

CMSC 132 Quiz 2 Worksheet

The second quiz for the course will be on Wed, Feb 22. The following list provides more information about the quiz:

- The quiz will be a written quiz (no computer).
- Closed book, closed notes quiz.
- Answers must be neat and legible. **You must use pencil.**
- Check the information available at <http://www.cs.umd.edu/~nelson/classes/utilities/examRules.html>

The following exercises cover the material to be included in this quiz. Solutions to these exercises will not be provided, but you are welcome to discuss your solutions with the TA or instructor during office hours.

Exercises

1. What is the difference between a checked and an unchecked exception?
2. Define a checked exception named **WrongURL** that is associated with the error message "Provided URL is incorrect."
3. Write a Java program that reads a string and throws the **WrongURL** exception you defined above if the string does not start with "http". Provide an appropriate catch clause to deal with the exception.
4. Which of the following are valid, assuming the **Animal** class is an abstract class and **Elephant** is a concrete class (i.e., it implements any abstract methods associated with the **Animal** class). You can assume the **Elephant** class has a default constructor.
 - a. `Animal a = null;` // VALID/INVALID
 - b. `Animal a = new Animal();` // VALID/INVALID
 - c. `Animal a = new Elephant;` // VALID/INVALID
 - d. `Elephant b = new Elephant();` // VALID/INVALID
 - e. `Elephant c = new Animal();` // VALID/INVALID
5. When would you use an abstract class rather than an interface?
6. When would you use an interface rather than an abstract class?
7. Define an abstract class called **Oven** that has an abstract method called `turnOnOff`. The class also has an instance variable representing a serial number. Implement the following subclasses:
 - a. **MicrowaveOven** – Defines a method called "setTimer" that sets the time the microwave will be active.
 - b. **ConventionalOven** – Defines a method called "setTemperature" that sets the temperature for the oven.
8. Using UML-like notation, describe a system that keeps track of rooms in a hotel. We should be able to reserve rooms, perform check-in/check-out operations, pay bills, etc. Feel free to expand your design.