**Assignment 3**

**C# Codes**

**COMSATS University Islamabad**

Sahiwal Campus



**Usama Sarwar**

FA17-BS(CS)-090-B

**Ali Sher Kashif**

Game Development

November 6, 2019

C# Codes

# Question 1

## Code:

using System;

namespace GameDevelopment\_A3

{

class Bank

{

String name;

int number;

char type;

double amount=1000;

public void CreateAccount(String name, int number, char type)

{

this.name = name;

this.number = number;

this.type = type;

Console.WriteLine("Account Created Successfully!");

}

public void Deposit(double amount)

{

this.amount = this.amount+amount;

Console.WriteLine("Amount Deposited Successfully!");

}

void CheckInterest()

{

if (this.type=='S')

{

double temp = (this.amount \* 10) / 100;

this.amount = temp + this.amount;

}

}

void CheckPenalty()

{

if (this.type == 'C' && this.amount<=1000)

{

double temp = (this.amount \* 5) / 100;

this.amount = this.amount-temp;

}

}

public void Display()

{

CheckInterest();

CheckPenalty();

if (this.type=='S')

{

Console.Write("Name: " + this.name

+ "\nAccount Number: " + this.number

+ "\nAccount Type: " + this.type

+ "\nCurrent Ammount(Intrest Included): " + this.amount);

}

else

{

Console.Write("Name: " + this.name

+ "\nAccount Number: " + this.number

+ "\nAccount Type: " + this.type

+ "\nCurrent Ammount: " + this.amount);

}

}

}

class Program:Bank

{

static void Main(string[] args)

{

Bank bank = new Bank();

Console.WriteLine("Welcome to World Bank!");

String name;

int number;

char type;

double amount;

Console.Write("Enter your name: ");

name = Console.ReadLine();

Console.Write("Enter your account number: ");

number = Int32.Parse(Console.ReadLine());

Console.Write("Enter your account type: ");

type = Char.Parse(Console.ReadLine());

Console.WriteLine("Creating Account...");

bank.CreateAccount(name,number,type);

char choice=' ';

while(choice!=3)

{

Console.Write("\n\n1. Deposit\n2. Display\n3. Exit\n\nChoice: ");

choice = Char.Parse(Console.ReadLine());

if (choice == '1') {

Console.Write("Enter amount: ");

amount = Double.Parse(Console.ReadLine());

bank.Deposit(amount);

}

else if (choice == '2')

{

bank.Display();

}

else

{

Console.Write("\nGood Bye");

}

}

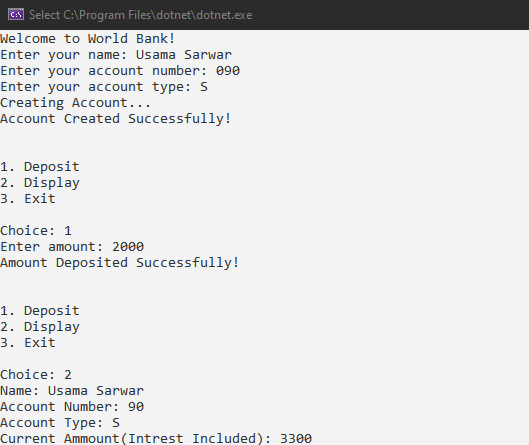
Console.ReadKey();

}

}

}

## Output:



# Question 2

## Code:

using System;

namespace Question2

{

public class Shape

{

public double lenght, breath, area;

public void get(double Length, double Width)

{

lenght = Length;

breath = Width;

}

public void Set()

{

Console.WriteLine("Lenght: {0}", lenght);

Console.WriteLine("Breath: {0}", breath);

}

public virtual void dis\_area()

{

// Area Virtual Function

}

}

class Rectangle : Shape

{

public override void dis\_area()

{

area = lenght \* breath;

Console.WriteLine("Area of Rectangle: {0:F2}", area);

}

}

class Triangle : Shape

{

public override void dis\_area()

{

area = (lenght \* breath) / 2;

Console.WriteLine("Area of Triangle: {0:F2}", area);

}

}

class Program

{

static void Main(string[] args)

{

double Length, Width;

Console.Write("Enter Lenght: ");

Length = Convert.ToDouble(Console.ReadLine());

Console.Write("Enter Breath: ");

Width = Convert.ToDouble(Console.ReadLine());

Shape rec = new Rectangle();

Shape tri = new Triangle();

rec.get(Length, Width);

tri.get(Length, Width);

rec.dis\_area();

tri.dis\_area();

Console.WriteLine("Encoded by Usama Sarwar");

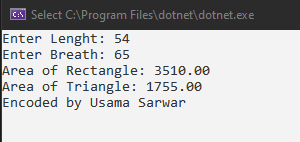
Console.ReadLine();

}

}

}

## Output:



# Question 3

## Code:

using System;

using System.Collections.Generic;

using System.Linq;

using System.Text;

using System.Threading.Tasks;

namespace Question3

{

class RNumber

{

public int Numentor, Dumentor;

RNumber(int number) { }

RNumber()

{

Console.Write("Numentor: ");

Numentor = Convert.ToInt32(Console.ReadLine());

Console.Write("Dumentor: ");

Dumentor = Convert.ToInt32(Console.ReadLine());

if (Dumentor < 1)

{

Console.WriteLine("Dumentor Should Be Greater Than 0.\nEnter Again");

Dumentor = Convert.ToInt32(Console.ReadLine());

}

for (int x = 1; x <= Numentor; x++)

{

if (Numentor % x == 0 && Dumentor % x == 0)

{

Numentor = Numentor / x;

Dumentor = Dumentor / x;

x = 1;

}

}

}

public static RNumber operator +(RNumber r1, RNumber r2)

{

RNumber r3 = new RNumber(5);

r3.Numentor = (r1.Numentor \* r2.Dumentor) + (r2.Numentor \* r1.Dumentor);

r3.Dumentor = r1.Dumentor \* r2.Dumentor;

for (int x = 1; x <= r3.Numentor; x++)

{

if (r3.Numentor % x == 0 && r3.Dumentor % x == 0)

{

r3.Dumentor = r3.Dumentor / x;

r3.Numentor = r3.Numentor / x;

x = 1;

}

}

return r3;

}

public static RNumber operator -(RNumber r1, RNumber r2)

{

RNumber r3 = new RNumber(5);

r3.Numentor = (r1.Numentor \* r2.Dumentor) - (r2.Numentor \* r1.Dumentor);

r3.Dumentor = r1.Dumentor \* r2.Dumentor;

for (int x = 1; x <= r3.Numentor; x++)

{

if (r3.Numentor % x == 0 && r3.Dumentor % x == 0)

{

r3.Dumentor = r3.Dumentor / x;

r3.Numentor = r3.Numentor / x;

x = 1;

}

}

return r3;

}

public static RNumber operator \*(RNumber r1, RNumber r2)

{

RNumber r3 = new RNumber(5);

r3.Numentor = (r1.Numentor \* r2.Numentor);

r3.Dumentor = r1.Dumentor \* r2.Dumentor;

for (int x = 1; x <= r3.Numentor; x++)

{

if (r3.Numentor % x == 0 && r3.Dumentor % x == 0)

{

r3.Dumentor = r3.Dumentor / x;

r3.Numentor = r3.Numentor / x;

x = 1;

}

}

return r3;

}

public static RNumber operator /(RNumber r1, RNumber r2)

{

RNumber r3 = new RNumber(5);

r3.Numentor = (r1.Numentor \* r2.Dumentor);

r3.Dumentor = r1.Dumentor \* r2.Numentor;

for (int x = 1; x <= r3.Numentor; x++)

{

if (r3.Numentor % x == 0 && r3.Dumentor % x == 0)

{

r3.Dumentor = r3.Dumentor / x;

r3.Numentor = r3.Numentor / x;

x = 1;

}

}

return r3;

}

public void display()

{

Console.Write("\nNumentor Value {0}", Numentor);

Console.Write("\nDumentor Value {0}", Dumentor+"\n");

}

class Program

{

static void Main(string[] args)

{

RNumber r1 = new RNumber();

RNumber r2 = new RNumber();

RNumber r3 = new RNumber(5);

Console.WriteLine("\nAddition Result");

r3 = r1 + r2;

r3.display();

Console.WriteLine("\nSubstraction Result");

r3 = r1 - r2;

r3.display();

Console.WriteLine("\nMultiplication Result");

r3 = r1 \* r2;

r3.display();

Console.WriteLine("\nDivision Result");

r3 = r1 / r2;

r3.display();

Console.WriteLine("\nEncoded by Usama Sarwar");

Console.ReadLine();

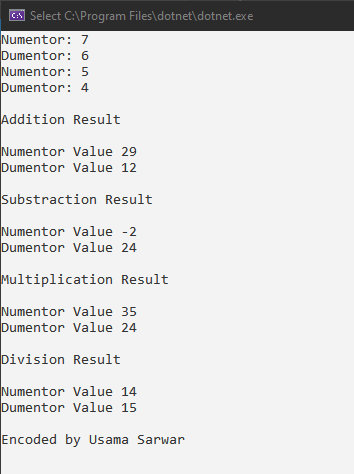
}

}

}

}

## Output:



# Question 4

## Code:

using System;

using System.Collections.Generic;

using System.Linq;

using System.Text;

using System.Threading.Tasks;

namespace Question4

{

class laptop

{

public string brand, color, model;

public int serial, ram;

public double pspeed, price, SizeScreen;

public laptop()

{

brand = "HP";

color = "BLAKISH";

model = "ELITEBOOK";

serial = 840;

ram = 8;

pspeed = 3.24;

price = 45000;

SizeScreen = 19;

}

public laptop(string brands, string colors, string models, int serials, int rams, double ps, double prices, double ssizes)

{

brand = brands; color = colors; model = models; serial = serials; ram = rams;

pspeed = ps; price = prices; SizeScreen = ssizes;

Console.WriteLine("\nBrand Name: {0} ", brand);

Console.WriteLine("Model: {0} ", model);

Console.WriteLine("Color Name: {0} ", color);

Console.WriteLine("Price: {0}", price);

Console.WriteLine("Serial: {0} ", serial);

Console.WriteLine("Ram: {0} ", ram);

Console.WriteLine("Screen Size: {0} ", SizeScreen);

Console.WriteLine("Processor Speed: {0} ", pspeed);

}

public void getbrand()

{

brand = "Dell";

}

public void getcolor()

{

color = "White";

}

public void getmodel()

{

model = "Surface";

}

public void getserial()

{

serial = 106;

}

public void getsram()

{

ram = 16; int x;

Console.Write("\n1. Upgrade RAM\n2. Exit\nChoice: ");

x = Convert.ToInt32(Console.ReadLine());

if (x == 1)

{

Console.Write("New RAM: ");

ram = Convert.ToInt32(Console.ReadLine());

}

else

{

Console.WriteLine("Okay");

}

}

public void getspeed()

{

pspeed = 3.5;

}

public void getprice()

{

price = 40000;

}

public void getsize()

{

SizeScreen = 24;

}

public void display()

{

Console.WriteLine("Brand Name {0} ", brand);

Console.WriteLine("Model {0} ", model);

Console.WriteLine("Color Name {0} ", color);

Console.WriteLine("Price {0}", price);

Console.WriteLine("Serial {0} ", serial);

Console.WriteLine("Ram {0} ", ram);

Console.WriteLine("Screen Size {0} ", SizeScreen);

Console.WriteLine("Processor Speed {0} ", pspeed);

}

}

class Program

{

static void Main(string[] args)

{

laptop Laptop\_ = new laptop();

laptop lap = new laptop("HP", "BLAKISH", "ELITEBOOK", 110, 8, 3.30, 50000, 19);

Laptop\_.getbrand();

Laptop\_.getbrand();

Laptop\_.getmodel();

Laptop\_.getserial();

Laptop\_.getsram();

Laptop\_.getspeed();

Laptop\_.getprice();

Laptop\_.getsize();

Laptop\_.display();

Console.WriteLine("Encoded by Usama Sarwar");

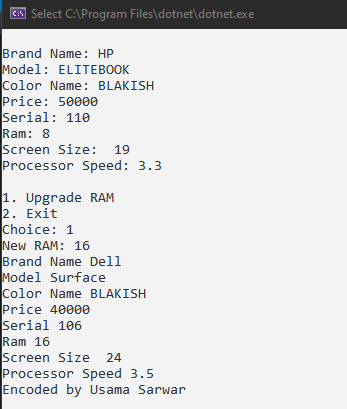
Console.ReadKey();

}

}

}

## Output



# Question 5

## Code:

using System;

using System.Collections.Generic;

using System.Linq;

using System.Text;

using System.Threading.Tasks;

namespace Question5

{

class number

{

public double num; public int result;

public void get()

{

Console.Write("Enter Number: ");

num = Convert.ToDouble(Console.ReadLine());

}

public void verify()

{

if (num >= 0)

{

Console.WriteLine("Entered Number is Whole Number...");

if (num > 0)

{

Console.WriteLine("Entered Number Is a Positive Number....\nSo, Factorial is Possible...");

for (double x = num - 1; x > 0; x--)

{

num = num \* x;

}

result = (int)num;

Console.WriteLine("Factorial: {0}", result);

}

}

else

{

Console.WriteLine("Given Number is Not a Whole Number and Also Not +ve");

}

}

}

class Program

{

static void Main(string[] args)

{

number n = new number();

n.get();

n.verify();

Console.WriteLine("Encoded by Usama Sarwar");

Console.ReadLine();

}

}

}

## Output

