Assignment 6

Q.1

//program.cs

using System;

using System.Collections.Generic;

using System.Linq;

using System.Text;

using System.Threading.Tasks;

namespace Assignment\_6

{

class Program

{

static void Main(string[] args)

{

int no = 0;

int a = 0;

int b = 0;

Boolean ret ;

int rett = 0;

Console.WriteLine("----------Enter the Number-----------");

no = Convert.ToInt32(Console.ReadLine());

Program obj = new Program();

Numbers ob = new Numbers(no);

Console.WriteLine("\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*Amstrong Number\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*");

ret=ob.CheckArmstrong();

if (ret == true)

{

Console.WriteLine("It is Amstrong No");

}

else

{

Console.WriteLine("It is not a Amstrong Number");

}

Console.WriteLine("\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*Strong Number\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*");

ret=ob.CheckStrong();

if (ret == true)

{

Console.WriteLine("It is strong No");

}

else

{

Console.WriteLine("It is not a strong Number");

}

Console.WriteLine("\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*Count of Digits\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*");

rett=ob.CountDigit(no);

Console.WriteLine("---Count of Digit is---{0}",rett);

Console.WriteLine("\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*Sum of Factor\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*");

rett=ob.SumFactor(no);

Console.WriteLine("---Sum of Factor is---{0}", rett);

Console.WriteLine("\*\*\*\*\*\*\*\*\*\*\*\*Power of Number\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*");

Console.WriteLine("Enter the Number");

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

Console.WriteLine("Enter the power of Number");

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

rett=ob.Power(a,b);

Console.WriteLine("---power of number is---{0}", rett);

}

}

}

//Marvellous.cs

using System;

using System.Collections.Generic;

using System.Linq;

using System.Text;

using System.Threading.Tasks;

namespace Assignment\_6

{

abstract class Marvellous

{

public int ino;

public Marvellous(int ival)

{

ino = ival;

}

public int Power(int x,int y)

{

int ans = 1;

for(int i=1;i<=y;i++)

{

ans = ans \* x;

}

return ans;

}

public int SumFactor(int ino)

{

int sum = 0;

int i = 0;

for(i=1;i<=ino;i++)

{

if(ino%i==0)

{

sum = sum + i;

}

}

return sum;

}

public int CountDigit(int ino)

{

int idigit = 0;

int i=0;

while (ino != 0)

{

idigit = ino % 10;

i++;

ino = ino / 10;

}

return i;

}

public abstract Boolean CheckStrong();

public abstract Boolean CheckArmstrong();

}

}

//Numbers.cs

using System;

using System.Collections.Generic;

using System.Linq;

using System.Text;

using System.Threading.Tasks;

namespace Assignment\_6

{

class Numbers : Marvellous

{

public Numbers(int ival) : base(ival)

{

int no = ival;

}

public override Boolean CheckStrong()

{

int idigit = 0;

int isum = 0;

int temp = base.ino;

int num = temp;

int n=1;

while (num != 0)

{

n = 1;

idigit = num % 10;

for(int i=1;i<=idigit;i++)

{

//if (idigit % i == 0)

n = n \* i;

}

isum = isum + n;

num = num / 10;

}

if (isum == temp)

{

return true;

}

else

{

return false;

}

}

public override Boolean CheckArmstrong()

{

int idigit = 0;

int isum = 0;

int temp= base.ino;

int num = temp;

int i;

while (num != 0)

{

idigit = num % 10;

i = idigit \* idigit \* idigit;

isum = isum + i;

num = num / 10;

}

//Console.WriteLine("sum is {0}",isum);

if(temp==isum)

{

return true;

}

else

{

return false;

}

}

}

}

Q.2

//Program.cs

using System;

using System.Collections.Generic;

using System.Linq;

using System.Text;

using System.Threading.Tasks;

namespace Ass6.\_2

{

class Program

{

static void Main(string[] args)

{

int start = 0;

int end = 0;

int ret = 0;

Console.WriteLine("Enter the Start of Range");

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

Console.WriteLine("Enter the end of Range");

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

MyRange ob = new MyRange(start, end);

ob.DisplayEven();

ob.DisplayOdd();

ret=ob.SumRange();

Console.WriteLine("Sum Range is{0}", ret);

ob.DisplayPrime();

ob.DisplayPerfect();

}

}

}

//MarvellousRange.cs

using System;

using System.Collections.Generic;

using System.Linq;

using System.Text;

using System.Threading.Tasks;

namespace Ass6.\_2

{

abstract class MarvellousRange

{

public int iStart;

public int iEnd;

public MarvellousRange(int val1, int val2)

{

iStart = val1;

iEnd = val2;

}

// Abstract method declarations

public abstract int SumRange();

public abstract void DisplayEven();

public abstract void DisplayOdd();

public abstract void DisplayPrime();

public abstract void DisplayPerfect();

}

}

//Myrange.cs

using System;

using System.Collections.Generic;

using System.Linq;

using System.Text;

using System.Threading.Tasks;

namespace Ass6.\_2

{

class MyRange : MarvellousRange

{

public MyRange(int value1, int value2) :base(value1,value2)

{

int no1 = value1;

int no2 = value2;

}

public override int SumRange()

{

int i = 0;

int sum = 0;

for(i=base.iStart;i<=base.iEnd;i++)

{

sum = sum + i;

}

return sum;

}

public override void DisplayEven()

{

int i = 0;

// int sum = 0;

for (i = base.iStart; i <= base.iEnd; i++)

{

if(i%2==0)

{

Console.WriteLine("Even no are{0}\t", i);

}

}

}

public override void DisplayOdd()

{

int i = 0;

// int sum = 0;

for (i = base.iStart; i <= base.iEnd; i++)

{

if (i % 2 != 0)

{

Console.WriteLine("Odd no are{0}\t", i);

}

}

}

public override void DisplayPrime()

{

int i = 0,j = 0;

int f = 1;

// int sum = 0;

Console.Write("Prime Numbers : ");

for (i = iStart; i <= iEnd; i++)

{

f = 1;

for (j = 2; j <= i / 2; j++)

{

if(i%j == 0)

{

f = 0;

break;

}

}

if(f == 1)

{

Console.Write(i + " ");

}

}

Console.Write("\n");

}

public override void DisplayPerfect()

{

int i = 0;

int j = 0;

int sum = 0;

int f = 0;

Console.Write("Perfect numbers : ");

for (i = iStart;i <= iEnd; i++)

{

sum = 0;

for(j = 1;j <= (i / 2); j++)

{

if(i%j == 0)

{

sum = sum + j;

}

}

if (sum == i)

{

f = 1;

Console.Write(i + " ");

}

}

if(f == 0)

{

Console.Write("No Perfet number in Range.");

}

Console.Write("\n");

}

}

}