Single Level Inheritance

using Basic\_Program;

class Demo1

{

public static void Main(string[] args)

{

Console.WriteLine("Enter roll num, name and 3 marks");

int roll\_no = Convert.ToInt32(Console.ReadLine());

string name = Console.ReadLine();

double mark1 = Convert.ToDouble(Console.ReadLine());

double mark2 = Convert.ToDouble(Console.ReadLine());

double mark3 = Convert.ToDouble(Console.ReadLine());

StudentCalculation studentCalculation = new StudentCalculation(roll\_no, name, mark1, mark2, mark3, 0, 0);

studentCalculation.Calculate();

Console.WriteLine("Roll No : " + studentCalculation.Roll\_no+"\n"+ "Name : " + studentCalculation.Name + "\n" +

"Total : " + studentCalculation.Total + "\n" + "Average : " + studentCalculation.Avg

);

}

}

Base class

using System;

using System.Collections.Generic;

using System.Linq;

using System.Text;

using System.Threading.Tasks;

namespace Basic\_Program

{

internal class StudentDetails

{

private int roll\_no;

private string name;

private double mark1, mark2, mark3;

public StudentDetails(int rollno, string name, double mark1, double mark2, double mark3)

{

this.Roll\_no = rollno;

this.Name = name;

this.Mark1 = mark1;

this.Mark2 = mark2;

this.Mark3 = mark3;

}

public int Roll\_no { get => roll\_no; set => roll\_no = value; }

public string Name { get => name; set => name = value; }

public double Mark1 { get => mark1; set => mark1 = value; }

public double Mark2 { get => mark2; set => mark2 = value; }

public double Mark3 { get => mark3; set => mark3 = value; }

}

}

Derived class

using System;

using System.Collections.Generic;

using System.Linq;

using System.Text;

using System.Threading.Tasks;

namespace Basic\_Program

{

internal class StudentCalculation : StudentDetails

{

private double total, avg;

public StudentCalculation(int rollno, string name, double mark1, double mark2, double mark3, double total, double avg):base(rollno, name, mark1, mark2, mark3)

{

this.Total = total;

this.Avg = avg;

}

public double Total { get => total; set => total = value; }

public double Avg { get => avg; set => avg = value; }

public void Calculate()

{

this.Total = this.Mark1 + this.Mark2 + this.Mark3;

this.Avg = this.Total / 3;

}

}

}

Multilevel Inheritance

using Basic\_Program;

class Demo1

{

public static void Main(string[] args)

{

Console.WriteLine("Enter roll num, name and 3 marks");

int roll\_no = Convert.ToInt32(Console.ReadLine());

string name = Console.ReadLine();

double mark1 = Convert.ToDouble(Console.ReadLine());

double mark2 = Convert.ToDouble(Console.ReadLine());

double mark3 = Convert.ToDouble(Console.ReadLine());

StudentCalculation studentCalculation = new StudentCalculation(roll\_no, name, mark1, mark2, mark3, 0, 0);

studentCalculation.Calculate();

Console.WriteLine("Roll No : " + studentCalculation.Roll\_no+"\n"+ "Name : " + studentCalculation.Name + "\n" +

"Total : " + studentCalculation.Total + "\n" + "Average : " + studentCalculation.Avg

);

}

}

using System;

using System.Collections.Generic;

using System.Linq;

using System.Text;

using System.Threading.Tasks;

namespace Basic\_Program

{

internal class StudentDetails

{

private int roll\_no;

private string name;

public StudentDetails(int rollno, string name)

{

this.Roll\_no = rollno;

this.Name = name;

}

public int Roll\_no { get => roll\_no; set => roll\_no = value; }

public string Name { get => name; set => name = value; }

}

}

using System;

using System.Collections.Generic;

using System.Linq;

using System.Text;

using System.Threading.Tasks;

namespace Basic\_Program

{

internal class StudentMarks:StudentDetails

{

private double mark1, mark2, mark3;

public StudentMarks(int roll\_no, string name, double mark1, double mark2, double mark3):base(roll\_no, name)

{

this.Mark1 = mark1;

this.Mark2 = mark2;

this.Mark3 = mark3;

}

public double Mark1 { get => mark1; set => mark1 = value; }

public double Mark2 { get => mark2; set => mark2 = value; }

public double Mark3 { get => mark3; set => mark3 = value; }

}

}

using System;

using System.Collections.Generic;

using System.Linq;

using System.Text;

using System.Threading.Tasks;

namespace Basic\_Program

{

internal class StudentCalculation : StudentMarks

{

private double total, avg;

public StudentCalculation(int rollno, string name, double mark1, double mark2, double mark3, double total, double avg):base(rollno, name, mark1, mark2, mark3)

{

this.Total = total;

this.Avg = avg;

}

public double Total { get => total; set => total = value; }

public double Avg { get => avg; set => avg = value; }

public void Calculate()

{

this.Total = this.Mark1 + this.Mark2 + this.Mark3;

this.Avg = this.Total / 3;

}

}

}

Hierarchial Inheritance

using Basic\_Program;

using System.Net.Http.Headers;

class Demo1

{

public static void Main(string[] args)

{

Console.WriteLine("Enter college name, address, pincode");

string collegeName = Console.ReadLine();

string address= Console.ReadLine();

int pincode = Convert.ToInt32(Console.ReadLine());

Console.WriteLine("Teaching staff - empid, name, dept, fav subject, salaryTS");

int empid = Convert.ToInt32(Console.ReadLine());

string name = Console.ReadLine();

string dept = Console.ReadLine();

string favsub = Console.ReadLine();

double salary = Convert.ToDouble(Console.ReadLine());

Console.WriteLine("Admin staff - empid, name, salary");

int aempid = Convert.ToInt32(Console.ReadLine());

string aname = Console.ReadLine();

double asalary = Convert.ToDouble(Console.ReadLine());

TeachingStaff teachingStaff = new TeachingStaff(empid, name, dept, favsub, salary, collegeName, address, pincode);

AdminStaff adminStaff = new AdminStaff(aempid, aname, asalary, collegeName, address, pincode);

double tsal = teachingStaff.calculate\_salary();

double asal = adminStaff.calculate\_salary();

Console.WriteLine("College name :" + teachingStaff.CollegeName);

Console.WriteLine("Teching staff name :" + teachingStaff.Name);

Console.WriteLine("Teaching staff salary : " + tsal);

Console.WriteLine("Admin staff name : " + adminStaff.Name);

Console.WriteLine("Admin staff salary :" + asal);

Console.Read();

}

}

using System;

using System.Collections.Generic;

using System.Linq;

using System.Text;

using System.Threading.Tasks;

namespace Basic\_Program

{

internal class College

{

private string collegeName, address;

private int pincode;

public College(string collegeName, string address, int pincode)

{

this.CollegeName = collegeName;

this.Address = address;

this.Pincode = pincode;

}

public string CollegeName { get => collegeName; set => collegeName = value; }

public string Address { get => address; set => address = value; }

public int Pincode { get => pincode; set => pincode = value; }

}

}

using System;

using System.Collections.Generic;

using System.Linq;

using System.Net;

using System.Text;

using System.Threading.Tasks;

namespace Basic\_Program

{

internal class TeachingStaff:College

{

private int empid;

private string name, dept, favsub;

private double salary;

public TeachingStaff(int empid, string name, string dept, string favsub, double salary, string collegeName, string address, int pincode):base(collegeName, address, pincode)

{

this.Empid = empid;

this.Name = name;

this.Dept = dept;

this.Favsub = favsub;

this.Salary = salary;

}

public int Empid { get => empid; set => empid = value; }

public string Name { get => name; set => name = value; }

public string Dept { get => dept; set => dept = value; }

public string Favsub { get => favsub; set => favsub = value; }

public double Salary { get => salary; set => salary = value; }

public double calculate\_salary()

{

double da = 0.4; double hra = 0.2;

double allowances = (salary\*da) + (salary\*hra);

double epf = 0.25;

double deductions = salary \* epf;

double netSalary = salary + allowances - deductions;

return netSalary;

}

}

}

using System;

using System.Collections.Generic;

using System.Linq;

using System.Net;

using System.Text;

using System.Threading.Tasks;

namespace Basic\_Program

{

internal class AdminStaff:College

{

private int empid;

private string name;

private double salary;

public AdminStaff(int empid, string name, double salary, string collegeName, string address, int pincode):base(collegeName, address, pincode)

{

this.Empid = empid;

this.Name = name;

this.Salary = salary;

}

public int Empid { get => empid; set => empid = value; }

public string Name { get => name; set => name = value; }

public double Salary { get => salary; set => salary = value; }

public double calculate\_salary()

{

double da = 0.3; double hra = 1.5;

double allowances = (salary \* da) + (salary \* hra);

double epf = 0.2;

double deductions = salary \* epf;

double netSalary = salary + allowances - deductions;

return netSalary;

}

}

}

Call by reference

using Basic\_Program;

using System.Net.Http.Headers;

class Demo1

{

public static void Main(string[] args)

{

Addition addition = new Addition();

int n3 = 10; int n4 = 10;

Addition.add(n3, n4, out int n1, out int n2);

Console.WriteLine(n1 + " " + n2);

}

}

using System;

using System.Collections.Generic;

using System.Linq;

using System.Text;

using System.Threading.Tasks;

namespace Basic\_Program

{

internal class Addition

{

private static int bon;

public Addition()

{

bon = 6;

}

internal static void add(int x, int y, out int n1, out int n2)

{

n1 = bon+x;

n2 = bon+y;

}

}

}

Interface

using Basic\_Program;

using System.Net.Http.Headers;

class Demo1

{

public static void Main(string[] args)

{

Sample sample = new Sample();

int addres = sample.intadd(5, 5);

string addstr = sample.stradd("Ra", "hul");

Console.WriteLine(addres);

Console.WriteLine(addstr);

}

}

using System;

using System.Collections.Generic;

using System.Linq;

using System.Text;

using System.Threading.Tasks;

namespace Basic\_Program

{

internal interface Addcon

{

public int intadd(int n1, int n2); // method signature

public string stradd(string s1, string s2); // method signature

}

}

using System;

using System.Collections.Generic;

using System.Linq;

using System.Text;

using System.Threading.Tasks;

namespace Basic\_Program

{

internal class Sample : Addcon

{

public int intadd(int n1, int n2)

{

return n1 + n2;

}

public string stradd(string s1, string s2)

{

return s1 + s2;

}

}

}