

## Lab 3 Assignment – Microsoft Excel (III)

### Learning Objective:

Applying advanced Excel functions in a business context  
 Performing sales analyses, inventory replenishment and demand forecast using Excel  
 Understanding and solving problems with VLOOKUP function and pivot table

### Background:

This assignment is a continuation of Lab 3. You have missed Lab 3, you will need to start with Lab 3 Tutorial (*Lab3\_Tutorial.doc*) before working on the assignment.

### Business Scenario:

DangerWay has an extensive supplier network consisting of both local and regional farmers, from which the store places regular replenishment orders. In addition to the itemized annual report, Britney also receives a **WEEKLY** update with quotes from these suppliers for all her store items. *WeeklyQuote.xlsx* provides a copy of the report for the 52nd week of the last year. Note *not* all items are available from all suppliers – a blank cell indicates unavailability. In this assignment, you are asked to perform the following analyses using Excel procedures and functions similar to those learned in Lab 3.

### Requirements:

More specifically, you are asked to perform the following tasks and analyses:

1. **Formatting (2pt).** Open *Grocery.xlsx* (the file after finishing Lab 3 Tutorial), create a new sheet. Name the new sheet “Suppliers” and move it behind “Grocery” sheet. Open *WeeklyQuotes.xlsx*, copy the whole sheet and paste it onto the new “Suppliers” sheet you just created.

Format the worksheet using font Arial, size 10. With the exception of column A, make sure the numbers are in “Currency” format with 2 decimal places, aligned to the right. Make the header row stand out using font style Bold and Center alignment.

2. **Understanding Price Quotes (2pts).** Britney would like to calculate the average and minimum of the price quotes for each item (product). Please do so using Excel functions and put the results in column P (for average) and Q (for minimum) of the “Suppliers” worksheet. Label the columns accordingly (“Average” for P and “Minimum” for Q).
  - Pay attention to the empty cells. Would they affect the average and minimum?
3. **Finding Lowest Quote for Restocking (3pts).** Switch to “Grocery” worksheet, put “Average” in E1 and “Minimum” in F1. In column E and F, use VLOOKUP to find the average and minimum quotes for each item from the “Suppliers” worksheet.  
*Note:* the list in the “Suppliers” is much longer so copy & paste won’t work.
  - You will need to REALLY understand how VLOOKUP function works and the meaning of each argument. Check Lab 3 Tutorial again if you have any issues.

4. **Inventory Management Based on Previous Demand (4pts).** Every week Britney needs to decide how many units she needs to replenish for each item. She would like to estimate the weekly replenishment order size using both the sales and quotes data from Week 52 of last year (more precisely, the number of units sold across all items during that week).

Please calculate the estimate for her and put the results in column G. Label it "Units." Since we do not have weekly sales data, we will assume the following for simplicity:

- (1) There were exactly 52 weeks in the last year;
- (2) Weekly demand for each item is constant all year long  
(i.e., demand in week 1 = demand in week 2 ... = demand in week 52)  
(Think: given annual sales, how do you calculate weekly sales);
- (3) Britney always orders from the supplier with the **lowest** quote; and
- (4) Britney always sets a fixed **5% markup** for each item.

Let's quickly organize what information we have on hand. For each item, we know:

- (1) the **annual** sales from the last year,
- (2) the **unit cost** (lowest quote), and
- (3) the **5% markup** for the selling price.

Now, it is your job to estimate the **weekly** replenishment order size for each item. For your solutions, allow decimal numbers for "Units" by setting the format to have 2 decimal places.

Hint: Annual Sales = Unit Cost \* 1.05 \* Annual Quantity Sold

5. **Advanced Revenue Analysis (4pts).** To run a marketing campaign for DangerWay, Britney wants to know which product category is her "cash-cow" in generating revenue. Hired as an expert in data analytics, you are asked to answer the following questions based on the product, sales and category information you have on hand (column A, B and D of worksheet "Grocery".)
- (1) What are the average sales for each category?
  - (2) Which product category generates the most total sales? Which generates the least?
- Create 2 pivot tables in a new worksheet to answer the above 2 questions. Rename the worksheet as "Pivot Table" and write the answers in the top of the worksheet.

**Submission/Due:**

Save your Excel file and submit it on Blackboard using link "*Lab 3 - Assignment*". The assignment is due before next class. I strongly encourage you to start working over the weekend, so you can utilize TA's office hours if you have any questions.

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**Bonus Point (Will not be tested in quiz):**

The following bonus questions are for those who are looking for truly excellence as the difficulty level is hard. Continue working on the existing "Grocery.xlsx" file.

**Acquiring Competitive Advantage (+4 pts).** Britney has learned from the past that finding the best deal is key to DangerWay's success in today's highly competitive grocery retail industry. Therefore for each item on the "Suppliers" worksheet she would like to find the supplier that offers the lowest price and list its name in the last column (column R). Because

the size of the database and the fact that grocery prices fluctuate on a daily basis, she would like an automated solution.

1. Sort "Grocery" worksheet by SKU in an ascending order such that you have "Deoderant" and "10635" in A2 and B2, respectively. Create a new column labeled "BuyFrom" on the "Suppliers" worksheet. You need to fill the column with the names of the lowest-quote suppliers for each item. You may need to use multiple functions to do the job. If there are multiple suppliers offering the same lowest price, you just need to list one of them. Any one of them will do.
  - For example, if you have done it correctly, R2 should list "Wild Eat" and R3 should list "Joey's" as the best buys. If I delete cell K2's content from "Suppliers" worksheet (i.e. item #10635 is no longer available from Wild Eat), R2 should list "Amerifish" instead.
  - You will probably find the MATCH function helpful, which looks up a given value in a row and returns the position of the match, if there is one.

*(Hint: solving the problem is actually not as difficult as it seems. What you have learned from the lab should be enough – all you need is some clever use of the functions especially VLOOKUP.)*

2. Instead of using their full names, DangerWay's inventory replenishment team relies on a coding system to identify all their suppliers. Each supplier is identified by a three-letter internal code using the first three letters of the supplier's name, all capitalized. For example "Amerifish" is listed as "AME" in the system.

Create another column named "Code" to the right of "BuyFrom" and list all the lowest-quote suppliers by their internal codes.

*(Hint: you may find the LEFT and UPPER Excel functions helpful in this case.)*