (i = 0; i < n; i++)
	{
		for (j = 0; j < n; j++)
		{
			cout << a[i][j];
		}
		cout << endl;
	}
	cout << endl;
	cout << "Enter elements of matrix B" << endl;
	for (i = 0; i < n; i++)
		for (j = 0; j < n; j++)
			cin >> b[i][j];
	for (i = 0; i < n; i++)
	{
		for (j = 0; j < n; j++)
		{
			cout << b[i][j];
		}
		cout << endl;
	}
	cout << endl;


	for (i = 0; i < n; ++i)
		for (j = 0; j < n; ++j)
		{
			temp[i][j] = 0;
		}
	for (i = 0; i < n; ++i)
```

```
                for (j = 0; j < n; ++j)
                        for (k = 0; k < n; ++k)
                        {
                                temp[i][j] += a[i][k] * b[k][j];
                        }
        cout << endl << "multiplied Matrix is: " << endl;
        for (i = 0; i < n; ++i)
                for (j = 0; j < n; ++j)
                {
                        cout << " " << temp[i][j];
                        if (j == n - 1)
                                cout << endl;
                }

        for (i = 0; i < n; i++)
        {

                for (i = 0; i < n; i++)
                {
                        for (j = n; j < 2 * n; j++)
                        {
                                if (i == j - n)
                                        a[i][j] = 1;
                                else
                                        a[i][j] = 0;
                        }
                }
                for (i = 0; i < n; i++)
                {
                        for (j = n; j < 2 * n; j++)
                        {
                                cout << a[i][j];
                        }
                        cout << endl;
                }
                for (j = 0; j < n; j++)
                {
                        if (temp[i][j] == a[i][j])
                                cout << "same\n";
                        else
                                cout << "not\n";
                }
        }
        return 0;
}
```


Microsoft Visual Studio Debu
Enter order of matrix-2
Enter elements of matrix A
4
7
2
6
47
26
Enter elements of matrix B
0.6
-.7
-.2
.4
0.6-0.7
-0.20.4
Output Matrix:
1 0
0 1
10
01
same
same