Software Development 3

Creating and using Class diagrams in Visual Studio

1) Now view the movie “Creating a class diagram.wmv”

2) Now create a new project in your workspace, add a class diagram and create the following classes:

Class:	House
Attributes:	streetName (String)
	number (int)
	postCode (String)

Class:	Street
Attributes:	name (String)
	speedLimit (int)

3) Add an association so that many houses are contained within one street.

4) Consider the following scenario:

> A University has many staff and students, all of them have a name and a date of birth. Students have a matriculation number a programme title (such as “BEng Software Engineering”). PhD students also have a Thesis Title describing their work (e.g. “A study of bears in woods and the actions thereof.”) All staff have a national insurance number (e.g. “abc-123-def”, academic staff have a faculty (e.g. “Engineering”) and all staff have department (e.g. “Computing” or “Admin”).

Using inheritance as required create a set of classes to represent the various student and staff types. For the really adventurous use Abstract classes as appropriate.

5) Ask your tutor to examine your diagram and give you some feedback.

6) Now make the following enhancements to your system:

Add a Payroll class that has a 1:M relation with all staff.
Add a Registry class that has a 1:M relation with all students.

Payroll should have a printPayroll() operation and registry should have a printRegistry() operation to print out a list of those on the payroll and a list of students.

7) Create a c# console application, and create a C# implementation of your system. Use List<> objects to create the 1:M relationships.

8) To test your system, create an Application class with a main() method that creates a Payroll and a Registry object then adds instances of staff and students to them. Finally it should call the printPayroll() and printRegistry().

9) Ask your tutor to check your work. The application should match the design in the diagram (ie class names, methods and attributes should all match).