using System;

using System.Collections.Generic;

using System.Linq;

using System.Text;

using System.Threading.Tasks;

namespace SMSProject

{

class Student

{

int rn;

string name;

string address;

public void GetDetails()

{

Console.WriteLine("Enter Roll No");

rn = Convert.ToByte(Console.ReadLine());

Console.WriteLine("Enter Name");

name = Console.ReadLine();

Console.WriteLine("Enter Address");

address = Console.ReadLine();

}

public void DisplayDetails()

{

Console.WriteLine("Roll No is "+ rn);

Console.WriteLine("Name is " + name);

Console.WriteLine("Address is " + address);

}

}

class Program

{

static void Main(string[] args)

{

}

}

}

Students are of 2 different types

Parttime Student which has Slot , CourseCode in which they are enrolled

FullTime Students have batchCode , RegdDate

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Base Class Members | Private | Public | Protected |  |
|  | NO  NEVER ARE INHERITED | YES , AND THEY WILL E ALSO ACCESSIBLE OUTSIDE THE CLASS THROUGH THE OBJECT | They are inherited to the child class, but not accessible outside the class |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

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public void GetDetails()

{

Console.WriteLine("Enter Roll No");

rn = Convert.ToByte(Console.ReadLine());

Console.WriteLine("Enter Name");

name = Console.ReadLine();

Console.WriteLine("Enter Address");

address = Console.ReadLine();

}

public void DisplayDetails()

{

Console.WriteLine("Roll No is "+ rn);

Console.WriteLine("Name is " + name);

Console.WriteLine("Address is " + address);

}

}

class ParttimeStudent : Student

{

string slot;

string coursecode;

public void GetDetails\_Parttime()

{

Console.WriteLine("Enter Slot");

slot = Console.ReadLine();

Console.WriteLine("Enter Course Code");

coursecode = Console.ReadLine();

}

public void DisplayDetails\_Parttime()

{

Console.WriteLine("Slot is " + slot);

Console.WriteLine("Course Code is " + coursecode);

}

}

class Program

{

static void Main(string[] args)

{

ParttimeStudent parttimeStudent = new ParttimeStudent();

parttimeStudent.GetDetails();

parttimeStudent.GetDetails\_Parttime();

parttimeStudent.DisplayDetails();

parttimeStudent.DisplayDetails\_Parttime();

}

}

}

using System;

using System.Collections.Generic;

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using System.Text;

using System.Threading.Tasks;

namespace SMSProject

{

class Student

{

int rn;

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public void GetDetails()

{

Console.WriteLine("Enter Roll No");

rn = Convert.ToByte(Console.ReadLine());

Console.WriteLine("Enter Name");

name = Console.ReadLine();

Console.WriteLine("Enter Address");

address = Console.ReadLine();

}

public void DisplayDetails()

{

Console.WriteLine("Roll No is "+ rn);

Console.WriteLine("Name is " + name);

Console.WriteLine("Address is " + address);

}

}

class ParttimeStudent : Student

{

string slot;

string coursecode;

public void GetDetails\_Parttime()

{

Console.WriteLine("Enter Slot");

slot = Console.ReadLine();

Console.WriteLine("Enter Course Code");

coursecode = Console.ReadLine();

}

public void DisplayDetails\_Parttime()

{

Console.WriteLine("Slot is " + slot);

Console.WriteLine("Course Code is " + coursecode);

}

}

class FulltimeStudent : Student

{

string batch;

string RegdDate;

public void GetDetails\_Fulltime()

{

Console.WriteLine("Enter Batch");

batch = Console.ReadLine();

Console.WriteLine("Enter Regd Date");

RegdDate = Console.ReadLine();

}

public void DisplayDetails\_Fulltime()

{

Console.WriteLine("Batch is " + batch);

Console.WriteLine("Regd Date is " + RegdDate);

}

}

class Program

{

static void Main(string[] args)

{

ParttimeStudent parttimeStudent = new ParttimeStudent();

parttimeStudent.GetDetails();

parttimeStudent.GetDetails\_Parttime();

parttimeStudent.DisplayDetails();

parttimeStudent.DisplayDetails\_Parttime();

FulltimeStudent fulltimeStudent = new FulltimeStudent();

fulltimeStudent.GetDetails();

fulltimeStudent.GetDetails\_Fulltime();

fulltimeStudent.DisplayDetails();

fulltimeStudent.DisplayDetails\_Fulltime();

}

}

}

Public members are inherited , private members are not inherited to the child class

METHOD OVERRIDING : Redefining member of base class in child class, purpose is

1. Easy to remember method names
2. Used for runtime polymorphism

Method Overriding is possible only in Inheritance

|  |  |  |
| --- | --- | --- |
| Student | Parttime | FullTime |
| GetDetails()  DisplayDetails() | GetDetails()  DisplayDetails()  ~~GetDetails\_Parttime()~~  ~~DisplayDetails\_Parttime ()~~ | GetDetails()  DisplayDetails()  ~~GetDetails\_ FullTime ()~~  ~~DisplayDetails\_ FullTime ()~~ |

Student s Parttime p;

s.GetDetails() p.GetDetails()

using System;

using System.Collections.Generic;

using System.Linq;

using System.Text;

using System.Threading.Tasks;

namespace SMSProject

{

class Student

{

int rn;

string name;

string address;

public void GetDetails()

{

Console.WriteLine("Enter Roll No");

rn = Convert.ToByte(Console.ReadLine());

Console.WriteLine("Enter Name");

name = Console.ReadLine();

Console.WriteLine("Enter Address");

address = Console.ReadLine();

}

public void DisplayDetails()

{

Console.WriteLine("Roll No is "+ rn);

Console.WriteLine("Name is " + name);

Console.WriteLine("Address is " + address);

}

}

class ParttimeStudent : Student

{

string slot;

string coursecode;

public void GetDetails()

{

base.GetDetails();

Console.WriteLine("Enter Slot");

slot = Console.ReadLine();

Console.WriteLine("Enter Course Code");

coursecode = Console.ReadLine();

}

public void DisplayDetails()

{

base.DisplayDetails();

Console.WriteLine("Slot is " + slot);

Console.WriteLine("Course Code is " + coursecode);

}

}

class FulltimeStudent : Student

{

string batch;

string RegdDate;

public void GetDetails()

{

base.GetDetails();

Console.WriteLine("Enter Batch");

batch = Console.ReadLine();

Console.WriteLine("Enter Regd Date");

RegdDate = Console.ReadLine();

}

public void DisplayDetails()

{

base.DisplayDetails();

Console.WriteLine("Batch is " + batch);

Console.WriteLine("Regd Date is " + RegdDate);

}

}

class Program

{

static void Main(string[] args)

{

ParttimeStudent parttimeStudent = new ParttimeStudent();

parttimeStudent.GetDetails();

parttimeStudent.DisplayDetails();

FulltimeStudent fulltimeStudent = new FulltimeStudent();

fulltimeStudent.GetDetails();

fulltimeStudent.DisplayDetails();

}

}

}

Virtual Functions : They are used to achieve Run time polymorphism, run time linking

using System;

using System.Collections.Generic;

using System.Linq;

using System.Text;

using System.Threading.Tasks;

namespace SMSProject

{

class Student

{

int rn;

string name;

string address;

public virtual void GetDetails()

{

Console.WriteLine("Enter Roll No");

rn = Convert.ToByte(Console.ReadLine());

Console.WriteLine("Enter Name");

name = Console.ReadLine();

Console.WriteLine("Enter Address");

address = Console.ReadLine();

}

public virtual void DisplayDetails()

{

Console.WriteLine("Roll No is "+ rn);

Console.WriteLine("Name is " + name);

Console.WriteLine("Address is " + address);

}

}

class ParttimeStudent : Student

{

string slot;

string coursecode;

public override void GetDetails()

{ Console.WriteLine("Enter Slot");

slot = Console.ReadLine();

Console.WriteLine("Enter Course Code");

coursecode = Console.ReadLine();

}

public override void DisplayDetails()

{

Console.WriteLine("Slot is " + slot);

Console.WriteLine("Course Code is " + coursecode);

}

}

class FulltimeStudent : Student

{

string batch;

string RegdDate;

public override void GetDetails()

{

Console.WriteLine("Enter Batch");

batch = Console.ReadLine();

Console.WriteLine("Enter Regd Date");

RegdDate = Console.ReadLine();

}

public override void DisplayDetails()

{ Console.WriteLine("Batch is " + batch);

Console.WriteLine("Regd Date is " + RegdDate);

}

}

class Program

{

static void Main(string[] args)

{

Student s = new Student();

s.GetDetails();

s.DisplayDetails();

ParttimeStudent parttimeStudent = new ParttimeStudent();

s = parttimeStudent;

s.GetDetails();

s.DisplayDetails();

// Compile-time linking

// You want to convert // Compile-time linking to

// Run-time linking

// To do this , we use virtual functions

// and method overriding

//parttimeStudent.GetDetails();

//parttimeStudent.DisplayDetails();

FulltimeStudent fulltimeStudent = new FulltimeStudent();

s = fulltimeStudent;

s.GetDetails();

s.DisplayDetails();

//fulltimeStudent.GetDetails();

//fulltimeStudent.DisplayDetails();

}

}

}