159.272 Programming Paradigms
Tutorial 5
Reflection

Objectives

1. use reflection to write generic code

Instructions

Note this tutorial is similar to Tutorial 2 (cvs2html converter), and you are allowed to use the code from Tutorial 2 for this tutorial.

Your task is to create a converter that can transform csv files containing student data into an HTML file using generic code.

1. download students.csv from stream (this is the same file that was used in tutorial 2)
2. create an Eclipse project
3. copy students.csv into the Eclipse project folder
4. in this project, create a package nz.ac.massey.cs.pp.tutorial9.id<yourstudentid>, replace
   <yourstudentid> by your student number, like nz.ac.massey.cs.pp.tutorial9.id42
5. within this package, create a class **Student** and a class **StudentReader** with a method
   List<Student> fetchStudents(File input).
   1. this method builds are returns a list of **Student** instances from the data found in the file
   2. columns in the CSV file correspond to properties in **Student**
6. then create a class **Object2HTMLConverter** with a method **void print(List data,Class type,File output)**
   1. this class creates HTML page with a table containing the data of all objects in the list
   2. you can assume that all elements in this list are instances of **type**
   3. **Object2HTMLConverter must not reference the class Student!**
7. To test this, create a class Test with a main method containing the following code (imports omitted):

```
String inputFileName = args[0];
String outputFileName = args[1];
File input = new File(inputFileName );
File output = new File(outputFileName );
StudentReader reader = new StudentReader();
List<Student> data = reader.fetchStudents(input);
Object2HTMLConverter converter = new Object2HTMLConverter();
converter.print(data,Student.class,output);
```

Deliverables

1. export your Eclipse project as follows to a zip file:
   1. in Eclipse, select Project, then select File > Export > General > Archive File
   2. once the project has been exported, check the zip file created (use WinZip, 7Zip or similar) to make sure that the sources code files, students.csv, .project and .classpath are all included. .project and .classpath might not be visible, you may need to enable "show hidden files" in your zip tool or OS file explorer.
2. upload this zip file to stream

Hints

1. you may find the class **java.beans.Introspector** and its method **getBeanInfo()** useful
2. see also hints for tutorial 6