CS 3560 Spring 2021 – Assignment 1

In this group assignment you will start phase 1 of the mini-project “Cosmological Simulation Application.” You will start by creating the Data Model for this project. For this purpose, you will perform the following tasks:

1. Create a list of all the entities in the problem domain, and for each, create a list of their attributes. An example of an entity for this particular project would be ‘Star’, and an example of an attribute would be ‘mass’.
2. Once you have created the list of entities, with their attributes, create a Class Diagram: in this diagram, every entity is a potential class. You will have to decide which entities will be represented as classes, and which entities are subsumed as attributes of other classes. The Class Diagram will also display the relationship between the different classes, and various dependencies. Use this opportunity to identify potential abstractions that can represent and capture morphological and behavioral similarities among different objects. Don’t forget to tag relationships with the name of their roles when they represent interactions.
3. Once the class diagram is created, with each class and their attributes, introduce further detail by specifying behaviors for each class in the form of methods. Do not worry about implementation details yet, instead think about the behaviors of each object and the detail that should be displayed in the application.
4. Once the class diagram is complete, create a software project in your favorite development environment, and populate it with stub classes from your class diagram. Document every class and every class member with information as to what they represent and the role they play. Do not worry about implementation details yet.

You will submit a .zip file with each of the devices generated above and the corresponding source code. This assignment is **worth 50 points**.