SECOND QUIZ

You have 15 minutes from the start of class to complete this quiz. Read the questions with care; work with deliberate speed. Don't give us more than we ask for. The usual instructions apply. A copy of the restaurants program is included for reference. Good luck!

Problem 1 (15 points)

Fill in the body of the method `averageSongLengthInYears` in the SongList class below. (Remember that the operator in Java to combine two boolean expressions with 'and' is &&.)

```
class Song {
  private String titile;
  private String artist;
  private int year
  private int length;

  public String getTitle() {return title;}
  public String getArtist() {return artist;}
  public int getYear() {return year;}
  public int getLength() {return length;}
}
class SongList {
  private ArrayList<Order> theSongs;

  // Return the average length of all the songs in the list whose year is in or after
  // the first argument and in or before the second argument.  For example, a song
  // from 1995 would be counted in averageSongLengthInYears(1990, 1995).
  // If there are no songs between the specified years, return zero.
  public double averageSongLengthInYears(int startYear, int endYear) {
```

Problem 2 (10 points)

We can organize a parking lot in various ways:

(a) A conventional flat parking lot has a separate parking space for each car, with the spaces arranged in rows. The driver can choose a particular row and a particular space within that row, regardless of how many other cars are parked in the lot. Is this kind of parking lot more like an array, a stack, a queue, a linked list, or a tree? [Answer with the data structure whose most important characteristics most closely match the situation.]

(b) At the Hollywood Bowl, the parking lot is one long driveway snaking up a hillside. Cars drive in and park right behind the car in front of them, one behind another (behind another behind another ...). A car can't leave until all the cars in front of it have left. Is the Hollywood Bowl parking lot more like an array, a stack, a queue, a linked list, or a tree?

(c) Joe lives a block away from a sports stadium; his house has a long driveway that extends straight from the street and ends at his garage. On game days, Joe sells parking spaces in his driveway for $25 each. Each car that arrives drives as far down the driveway as possible; after the game, that car can't leave until all the cars behind it have left. Is Joe's driveway more like an array, a stack, a queue, a linked list, or a tree?

(d) Which of the above parking lots is most efficient in terms of the drivers' time (and, in a couple of words, why)?

(e) Which of the above parking lots is *least* efficient in terms of the space required to accommodate all the parked cars (and, in a couple of words, why)?