

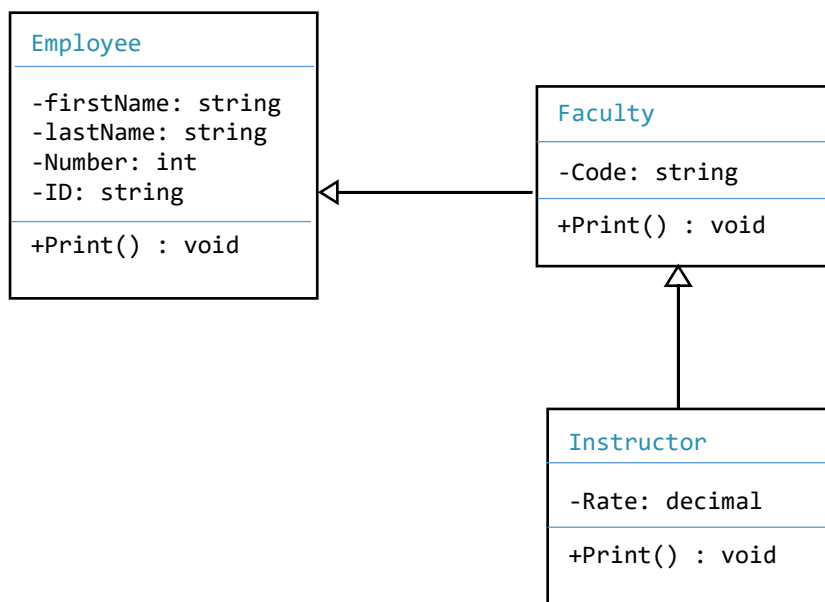
Assignment 4 – Inheritance and Polymorphism

Due: Wednesday, April 24th at 11:55 PM

- 1- Create 3 classes `Employee`, `Faculty`, and `Instructor` as shown in the class diagram below.
- 2- `Faculty` should inherit `Employee` and `Instructor` should inherit `Faculty`.
- 3- Apply the concept of least privilege. All your data members must be `private`.
- 4- Do not define any new data members in any class. However, you are allowed to define `private` methods.
- 5- Implement whatever accessors (set/get) necessary.
- 6- Note that the `Employee Number` is a 4-digit number, the `ID` is dynamically constructed as

`<1st char of firstName><first 3 chars of lastName><Number>`

- 7- Method `Print` in `Faculty` and `Instructor` should override the one in their parent (base) class. However, it should invoke the parent's `Print` method through `base`.
- 8- Implement the constructors of all classes. Make sure child classes invoke the constructor of base class.
- 9- Use the `Main` method provided below.
- 10- The output of your program, given the `Main` method below, should look exactly as shown in the output box.
- 11- Add sufficient comments and make sure your identifier names make sense.
- 12- All code will be inspected for plagiarism. Cheating will result in a direct referral to the LSU Student Advocacy & Accountability Office and you will not be allowed to take the final exam.
- 13- All your code must be submitted in a single file. Just one `.cs` file with the name `LastName_firstName.cs`
- 14- **WARNING: I do not need the entire project folder. Just that single file. Failure to submit in this EXACT format will lead to zero grade.**



Use the following main method

```
static void Main(string[] args)
{
    Employee[] emps = {
        new Employee( "Robert", "John", 6611 ),
        new Faculty("Sara", "Brown", 2010, "CSC"),
        new Instructor("Steven", "Hank", 3344, "ECE", 20)
    };

    foreach (Employee e in emps)
        e.Print();

    Console.WriteLine("-----");
    emps[0].EmployeeNumber = 331;
    Console.WriteLine(emps[0].EmployeeName + ": " + emps[0].EmployeeID);
}
```

Your output should look exactly like this

```
-----
Employee name: Robert John
Employee ID: rjoh6611
-----
Employee name: Sara Brown
Employee ID: sbro2010
Department Code: CSC
-----
Employee name: Steven Hank
Employee ID: shan3344
Department Code: ECE
Rate:20 $/hour
-----
Cannot Change Number. The Employee Number should be exactly 4 digits.
Robert John: rjoh6611
```