IS300 for Spring 2022

**Management Information Systems – Homework 3 on Excel Lesson 2**

Learning Objectives: **Spreadsheet Modeling and Analysis Using Excel**

1. **What if Analysis Using Scenario Manager**
2. **What if Analysis Using Goal Seek**

**3. Estimating Revenue with Markdowns**

**4**. **Determining the Economic Value of a Customer**

**5. Determine your grades, estimating the overall semester Grade**

1. **This homework assignment uses the following Excel file found on Beachboard.** File ***Homework 3 for Excel Lesson 2 data.xlsx.*** Rename this Excel File to: **Your Name -*Homework 3 for Excel Lesson 2 data.xlsx***

Note: You must turn in an Excel file, no PDF format will be accepted.

1. Use the worksheet **Festival** in the Excel file.
   1. You are hosting the Latin Music Festival. The expected crowd is 6000. The average expenditure on concessions is $16.00. The average Concession expenditure for Alcohol is $22.00. Tickets sell for $25.00 each, and the Festivals profit is 80% of the gate, Concessions food sales and concession alcohol, minus the fixed cost of $16,000. Develop a general Mathematical model and implement it on a spreadsheet to find their expected profit. Input your formulas into the Tab already created called Festival.
   2. For the Festival model, you developed above, define and run some scenarios using the *Scenario Manager* to evaluate profitability. Use the following scenarios below and rename the Scenario summary tab to Festival Profit.

Graphical user interface, application, Word

Description automatically generated

1. Use the worksheet **Bali Swimsuits** in your Excel File.
   1. A chain of Bathing Stores is introducing the “New Bali Girl Bathing Suit”. It is introduced for $70.00. A complex model has been built for you that takes into account many variables that influence the overall revenue. **Retail Markdown Pricing Decisions model** calculates the overall revenue for this suit. Use this Model to predict the revenue that could be achieved for different markdown decisions. The two variables are **Days at full Retail** (B7) and **Intermediate Markdowns** (B8). Use the Tab named: Bali Swimsuits and rename the scenario manager summary tab to Bali Sales.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Scenario Name | Short Sale | Average Sale | Longer Sale | Clearance Sale |
| Days at Full Retail | 12 | 22 | 33 | 60 |
| Intermediate Markdown | .15 | .25 | .45 | .60 |

1. Use the worksheet **Booking** in the Excel File ***Excel Homework 3 data.xlsx***
   1. Use the data below, put into spreadsheet to create this model. Use the Scenario manager to determine the best Reservation Limit. Create about 3 scenario or more. **Include one scenario at a reservation limit of 316.**

Experiment with the numbers below and suggest a good reservation limit.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Hotel Overbooking Model** | | | | |  |
| Column A | Column B |  |  |  |  |
| Data |  |  | Row 3 |  |  |
|  |  |  | Row 4 |  |  |
| **Rooms available** | **300** |  | Row 5 |  |  |
| **Price** | **$120** |  | Row 6 |  |  |
| **Overbooking cost** | **$100** |  | Row 7 |  |  |
|  |  |  |  |  |  |
| **Model** |  |  |  |  |  |
|  |  |  |  |  |  |
| **Reservation limit** | **310** |  | Row 11 |  |  |
| **Customer demand** | **312** |  | Row 12 |  |  |
| **Reservations made** | **310** |  | =Min(B11,B12) This is Row 13 |  |  |
| **Cancellations** | **6** |  | Row 14 |  |  |
| **Customer arrivals** | **304** |  | =B13-B14 This is row 15 |  |  |
|  |  |  | Row 16 |  |  |
| **Overbooked customers** | **4** |  | =MAX(0,B15-B5) This is Row 17 |  |  |
| **Net revenue** | **$35,600** |  | =MIN(B15,B5)\*B6-B17\*B7 This is row 18 |  |  |

1. Determining the Economic Value of a customer and Scenario Manager

Use the worksheet: **Customer Value** in the Excel File***.***

This is the example in our lecture Notes in PowerPoint lectures. Create a model to determine the economic value of a customer. Then use, What if Analysis-Scenario Manager to determine the Customer Values with different scenarios. See scenarios below.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **Scenario Summary** |  | Current Values: | Scenario - Recession | Realistic - Normal Economy | Booming Economy |
| **Changing Cells:** | |  |  |  |  |  |
|  | **Annual Dining** | **$B$7** | 6 | 3 | 6 | 9 |
|  | **Dollars spent** | **$B$8** | 50 | 25 | 50 | 70 |
|  | **Profit Margin** | **$B$10** | 0.4 | 0.3 | 0.4 | 0.45 |
|  | **Turnover** | **$B$13** | 0.3 | 0.45 | 0.3 | 0.2 |
| **Result Cells:** | |  |  |  |  |  |
|  |  | **$B$16** | 400 | 50 | 400 | 1417.5 |

1. Use the worksheet **Grades** in the Excel File .
2. Create a simple model to determine grades for a student in this class. Here is an example of the Model that I have created for you. The data below is for a student earning an overall class score of 84.40%. Use this model as a starting point and data provided. (Note: You will be able to use this model on yourself as the semester proceeds). See Example below: Calculate the PTS earned with a formula.

|  |  |  |  |
| --- | --- | --- | --- |
| **Assignment** | **% of Grade** | **Your Score** | **PTS Earned** |
| Midterm 1 | 21% | 0.82 | 17.22 |
| Final Exam | 24% | 0.72 | 17.28 |
| Homework 1 | 7% | 0.95 | 6.65 |
| Homework 2 | 7% | 0.88 | 6.16 |
| Homework 3 | 7% | 0.8 | 5.6 |
| Homework 4 | 7% | 0.95 | 6.65 |
| Homework 5 | 7% | 0.92 | 6.44 |
| Quiz (1-10) | 20% | 0.92 | 18.4 |
|  | 100% |  | 84.4 |

1. Use Goal Seek first to determine what grade on the Final Exam this student must get in order to receive an “A”. To receive an “A” the student must have 90% or better. Do not save the results, but write in the answer in the Space provided on Spreadsheet.
2. Use Scenario Manager and create a Best Case, Realistic Case, and Worst case scenario. Use to variables the Final Exam Grade and the Quizzes grade. See my example. You may use your own numbers. Rename the Scenario Manager results tab to Grade Forecast.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Scenario Summary for Grades** | | |  |  |  |
|  |  | Current Values: | **Best case scenario** | **Realistic grades Scenario** | **Worst Case Scenario** |
| **Changing Cells:** | |  |  |  |  |
|  | **Final Exam** | 0.72 | 0.96 | 0.8 | 0.6 |
|  | **Quizzes** | 0.92 | 0.95 | 0.88 | 0.8 |
| **Result Cells:** | |  |  |  |  |
|  | **Overall Semester Grade** | 84.4 | 90.76 | 85.52 | 79.12 |