BCA Optimized Notes by Yash

Semester IV - C# Programs

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Unit 1 Chapter 1

1) Hello World

Code

```
using System;

namespace CSharpPrograms {
    class HelloWorld {
        static void Main(string[] args) {
            Console.WriteLine("Hello world!");
        }
    }
}
```

Output

```
Yash   C#   ✔   program1.exe
Hello world!
```
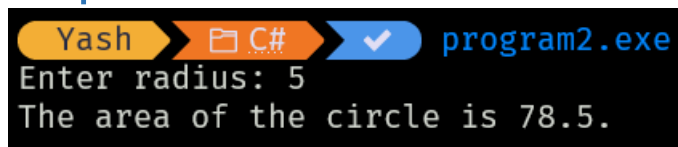
2) Area of Circle with Constant pi

Code

```
using System;

namespace CSharpPrograms {
    class AreaOfCircle {
        static void Main(string[] args) {
            const double pi = 3.14;
            Console.Write("Enter radius: ");
            double r = Convert.ToDouble(Console.ReadLine());
            Console.WriteLine("The area of the circle is {0}.",
(pi * (r * r)));
        }
    }
}
```

Output

```
Yash   C#   ✔   program2.exe
Enter radius: 5
The area of the circle is 78.5.
```

3) Sum of Two Integers

Code

```
using System;

namespace CSharpPrograms {
    class SumOfTwoInt {
        static void Main(string[] args) {
            Console.Write("Enter number 1: ");
            int num1 = Convert.ToInt32(Console.ReadLine());
            Console.Write("Enter number 2: ");
```

```
            int num2 = Convert.ToInt32(Console.ReadLine());
            Console.WriteLine("The sum of the two numbers is
{0}.", (num1 + num2));
        }
    }
}
```

Output

4) Swap Two Numbers
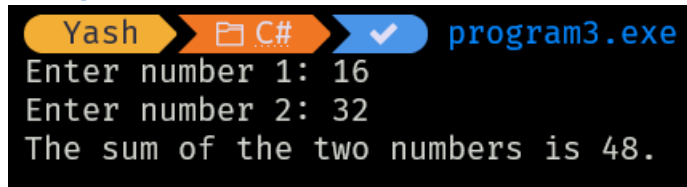
Code

```
using System;

namespace CSharpPrograms {
    class SwapTwoNumbers {
        static void Main(string[] args) {
            Console.Write("Enter number 1: ");
            int num1 = Convert.ToInt32(Console.ReadLine());
            Console.Write("Enter number 2: ");
            int num2 = Convert.ToInt32(Console.ReadLine());
            Console.WriteLine("");
            Console.WriteLine("Before Swapping");
            Console.WriteLine("Number 1 = " + num1);
            Console.WriteLine("Number 2 = " + num2);
            num1 = num1 + num2;
            num2 = num1 - num2;
            num1 = num1 - num2;
            Console.WriteLine("");
            Console.WriteLine("After Swapping");
            Console.WriteLine("Number 1 = " + num1);
            Console.WriteLine("Number 2 = " + num2);
        }
    }
}
```

Output
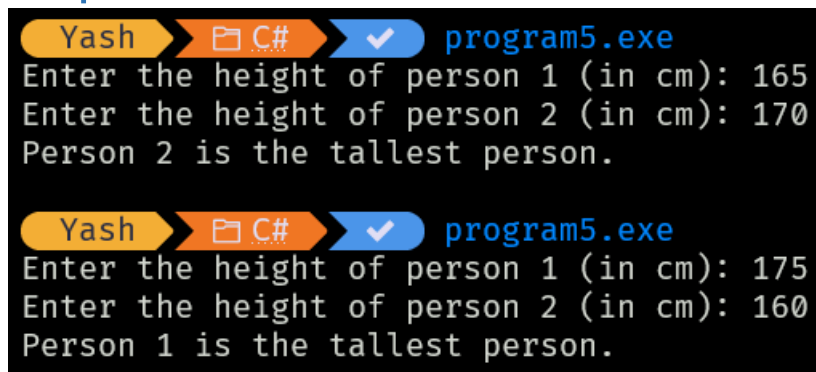
5) Find the Tallest Person between Two

Code

```
using System;

namespace CSharpPrograms {
    class TallestPerson {
        static void Main(string[] args) {
            Console.Write("Enter the height of person 1 (in cm): ");
            double height1 = Convert.ToDouble(Console.ReadLine());
            Console.Write("Enter the height of person 2 (in cm): ");
            double height2 = Convert.ToDouble(Console.ReadLine());
            if (height1 > height2) {
                Console.WriteLine("Person 1 is the tallest person.");
            }
            else {
                Console.WriteLine("Person 2 is the tallest person.");
            }
        }
    }
}
```

Output

6) Maximum between Three Numbers

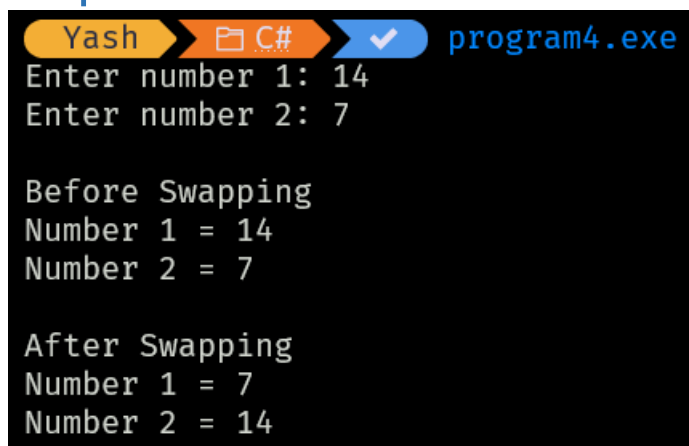### Code

```
using System;

namespace CSharpPrograms {
    class MaxThreeNumbers {
        static void Main(string[] args) {
            Console.Write("Enter number 1: ");
            int num1 = Convert.ToInt32(Console.ReadLine());
            Console.Write("Enter number 2: ");
            int num2 = Convert.ToInt32(Console.ReadLine());
            Console.Write("Enter number 3: ");
            int num3 = Convert.ToInt32(Console.ReadLine());
            if (num1 > num2 && num1 > num3) {
```

```
                Console.WriteLine("Number 1 i.e. {0} is the
maximum.", num1);
            }
            else if (num2 > num1 && num2 > num3) {
                Console.WriteLine("Number 2 i.e. {0} is the
maximum.", num2);
            }
            else {
                Console.WriteLine("Number 3 i.e. {0} is the
maximum.", num3);
            }
        }
    }
}
```

Output

```
 Yash     C#      ✓    program6.exe
Enter number 1: 15
Enter number 2: 16
Enter number 3: 17
Number 3 i.e. 17 is the maximum.

 Yash     C#      ✓    program6.exe
Enter number 1: 15
Enter number 2: 17
Enter number 3: 16
Number 2 i.e. 17 is the maximum.

 Yash     C#      ✓    program6.exe
Enter number 1: 17
Enter number 2: 16
Enter number 3: 15
Number 1 i.e. 17 is the maximum.
```

7) Maximum between Three Numbers (Nested If)

Code

```
using System;

namespace CSharpPrograms {
    class MaxThreeNumbersNested {
        static void Main(string[] args) {
            Console.Write("Enter number 1: ");
            int num1 = Convert.ToInt32(Console.ReadLine());
            Console.Write("Enter number 2: ");
            int num2 = Convert.ToInt32(Console.ReadLine());
            Console.Write("Enter number 3: ");
            int num3 = Convert.ToInt32(Console.ReadLine());
            if (num1 > num2) {
                if (num1 > num3) {
                    Console.WriteLine("Number 1 i.e. {0} is the
maximum.", num1);
```
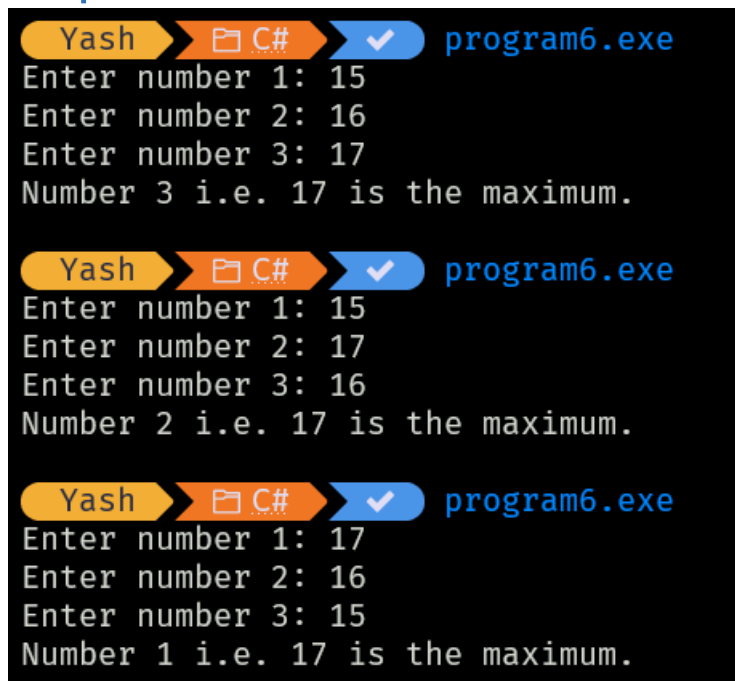
```
                    }
                    else {
                        Console.WriteLine("Number 3 i.e. {0} is the
maximum.", num3);
                    }
                }
                else {
                    if (num2 > num3) {
                        Console.WriteLine("Number 2 i.e. {0} is the
maximum.", num2);
                    }
                    else {
                        Console.WriteLine("Number 3 i.e. {0} is the
maximum.", num3);
                    }
                }
            }
        }
}
```

Output

8) Factorial

Code

```
using System;

namespace CSharpPrograms {
    class Factorial {
        static void Main(string[] args) {
            int fact = 1;
            Console.Write("Enter number: ");
            int num = Convert.ToInt32(Console.ReadLine());
            for (int i = num; i > 0; i--) {
                fact = fact * i;
```
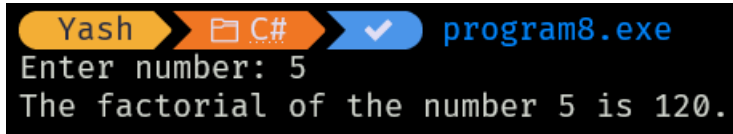
```
                }
                Console.WriteLine("The factorial of the number {0} is
{1}.", num, fact);
            }
        }
}
```

Output

9) Reverse a Number

Code

```
using System;

namespace CSharpPrograms {
    class ReverseNumber {
        static void Main(string[] args) {
            int rem = 0, rev = 0;
            Console.Write("Enter number: ");
            int num = Convert.ToInt32(Console.ReadLine());
            int tempNum = num;
            while (num != 0) {
                rem = num % 10;
                rev = (rev * 10) + rem;
                num = num / 10;
            }
            Console.WriteLine("The reverse of the number {0} is
{1}.", tempNum, rev);
        }
    }
}
```

Output

10) Krishnamurthi Number

Code

```
using System;

namespace CSharpPrograms {
    class Krishnamurthi {
        static void Main(string[] args) {
            int km = 0, rem = 0, fact = 1;
            Console.Write("Enter number: ");
            int num = Convert.ToInt32(Console.ReadLine());
            int tempNum = num;
```

```
                    while (num != 0) {
                         rem = num % 10;
                         for (int i = 1; i <= rem; i++) {
                              fact = fact * i;
                         }
                         km = km + fact;
                         num = num / 10;
                         fact = 1;
                    }
                    if (km == tempNum) {
                         Console.WriteLine("{0} is a Krishnamurthi
number.", tempNum);
                    }
                    else {
                         Console.WriteLine("{0} is not a Krishnamurthi
number.", tempNum);
                    }
               }
          }
     }
}
```

Output

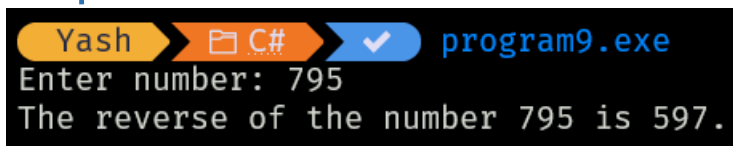## 11) Prime Number

Code

```
using System;

namespace CSharpPrograms {
     class PrimeNumber {
          static void Main(string[] args) {
               int count = 0;
               Console.Write("Enter number: ");
               int num = Convert.ToInt32(Console.ReadLine());
               for (int i = 1; i <= num; i++) {
                    if (num % i == 0) {
                         count++;
                    }
               }
               if (count == 2) {
                    Console.WriteLine("{0} is a prime number.", num);
               }
               else {
                    Console.WriteLine("{0} is not a prime number.",
num);
```
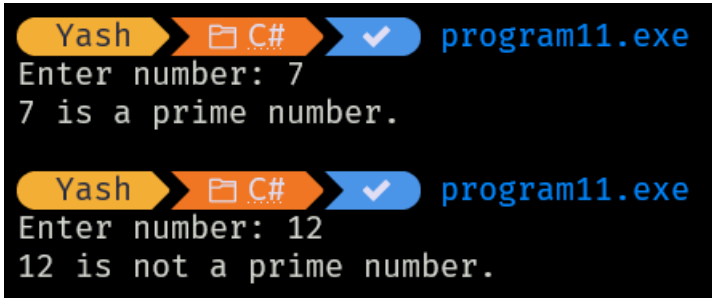
```
                }
            }
        }
    }
}
```

```
Yash    C#    ✔    program11.exe
Enter number: 7
7 is a prime number.
```

```
Yash    C#    ✔    program11.exe
Enter number: 12
12 is not a prime number.
```

12) Area of Rectangle w/ Function

Code

```
using System;

namespace CSharpPrograms {
    class AreaOfRect {
        public int length;
        public int breadth;
        public int calArea(int length, int breadth) {
            return length * breadth;
        }
    }
    class MainProg {
        static void Main(string[] args) {
            AreaOfRect rect = new AreaOfRect();
            rect.length = 5;
            rect.breadth = 10;
            Console.WriteLine("The area of the rectangle is {0}.",
rect.calArea(rect.length, rect.breadth));
        }
    }
}
```

Output


```
Yash    C#    ✔    program12.exe
The area of the rectangle is 50.
```

13) Max b/w Two Numbers w/ Function

Code

```
using System;

namespace CSharpPrograms {
    class MaxTwoNumbers {
        public int num1;
        public int num2;
        public int maxTwo(int num1, int num2) {
```

```
                if (num1 > num2) {
                    return num1;
                }
                else {
                    return num2;
                }
            }
        }
        class MainProg {
            static void Main(string[] args) {
                MaxTwoNumbers max = new MaxTwoNumbers();
                Console.Write("Enter number 1: ");
                max.num1 = Convert.ToInt32(Console.ReadLine());
                Console.Write("Enter number 2: ");
                max.num2 = Convert.ToInt32(Console.ReadLine());
                Console.WriteLine("The maximum between the two numbers
is {0}.", max.maxTwo(max.num1, max.num2));
            }
        }
    }
```
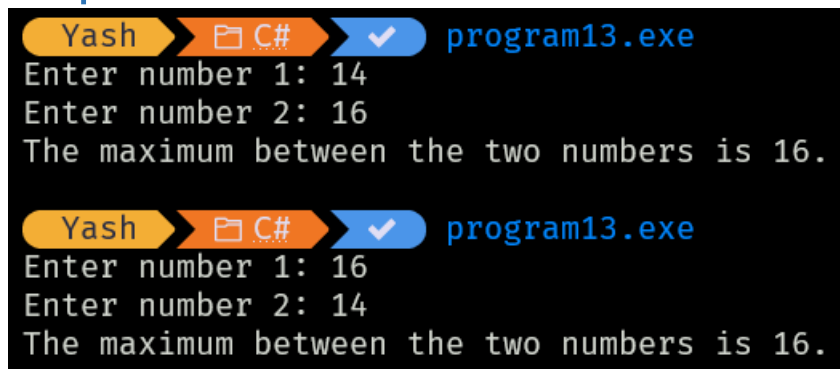
Output


```
Yash   C#   ✔   program13.exe
Enter number 1: 14
Enter number 2: 16
The maximum between the two numbers is 16.
```

```
Yash   C#   ✔   program13.exe
Enter number 1: 16
Enter number 2: 14
The maximum between the two numbers is 16.
```

14) Factorial w/ Function

Code

```
using System;

namespace CSharpPrograms {
    class Factorial {
        public int num;
        public void acceptNum() {
            num = Convert.ToInt32(Console.ReadLine());
        }
        public int calFact() {
            int ans = 1;
            for (int i = 1; i <= num; i++) {
                ans *= i;
            }
            return ans;
        }
    }
    class MainProg {
```
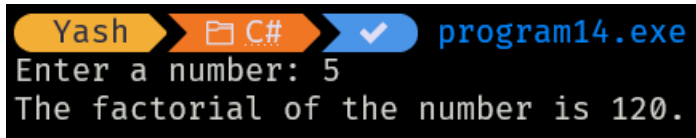
```csharp
        static void Main(string[] args) {
            Factorial fact = new Factorial();
            Console.Write("Enter a number: ");
            fact.acceptNum();
            Console.WriteLine("The factorial of the number is {0}.",
fact.calFact());
        }
    }
}
```

Output

```
Yash    🗀 C#    ✔    program14.exe
Enter a number: 5
The factorial of the number is 120.
```

15) Area of Circle w/ Function

Code
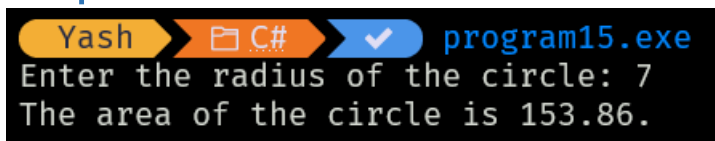
```csharp
using System;

namespace CSharpPrograms {
    public class AreaOfCircle {
        public double area, radius;
        public void calArea(double radius) {
            area = 3.14 * (radius * radius);
        }
        public void display() {
            Console.WriteLine("The area of the circle is {0}.",
area);
        }
    }
    class MainProg {
        static void Main(string[] args) {
            AreaOfCircle circ = new AreaOfCircle();
            Console.Write("Enter the radius of the circle: ");
            circ.radius = Convert.ToDouble(Console.ReadLine());
            circ.calArea(circ.radius);
            circ.display();
        }
    }
}
```

Output

```
Yash    🗀 C#    ✔    program15.exe
Enter the radius of the circle: 7
The area of the circle is 153.86.
```

16) Product Bills

Code

```csharp
using System;
```

```
namespace CSharpPrograms {
    public class Product {
        public int quan, price, bill;
        public void acceptProduct() {
            Console.Write("Enter the number of products: ");
            quan = Convert.ToInt32(Console.ReadLine());
        }
        public int displayBill() {
            price = 10;
            bill = quan * price;
            return bill;
        }
    }
    class MainProg {
        static void Main(string[] args) {
            Product prod = new Product();
            prod.acceptProduct();
            Console.WriteLine("The total bill is {0}.",
prod.displayBill());
        }
    }
}
```

Output


```
Yash      C#      ✔    program16.exe
Enter the number of products: 100
The total bill is 1000.
```

17) Cube w/ Function

Code
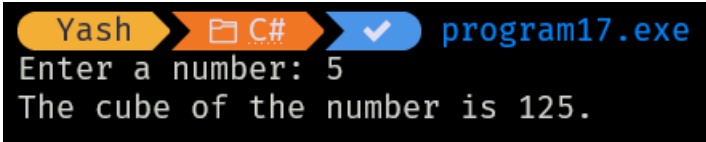
```
using System;

namespace CSharpPrograms {
    public class Cube {
        public int num, ans;
        public void acceptNum() {
            Console.Write("Enter a number: ");
            num = Convert.ToInt32(Console.ReadLine());
        }
        public int displayCube() {
            ans = num * num * num;
            return ans;
        }
    }
    class MainProg {
        static void Main(string[] args) {
            Cube cube = new Cube();
            cube.acceptNum();
            Console.WriteLine("The cube of the number is {0}.",
cube.displayCube());
        }
```

```
        }
}
```

Output

```
 Yash   C#    ✔   program17.exe
Enter a number: 5
The cube of the number is 125.
```

18) Swapping with Reference

Code

```csharp
using System;

namespace CSharpPrograms {
    class SwapProg {
        public void swapNum(ref int num1, ref int num2) {
            int temp;
            temp = num1;
            num1 = num2;
            num2 = temp;
        }
    }
    class MainProg {
        static void Main(string[] args) {
            SwapProg swap = new SwapProg();
            int num1 = 20, num2 = 10;
            Console.WriteLine("num1 = " + num1);
            Console.WriteLine("num2 = " + num2);
            swap.swapNum(ref num1, ref num2);
            Console.WriteLine("num1 = " + num1);
            Console.WriteLine("num2 = " + num2);
        }
    }
}
```

Output

```
 Yash   C#    ✔   program18.exe
num1 = 20
num2 = 10
num1 = 10
num2 = 20
```

19) Area & Perimeter of Rectangle w/ Function
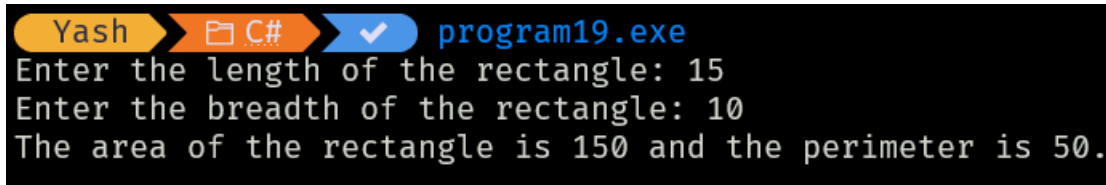
Code

```csharp
using System;

namespace CSharpPrograms {
    class RectProg {
        int area, perimeter;
        public void calRect(int length, int breadth) {
            area = length * breadth;
```

```
                perimeter = 2 * (length + breadth);
                Console.WriteLine("The area of the rectangle is {0}
and the perimeter is {1}.", area, perimeter);
            }
        }
        class MainProg {
            static void Main(string[] args) {
                RectProg rect = new RectProg();
                Console.Write("Enter the length of the rectangle: ");
                int length = Convert.ToInt32(Console.ReadLine());
                Console.Write("Enter the breadth of the rectangle: ");
                int breadth = Convert.ToInt32(Console.ReadLine());
                rect.calRect(length, breadth);
            }
        }
}
```

Output

```
 Yash   ⬝ C#   ✔   program19.exe
Enter the length of the rectangle: 15
Enter the breadth of the rectangle: 10
The area of the rectangle is 150 and the perimeter is 50.
```

20) Positive or Negative in Array

Code

```
using System;

namespace CSharpPrograms {
    class PosOrNegArray {
        static void Main(string[] args) {
            int[] nums = new int[10];
            int num, pos = 0, neg = 0;
            for (int i = 0; i < nums.Length; i++) {
                Console.Write("Enter element {0}: ", i);
                num = Convert.ToInt32(Console.ReadLine());
                nums[i] = num;
            }
            for (int i = 0; i < nums.Length; i++) {
                if (nums[i] > 0) {
                    pos++;
                }
                else {
                    neg++;
                }
            }
            Console.WriteLine("The number of positive elements is
{0}.", pos);
            Console.WriteLine("The number of negative elements is
{0}.", neg);
        }
```

```
        }
}
```

Output

```
 Yash      C#      ✓    program20.exe
Enter element 0: 15
Enter element 1: -5
Enter element 2: 12
Enter element 3: 3
Enter element 4: 20
Enter element 5: -2
Enter element 6: -16
Enter element 7: -4
Enter element 8: 56
Enter element 9: 45
The number of positive elements is 6.
The number of negative elements is 4.
```

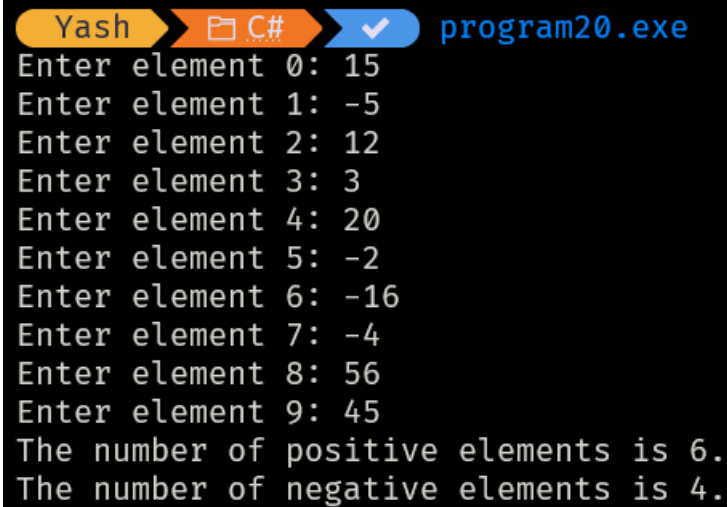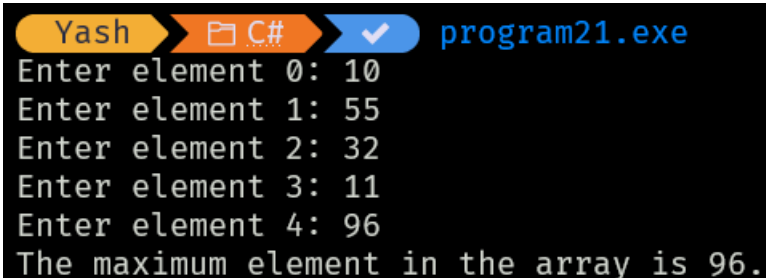## 21) Max in Array

Code

```csharp
using System;

namespace CSharpPrograms {
    class MaxArray {
        static void Main(string[] args) {
            int[] nums = new int[5];
            int num, max = nums[0];
            for (int i = 0; i < nums.Length; i++) {
                Console.Write("Enter element {0}: ", i);
                num = Convert.ToInt32(Console.ReadLine());
                nums[i] = num;
            }
            for (int i = 0; i < nums.Length; i++) {
                if (max < nums[i]) {
                    max = nums[i];
                }
            }
            Console.WriteLine("The maximum element in the array is
{0}.", max);
        }
    }
}
```

Output

```
 Yash      C#      ✓    program21.exe
Enter element 0: 10
Enter element 1: 55
Enter element 2: 32
Enter element 3: 11
Enter element 4: 96
The maximum element in the array is 96.
```

22) Print Identity Matrix

Code

```csharp
using System;

namespace CSharpPrograms {
    class IdentityMatrix {
        static void Main(string[] args) {
            int[,] matrix = new int[3, 3];
            int rows = 3, cols = 3;
            for (int i = 0; i < rows; i++) {
                for (int j = 0; j < cols; j++) {
                    if (i == j) {
                        matrix[i, j] = 1;
                    }
                    else {
                        matrix[i, j] = 0;
                    }
                }
            }
            for (int i = 0; i < rows; i++) {
                for (int j = 0; j < cols; j++) {
                    Console.Write(" " + matrix[i, j]);
                }
                Console.WriteLine();
            }
        }
    }
}
```

Output


```
Yash      C#      ✔    program22.exe
1 0 0
0 1 0
0 0 1
```

23) Cube a Matrix

Code

```csharp
using System;

namespace CSharpPrograms {
    class CubeMatrix {
        static void Main(string[] args) {
            int[,] matrix = new int[2, 2];
            int[,] cubed = new int[2, 2];
            int input, rows = 2, cols = 2;
            for (int i = 0; i < rows; i++) {
                for (int j = 0; j < cols; j++) {
                    Console.Write("Enter element [{0}][{1}]: ", i, j);
                    input = Convert.ToInt32(Console.ReadLine());
```

```
                    matrix[i, j] = input;
                    cubed[i, j] = matrix[i, j] * matrix[i, j] *
matrix[i, j];
                }
            }
            for (int i = 0; i < rows; i++) {
                for (int j = 0; j < cols; j++) {
                    Console.Write(" " + cubed[i, j]);
                }
                Console.WriteLine();
            }
        }
    }
}
```

Output

```
Yash      C#      ✔    program23.exe
Enter element [0][0]: 1
Enter element [0][1]: 2
Enter element [1][0]: 3
Enter element [1][1]: 4
 1 8
 27 64
```

24) Positive or Negative Switch
Code
```
using System;

namespace CSharpPrograms {
    class PosOrNegSwitch {
        static void Main(string[] args) {
            bool positive, negative;
            Console.WriteLine("Is the positive switch on?");
            positive = Convert.ToBoolean(Console.ReadLine());
            Console.WriteLine("Is the negative switch on?");
            negative = Convert.ToBoolean(Console.ReadLine());
            if (positive) {
                if (negative) {
                    Console.WriteLine("The light is ON.");
                }
                else {
                    Console.WriteLine("The light is OFF.");
                }
            }
            else {
                if (negative) {
                    Console.WriteLine("The light is OFF.");
                }
                else {
                    Console.WriteLine("Please plug in.");
```

```
                }
              }
            }
          }
}
```

Output

25) Add Two Matrices

Code

```csharp
using System;

namespace CSharpPrograms {
    class AddMatrix {
        static void Main(string[] args) {
            int[,] matrix1 = new int[2, 2];
            int[,] matrix2 = new int[2, 2];
            int[,] result = new int[2, 2];
            Console.WriteLine("Matrix 1");
            for (int i = 0; i < 2; i++) {
                for (int j = 0; j < 2; j++) {
                    Console.Write("Enter element [{0}][{1}]: ",
i, j);
```
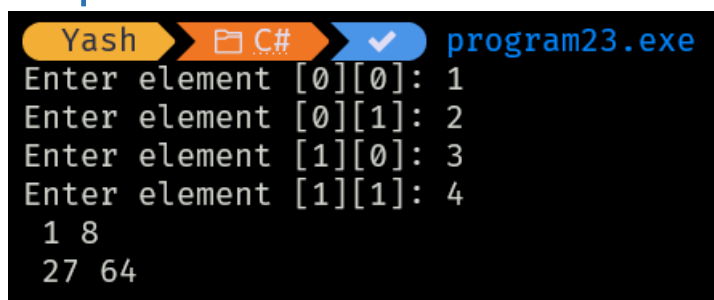
```
                                    matrix1[i, j] =
Convert.ToInt32(Console.ReadLine());
                        }
                }
                Console.WriteLine("Matrix 2");
                for (int i = 0; i < 2; i++) {
                        for (int j = 0; j < 2; j++) {
                                Console.Write("Enter element [{0}][{1}]: ",
i, j);
                                matrix2[i, j] =
Convert.ToInt32(Console.ReadLine());
                        }
                }
                for (int i = 0; i < 2; i++) {
                        for (int j = 0; j < 2; j++) {
                                result[i, j] = matrix1[i, j] + matrix2[i,
j];
                        }
                }
                Console.WriteLine("The addition of the matrices is:");
                for (int i = 0; i < 2; i++) {
                        for (int j = 0; j < 2; j++) {
                                Console.Write(" " + result[i, j]);
                        }
                        Console.WriteLine();
                }
            }
        }
}
```

Output

```
 Yash    C#     ✔    program25.exe
Matrix 1
Enter element [0][0]: 12
Enter element [0][1]: 15
Enter element [1][0]: 2
Enter element [1][1]: 6
Matrix 2
Enter element [0][0]: 7
Enter element [0][1]: 10
Enter element [1][0]: 5
Enter element [1][1]: 16
The addition of the matrices is:
 19 25
 7 22
```

26) Square w/ Constructor
Code
```
using System;

namespace CSharpPrograms {
```

```
class Constructor {
    int a;
    public Constructor() {
        Console.WriteLine("The default constructor has been
called.");
    }
    public void calSqr(int num) {
        a = num;
        Console.WriteLine("The square of the number is {0}.",
(a * a));
    }
    static void Main(string[] args) {
        Constructor p = new Constructor();
        p.calSqr(4);
    }
}
}
```

Output


```
Yash > C# > ✔ program26.exe
The default constructor has been called.
The square of the number is 16.
```

27) Perimeter of Circle w/ Constructor

Code

```
using System;

namespace CSharpPrograms {
    class Circle {
        int rad;
        const double pi = 3.14;
        public Circle(int radius) {
            rad = radius;
        }
        public void displayCircum() {
            double peri = (2 * pi) * rad;
            Console.WriteLine("The perimeter of the circle with
radius {0} is {1}.", rad, peri);
        }
        static void Main(string[] args) {
            Circle c = new Circle(5);
            c.displayCircum();
        }
    }
}
```

Output


```
Yash > C# > ✔ program27.exe
The perimeter of the circle with radius 5 is 31.4.
```
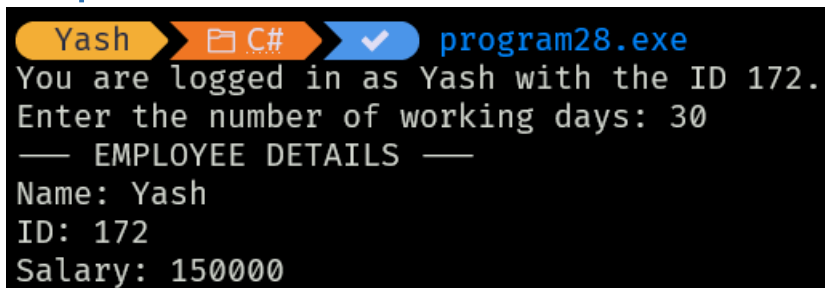
28) Employee Salary Calculation

Code

```csharp
using System;

namespace CSharpPrograms {
    class Employee {
        string empName;
        int empID, days, salary;
        public Employee(string name, int id) {
            empName = name;
            empID = id;
        }
        public void login() {
            Console.WriteLine("You are logged in as {0} with the
ID {1}.", empName, empID);
        }
        public void calculate() {
            Console.Write("Enter the number of working days: ");
            days = Convert.ToInt32(Console.ReadLine());
            salary = days * 5000;
        }
        public void display() {
            Console.WriteLine("--- EMPLOYEE DETAILS ---");
            Console.WriteLine("Name: {0}\nID: {1}\nSalary: {2}",
empName, empID, salary);
        }
        static void Main(string[] args) {
            Employee e = new Employee("Yash", 172);
            e.login();
            e.calculate();
            e.display();
        }
    }
}
```

Output

```
 Yash      C#      ✓     program28.exe
You are logged in as Yash with the ID 172.
Enter the number of working days: 30
—— EMPLOYEE DETAILS ——
Name: Yash
ID: 172
Salary: 150000
```

29) Single Inheritance

Code

```csharp
using System;

namespace CSharpPrograms {
    class Number {
```
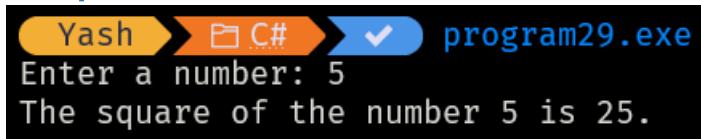
```
        public int num;
        public void getNumber() {
            Console.Write("Enter a number: ");
            num = Convert.ToInt32(Console.ReadLine());
        }
    }
    class Square : Number {
        public void display() {
            Console.WriteLine("The square of the number {0} is
{1}.", num, (num * num));
        }
        static void Main(string[] args) {
            Square sqr = new Square();
            sqr.getNumber();
            sqr.display();
        }
    }
}
```

Output

Yash 〉 C# 〉 ✔ program29.exe
Enter a number: 5
The square of the number 5 is 25.

30) Multilevel Inheritance

Code

```
using System;

namespace CSharpPrograms {
    class A {
        public String name;
        public void getName() {
            Console.Write("Enter your name: ");
            name = Console.ReadLine();
            Console.WriteLine("Your name is {0}.\n", name);
        }
    }
    class B : A {
        public String location;
        public void getLocation() {
            Console.Write("Enter your location: ");
            location = Console.ReadLine();
            Console.WriteLine("Your location is {0}.\n",
location);
        }
    }
    class C : B {
        public int age;
        public void getAge() {
            Console.Write("Enter your age: ");
```
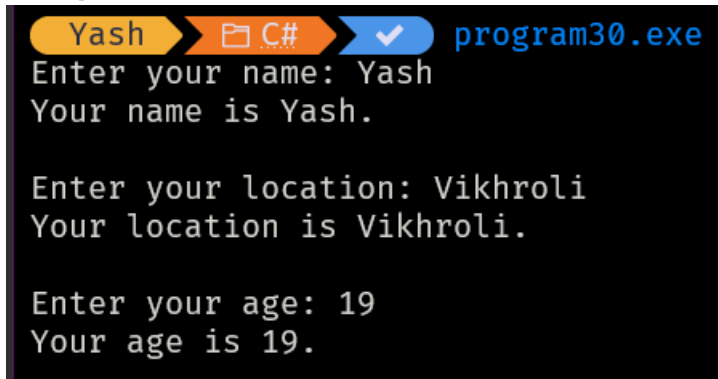
```
            age = Convert.ToInt32(Console.ReadLine());
            Console.WriteLine("Your age is {0}.", age);
        }
        static void Main(string[] args) {
            C person = new C();
            person.getName();
            person.getLocation();
            person.getAge();
        }
    }
}
```

Output


```
Yash    C#    ✔    program30.exe
Enter your name: Yash
Your name is Yash.

Enter your location: Vikhroli
Your location is Vikhroli.

Enter your age: 19
Your age is 19.
```

31) Method Overloading/Polymorphism
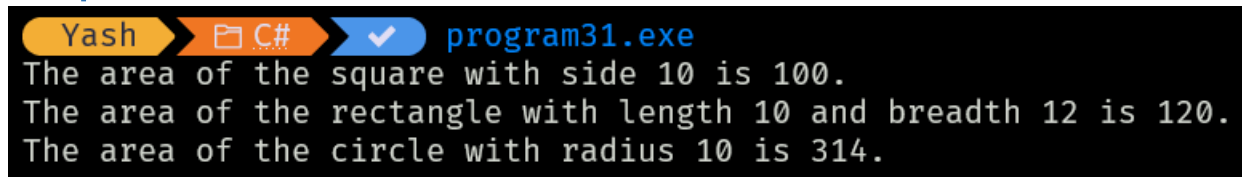
Code

```
using System;

namespace CSharpPrograms {
    class MethodOverloading {
        public void area(int s) {
            Console.WriteLine("The area of the square with side
{0} is {1}.", s, (s * s));
        }
        public void area(int l, int b) {
            Console.WriteLine("The area of the rectangle with
length {0} and breadth {1} is {2}.", l, b, (l * b));
        }
        public void area(double r) {
            const double pi = 3.14;
            Console.WriteLine("The area of the circle with radius
{0} is {1}.", r, (pi * (r * r)));
        }
        static void Main(string[] args) {
            MethodOverloading m = new MethodOverloading();
            m.area(10);
            m.area(10, 12);
            m.area(10.0);
        }
    }
}
```

```
Yash   C#   ✓   program31.exe
The area of the square with side 10 is 100.
The area of the rectangle with length 10 and breadth 12 is 120.
The area of the circle with radius 10 is 314.
```
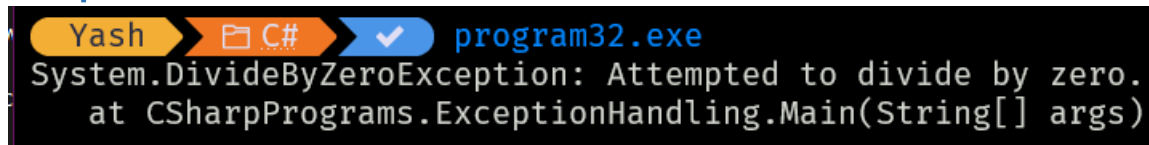
32) Exception Handling

Code

```csharp
using System;

namespace CSharpPrograms {
    class ExceptionHandling {
        static void Main(string[] args) {
            int n = 5, d = 0;
            try {
                int ans = n / d;
                Console.WriteLine("The answer is {0}.", ans);
            }
            catch (Exception e) {
                Console.WriteLine(e);
            }
        }
    }
}
```

Output

```
Yash   C#   ✓   program32.exe
System.DivideByZeroException: Attempted to divide by zero.
   at CSharpPrograms.ExceptionHandling.Main(String[] args)
```

33) Multiple Exception Handling

Code

```csharp
using System;

namespace CSharpPrograms {
    class MulExceptHandling {
        static void Main(string[] args) {
            Console.Write("Enter the numerator: ");
            int n = Convert.ToInt32(Console.ReadLine());
            Console.Write("Enter the denominator: ");
            int d = Convert.ToInt32(Console.ReadLine());
            try {
                int ans = n / d;
                Console.WriteLine("The answer is {0}.", ans);
            }
            catch (ArithmeticException e1) {
                Console.WriteLine("Division by zero is not
possible!\n{0}", e1);
            }
```

```
            catch (FormatException e2) {
                    Console.WriteLine("Number format is not
valid!\n{0}", e2);
                }
        }
    }
}
```

Output