

CS 313e

Exam 1

Name: _____

SSN: _____

Answer all questions clearly and completely. 100 points are possible.

1.

a) (10 pts) Define class specialization.

b) (10 pts) Define encapsulation.

c) (10 pts) Explain how class specialization promotes reuse.

2. (5 pts) What is cohesion?

3. (10 pts) How does polymorphism enable you to program “in the general” rather than “in the specific”? Discuss the key advantages of programming “in the general”.

4. Given the following classes and object

```
public class MotorizedVehicle
{
    private float maxSpeed;
    public void setMaxSpeed(float speed) {...} // set max speed
    public void stop() {...}
    public void go(){...}
}
public class SUV extends MotorizedVehicle
{
    private float rolloverStability;
}
MotorizedVehicle myVehicle = new MotorizedVehicle();
myVehicle.setMaxSpeed(75);
```

a) (10 pts) Represent the class MotorizedVehicle in UML. Make the UML representation as detailed as possible.

b) (5 pts) Represent the object myVehicle in UML. Make the UML representation as detailed as possible.

c) (10 pts) Represent the relationship between the 2 classes in UML.

5. (15 pts) Write a program that reads exam grades from a file called “grades.txt” and prints the exam average to the screen. The exam grades are integers, and each grade appears on a separate line in “grades.txt”. You should not make any assumptions about the number of grades in the file.

6. (15 pts) Write a file copy program that copies each line in text file “inputFile.txt” to the file “outputFile.txt”. You can assume that “outputFile.txt” does not already exist.