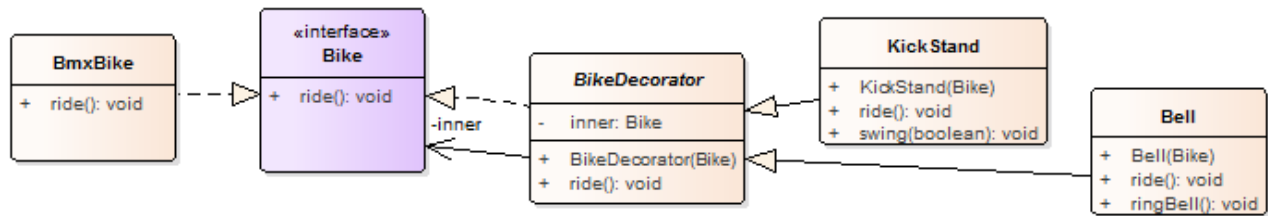


Half Exam 2 More Practice

This is a 25-minute exam. The exam is printed double sided. No note-sheet.

1. (10 point) *Describe* the difference between Coupling and Cohesion. *Make clear* which is which, and *make clear* what “higher” means for each.
2. (20 points) *Draw* a UML diagram for a weather app that has multiple “views” of the weather that update each time the weather changes. *Use* the Observer pattern. *Include* all classes, class names, and relationships. *Annotate* interfaces and abstract classes. You do not need to include method names.
3. (10 points) Implement the AddObservers method of the AbstractSubject in your diagram above



4. (50 points) **Consider** the Decorator pattern applied to bikes as shown above.
 - a. **Write** client code that uses these classes to create a BMX bike with kickstand and bell.

 - b. **Describe** how the transparency of the program can be improved.

 - c. **Describe** an advantage of increasing the transparency to a client code like you began to write in part a.

 - d. **Describe** a disadvantage of increasing the transparency.

 - e. In the UML diagram at the top of the page, circle the class that is programmed to an interface (uses the interface). **Explain** two advantages of this class using an interface. (Hint: Think about the code you wrote in part a)