

SEVENTH QUIZ

You have 15 minutes from the start of class to complete this quiz. Give partial answers if you can't give complete ones. Read the questions with care; work with deliberate speed. Don't give us more than we ask for. The usual instructions apply. Good luck!

Problem 1 (3 points)

As reported in class, Bill Gates said recently that keyboards will be obsolete within five years.

(a) (1 point) What technology or technologies does he think will replace keyboards?

(b) (2 points) What obstacles stand in the way of his prediction coming true?

Problem 2 (10 points)

Google bought your start-up company; you collected \$25 million. Now you have to invest it. You consider four alternative investment strategies: Large companies, small companies, overseas companies, and a mix of large, small, and overseas companies. The payoff matrix below shows your three alternatives for the state of the U.S. Economy over the next five years, and the utility (percentage return on your investment) in each case.

	U.S. Economy Falls	U.S. Economy Stable	U.S. Economy Rises
Large companies	2.0	3.5	6.0
Small companies	2.5	2.8	7.2
Overseas companies	3.4	3.5	5.2
Mixed	3.0	3.2	5.8

(a) (2 points) Which alternative do you choose if you follow the optimist strategy, and what is the utility of that alternative? (Showing how you get your answer will help you get partial credit.)

(b) (2 points) Which alternative do you choose if you follow the pessimist strategy, and what is the utility of that alternative? (Showing how you get your answer will help you get partial credit here, too.)

(c) (4 points) Which alternative do you choose if you follow the regrettist strategy? (Here, you have to draw the “regret matrix”; it will be easier to place those numbers into the table on the previous page.)

(d) (2 points) If the three strategies above don’t all give the same answer, which strategy would you use in making your final decision, and why?

Problem 3 (12 points)

Attached is a copy of the CustomerStats class from the Amusement Park Simulator.

(a) (1 point) Two methods in this class implement the algorithm for finding the item in a collection with the smallest value. What are those methods’ names?

(b) (2 point) Some of the methods in this class execute in linear time (based on the number of finished customers) in the average/typical case. What are those methods’ names? (You may abbreviate unambiguously.)

(c) (9 points) Using the skeleton below, complete the definition of the method `printAverageTimeInPark()`. (Hints: Use the existing methods as a guide, but this one is shorter.)

```
// Prints to the screen the average time a (finished) customer spent in the park.
private void printAverageTimeInPark()
{
    customersDone = park.getAllFinishedCustomers();
    if (!customersDone.hasNext()) { return; }
}
```

```
}
```

