ECE 651
Lecture 6: Design Patterns
Notes Outline

- OO Design Review

- UML

```
public class Time {
   private int hour;
   private int minute;
   private int second;

   public void addSecond() {
      second++;
   }
   public void set(int hour, int minute, int second) {
     this.hour  = hour;
     this.minute = minute;
     this.second = second;
   }
   public int getHour() {
     return hour;
   }
   public int getMinute() {
     return minute;
   }
   public int getSecond() {
     return second;
   }
}
```

```
public class Clock {
  private Time now;

  public Time getTime() {
    return now;
  }
  public void tick() {
     now.addSecond();
  }
}
```

- Aggregation, Composition, Association

- Potential problems/pitfalls with current Clock/Time relationships?

- Restricting actions through an interface

- Think, Pair, Share: Design an Alarm Clock

- Critique of Alarm Clock Design with respect to design principles

- Alarm Clock Design Improvements

- Observer Pattern

- Design Patterns:
  "Design Patterns: Elements of Reusable Object-Oriented Software" by Gamma, Helm, Johnson, and Vlissides ("Gang of Four").

- More features for Alarm Clock: Smart Toaster

- Adapter Pattern