January 29, 2013

Spring 2013 MP1

Create an object model for the Solar System using the following link:

http://airandspace.si.edu/etp/ss/index.htm

Provide an abstract class called *Planet* and a concrete subclass called *MilkyWayPlanet* with default constructors (no-arg) and a full-arg, overloaded constructors (sets all data). Provide accessors and mutators for mass, diameter, escape velocity, revolution period and mean surface temperature (instance fields). If no value is provided from the data, then set that characteristic to some default value of your choice. Provide a *toString()* method to format the planet data.

Provide an interface called *Relatable* with two methods:

- *boolean isMassSmaller(Object other);*
- *boolean isDiameterGreater(Object other);*

Implement this interface in the Planet class. Why?

Provide a driver class that includes the following features:

- creates an instance of each *MilkyWayPlanet* class
- collects all planet objects into an array of *Planets* called *solarSystem*
- displays all planet data using its toString() method using polymorphism
- displays the comparison of the mass of any two planets of your choice
- displays the comparison of the diameter of any two planets of your choice

Provide a portable test script that executes the application and writes all display data to a file called *mp1out.txt* in a portable file system location (i.e. project top-level)

Comment your code and provide a detailed *README* (PDF only) file that includes:

- project description/abstract
- installation, compile and run-time requirements
- insights and expected results
- screen captures demonstrating all application capabilities
- generate project *Javadocs* API and move from the *dist* folder to a *docs* folder

Submit a compressed file called mp1.zip (zip only) of all project code and documentation to the *Digital DropBox* link on *Blackboard* by 02/10/13, 23:59/CST. Note that a completed submission requires the use of both the *Add File* button and the *Send File* button. Late mini-projects will lose points. (**50 points**)