**Fair Oaks DSS Assignment**

Objective: Model the 2002 FY cash flows from the tennis courts to understand:

The effect on demand of different fee structures,

The risks due to weather and uncertain demand, and

The optimal price to charge.

Use the spreadsheet model we have provided (*Fair Oaks Financials Handout.xls*) in your course syllabus as your starting point for this analysis. In addition, we have provided explanatory notes (*Notes.xls*) for the model to aid in your understanding. Let’s call this model the Base Model.

Take 20 to 30 minutes to examine the Base Model. Items you should look at:

- The number of bad weather days is modeled stochastically as a binomial distribution.
- Total available hours are a function of hours open, good weather days, and number of courts.
- Guest-nights were modeled stochastically as a normal distribution with mean based on the estimates given in Exhibit 6 and the standard deviation 10% of the mean.
- The ratio Court-hours/Guest-nights were modeled stochastically as a normal distribution with mean based on the estimates given in Exhibit 3 and the standard deviation 10% of the mean.
- Hours Used is the product of the two previous variables.
- Associated with each price is a demand multiplier. As the price rises, we expect the demand to go down. Thus, as the price rises, our demand multiplier decreases. Because $40 per hour was the previous price, the demand multiplier is 1 (one) when price equals $40 showing no change to demand. See the Elasticity Curves sheet for detailed information on the demand multipliers.

We assumed that there were 3 (three) different elasticity curves corresponding to low, medium, and high demand times. Using the Guest-nights as a measure for demand, the Low demand months are Nov, Dec, Jan, & Feb. The Med demand months are Sept, Oct, March, April, & May. The High demand months are June, July, & August.

Lastly, note that the revenue and expenses statement is included below model.

**Instructions:**

1. Use Solver to determine the optimal fee structure and optimal number of courts the that maximizes Total Revenue subject to the number of courts is
less than or equal to 24, and the fee for the courts is less than or equal to $100. Note: Before you run solver, you need to choose the demand multipliers on the Elasticity Curves sheet of the workbook. At this point, we can make an educated guess about the magnitude of these multipliers. Play around; try a few different values and see how they affect the fees. Also, do not click the Assume Linear Model because it ain’t.

2. Now that you have an optimal fee structure and optimal number of courts to build, run a simulation and write down three different ways to report the associated risk to Kristen Morley. You need to choose your output measure before running the simulation. I suggest the Total Revenue for the courts and Contribution in the financial statement below the model for the outputs.

**Warning:** Solver will not work correctly when @RISK is open!