**MIS 2101 Project 1**

**Business Applications**

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**Instructions**

This assignment has **three major parts.** Each part involves reading, interacting with some software, copying computer screen images into your assignment to demonstrate your work, and responding to questions.

**Grading Criteria**

This assignment will be graded using a total numeric score based on the accuracy of your answers.

**Submission of Deliverable**

Add your answers to this document and submit this document as a file. Answers to questions should not be longer than two to three sentences. Credit will be deducted for longer answers.

***Submit your final project via hardcopy only, due by the end of class on the assigned date. NO late submissions will be accepted. The assignment is posted on the class MIS Community site. Please use the assignment template for your answers, and provide screen shots for all of the assignments when directed.***

To copy a screen image on your computer, press the Alt+PrtSc keys on your computer. This copies the screen to the Windows clipboard. Then go to the assignment Word document,

* place the mouse cursor at the point where you want to insert the screen image
* press and release the left mouse key
* select Edit/Paste

## PART A – Customer Relationship Management

## Introduction

The purpose of this assignment is to learn how businesses manage relationships with existing and potential customers through a Customer Relationship Management (CRM) system.

You will explore a demo of Microsoft’s CRM. Make sure you are using a computer with the volume up so you can hear what the presenter is describing.

## Steps

1. Watch and listen to the Microsoft Dynamics CRM 3.0 Demo:

<http://crm.dynamics.com/demos/salesautomation/default.html>

1. You will also need to refer to chapter 8 of the Valacich book, Improving Supply Chains and Strengthening Customer Relationships, to answer some of the questions.

## Answer the Questions for Part A Here

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| QUESTIONS | YOUR ANSWERS |
| Developing a CRM strategy is discussed in chapter 8 of the Valacich book.   * What changes are necessary for an organization to successfully implement a CRM? | The changes necessary for an organization to successfully implement a CRM are Policy and Business Process Changes, Customer Service Changes, Employee Training Changes, Data Collection, Analysis, and Sharing Changes. |
| In chapter 8 of the Valacich book, the terms ***analytical CRM, collaborative CRM*** and ***operational CRM*** are introduced. According to the book,  What is an ***analytical CRM?***  What is a ***collaborative CRM?***  What is an ***operational CRM?*** | Analytical CRM: Systems for analyzing customer behavior and perception in order to provide business intelligence.  Collaborative CRM: Systems for providing effective and efficient communication with the customer from the entire organization.  Operational CRM: Systems for automating the fundamental business process – marketing, sales, and support – for interacting with the customer. |
| List one function that a CRM performs for the sales organization (from the Microsoft site). | One function that a CRM performs for the sales organization is to help monitor his individual team and regional sales performance. |
| List one function that a CRM performs for marketing organizations (from the Microsoft site). | One function that a CRM performs for marketing organizations is to help configure data and goals within the organization so that they can better analyze and use the data for their marketing strategy. |
| List one function that a CRM performs for customer service organizations (from the Microsoft site). | One function that a CRM performs for customer service organizations is that they can allow for customer organization interactions through technology, making it easier and faster for an organization to get the customer the information they want or need. |

## PART B – DECISION SUPPORT SYTEMS

## Introduction

The purpose of this exercise is to gain hands on experience with a Decision Support System (DSS). According to whatis.com a “DSS is a computer program application that analyzes business data and presents it so that users can make business decisions more easily. A DSS may present information graphically and may include an expert system or artificial intelligence ([artificial intelligence](http://whatis.techtarget.com/WhatIs_Definition_Page/0,4152,211597,00.html)). It may be aimed at business executives or some other group of knowledge workers.”

Due to increases in processing capabilities and analytical developments, coupled with decreases in the cost of storage mediums, DSS has become increasingly popular and widely used in the past couple of years. As a result, DSS today are used in almost every discipline imaginable, such as: business, agriculture, and personal use.

In this DSS simulation, you are a Product Manager for a large computer printer manufacturing company. You have been asked to develop a pricing strategy for a new line of printers and the ink jet cartridges that are sold for these printers. You know that the printer market is very competitive, and that there are very different strategies for how to price both the printers and the ink jets. For example, Kodak sells their printer systems with a price markup that allows them to make money on the printer, and they sell their ink cartridges at a lower price with a very small profit margin. HP on the other end, sells their printers at a fairly significant loss, but charge higher prices on the ink cartridges. HP’s idea is to sell more printers, and make their profit on the ink cartridges. Both strategies have pro’s and con’s, and you need to decide how your company will price their printers and ink cartridges to maximize profit.

Various groups in Sales & Marketing have submitted four (4) different recommendations on pricing the printers and ink cartridges. Using the DSS software application in this exercise, you need to evaluate each proposal and the assumptions provided, to determine which scenario makes the most sense for your company. Your assignment will require you to answer some questions about the overall DSS evaluation, and provide screen shots of your DSS analysis screen shots. .

## Getting Started

* Go To this URL: <http://forio.com/simulation/aftermarket/casestudies.htm>
* Select the “Inkjet Printers & Ink Cartridges” simulation from the Drop Down
* Select “Select Simulation”

# This will bring you to a screen titles: “Review Inkjet Printers and Ink Cartridges Assumptions”

* Using this screen calculator, you will enter the data from the four (4) Sales Plan scenarios, one plan at a time (**which are found in Table A below**). Enter the data accurately from each Sales Plan into the individual fields, and check to make sure they are correct.

# For each individual sales plan, you then:

# Click: “Go to Step 2: Review Printer Sales Estimates”. This will bring you to a screen labeled “Review Printer Sales Estimates”, which shows you the expected printer sales estimates by units over the course of the product life.

* Click: “Submit Sales Estimates and Run Simulation.”
* This Aftermarket Analysis screen gives you all of the data you need to analyze each Sales Plan. There are menu tabs to give you specific information for metrics like: Revenue (for printer sales, cartridges sales, total sales), Units Sold, Number of Customers, Market Share, and Profit (by printer, cartridge, and total profit).
* Take a snap shot of your screen shot of the “Yearly Revenue”
* To capture, use the **PrtSc** key on your keyboard.
* Open a Word document and press **Control +Alt + “V”**
* Paste the screen in the space below the questions, or on a separate Word Document to attach with the answers.
* Then click “Spreadsheet.” This now totals sales and profit, by product category, by year. Take a snap shot and paste a copy of the Spreadsheet next to the “Yearly Revenue” screen.
* Click: “Export Spreadsheet to Excel, and you now have a working spreadsheet to help you answer the questions related to this exercise. (Hint: You can use AutoSum to quickly add up the sales and profit figures, using these spread sheets.) You will run this simulation for each Sales Plan, to develop the data to answer the questions below. When you have totaled all of the data rows on the spread sheet, label each sheet by Sales Plan # and print a copy of the spreadsheet for each plan. You will need these spreadsheets to answer the questions below.

## Answer the Questions for Part B Here

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| QUESTIONS | YOUR ANSWERS |
| Which Sales Plan scenario provides the highest total revenue (printer & ink cartridge) over the life of the product? | Sales Plan #2 provides the highest total revenue with $1,926,817,103 over the lifetimes of the product. |
| Which Sales Plan scenario provides the highest level of total profit (printer & ink cartridge) over the life of the product? | Sales Plan #2 provides the highest total profit with $1,066,996,970 over the lifetime of the product. |
| Can it make sense to sell printers at a loss, in order to maximize revenue and profit?  Why? | Yes, it can make sense to sell printers at a loss to maximize revenue because a printer is useless without ink. Customers will buy printers if they are cheap without looking to see how expensive the ink cartridges are for that printer, and that is where the company can make its money, as is evident from this example. |
| As a manager using this DSS application, which Sales Plan would you choose?  Why? | I would definitely choose Sales Plan #2 because it provides the most revenue and also the most profit. Although you would lose money on the printers themselves, you would quickly make back that money and then some, when you sell the ink cartridges. |
| **Table A**  **Sales & Marketing Scenarios: To be used for your DSS evaluations.**  **Sales Plan 1:**  ***Price Assumptions***  **Price: $75**  **Average Printer Life(years): 3**  **Printer Profit Margin: -20%**  **Highest Expected Yearly Sales: 1,500,000**  ***Cartridge Assumptions***  **Cartridge Price: $40**  **Frequency of Cartridge Purchase: 6 mos.**  **Cartridge Profit Margin: 65%**  **Sales Plan 2:**  ***Price Assumptions***  **Price: $65**  **Average Printer Life(years): 3**  **Printer Profit Margin: -30%**  **Highest Expected Yearly Sales: 2,000,000**  ***Cartridge Assumptions***  **Cartridge Price: $65**  **Frequency of Cartridge Purchase: 6 mos.**  **Cartridge Profit Margin: 70%**  **Sales Plan 3:**  ***Price Assumptions***  **Price: $95**  **Average Printer Life (years): 3**  **Printer Profit Margin: 25%**  **Highest Expected Yearly Sales: 985,000**  ***Cartridge Assumptions***  **Cartridge Price: $40**  **Frequency of Cartridge Purchase: 6 mos.**  **Cartridge Profit Margin: 45%**  **Sales Plan 4:**  ***Price Assumptions***  **Price: $50**  **Average Printer Life (years): 3**  **Printer Profit Margin: 10%**  **Highest Expected Yearly Sales: 1,600,000**  ***Cartridge Assumptions***  **Cartridge Price: $46**  **Frequency of Cartridge Purchase: 6 mos.**  **Cartridge Profit Margin: 60%**  **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**  **Paste screen shots here:**  **Sales Plan #1**        **Sales Plan #2**        **Sales Plan #3**        **Sales Plan #4** | |

## PART C: Business Intelligence

The primary purpose of an information system is to process information to produce reports to facilitate decision making. Reports may appear in various formats and be used to support a diverse range of organizational decisions. Reports provide a mechanism for organizing, analyzing, presenting and delivering information to end users. A common classification of reports is based on the types of systems on which they are built from. On-Line Transaction Processing (OLTP) systems as the name suggests are optimized for transaction processing. They process real time information and are accessed by many users. The reports are derived from the various business transactions and predominately support tactical decision making. An alternative information system is On-Line Analytical Processing (OLAP). This type of processing allows users to analyze information by creating multidimensional reports. They deal with large volumes of aggregated historical data. OLAP based reports are more flexible than the more traditional reports produced by an OLTP system.

OLTP reports provide information about particular transactions. The type of reports an OLTP system produces include:

* Who purchased a particular product?
* How much did an employee get paid?
* How many of a product was manufactured?

The flexibility of OLAP reporting assists end users in understanding why particular business events have occurred and or forecast what may occur in the future. The types of questions an OLAP system can assist with could include:

* What are the total sales for each product?
* What are the total sales for each department?
* Which salesperson has sold the most?
* Which products does each salesperson sell the most of?
* In which month did most of the sales occur?

OLAP systems and their ability for multidimensional reporting are considered important component of Business Intelligence. OLTP systems often provide the transactional data which is used as an input for OLAP system’s multidimensional reports.

To gain a better understanding of multidimensional reporting and related concepts we have created an exercise using Microsoft Excel’s PivotTable. The purpose of this exercise is to create a PivotTable in Microsoft Excel to analyse the data using multi-dimensional reporting.

**Scenario**

You are a manger of a department store and one of your responsibilities is to make decisions related to product ordering, promotions, customer discounts as well as monitoring and managing the daily operations of the store. You have a number of OLTP systems to assist with the recording of day to day transactions. At the end of each month you are provided with a report which displays each sale (see Excel file retail\_sales\_feb08.xlsx for February 2008 report). Although this report provides a lot of information, the information is not in a format which can easily assist in the type of decisions you are required to make.

Some of the questions that you are required to answer at the end of each month include:

Q\_a) Which customer spent the least amount of money in February?

Q\_b) Which customer spent the most in February and which sales person was responsible for the majority of these sales?

Q\_c) Which product provided the most revenue?

Q\_d) Which salesperson provided the most sales revenue?

**PivotTables**

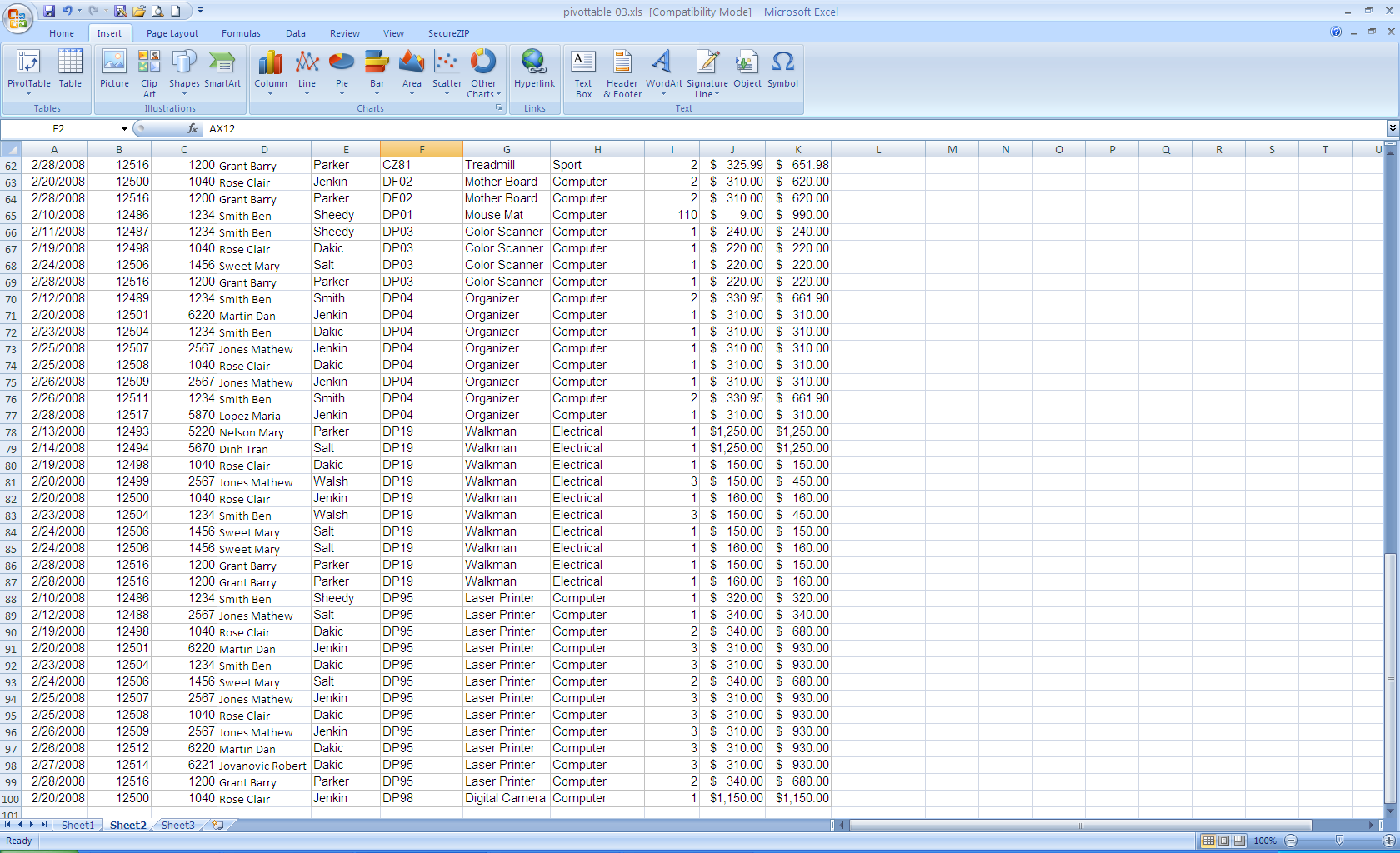
An example of a multidimensional reporting tool is Microsoft Excel’s PivotTable function. A **PivotTable** is a tool which assists users with summarising large amounts of data into useful reports. The **PivotTable’s** flexibility enables you to re-arrange the table’s structure (columns and rows) until you get the required information.

Here are the instructions to create pivot tables. Follow these steps (1- 7) to create a pivot table to find out which product provided the most revenue (Q\_a). Next follow step 8 to modify this Pivot Table to create a two dimensional pivot table to answer Q\_b. Creating Pivot Tables to answer Q\_c and Q\_d are left as an exercise for the students.

**Steps**

1. Open the file [retail\_sales\_feb08.xlsx](file:///C:\Users\Doyle\AppData\Local\Temp\Temp1_Proj%201%20Bus%20Applications.zip\retail_sales_feb08(1).xlsx)

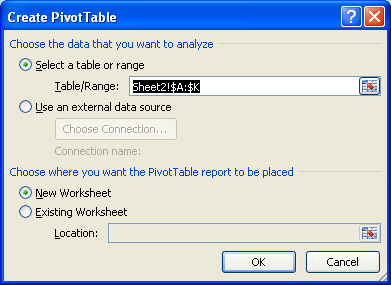
2. Click Insert -> Pivot Table at the top left of the screen



3. Select Pivot Table from the drop down menu

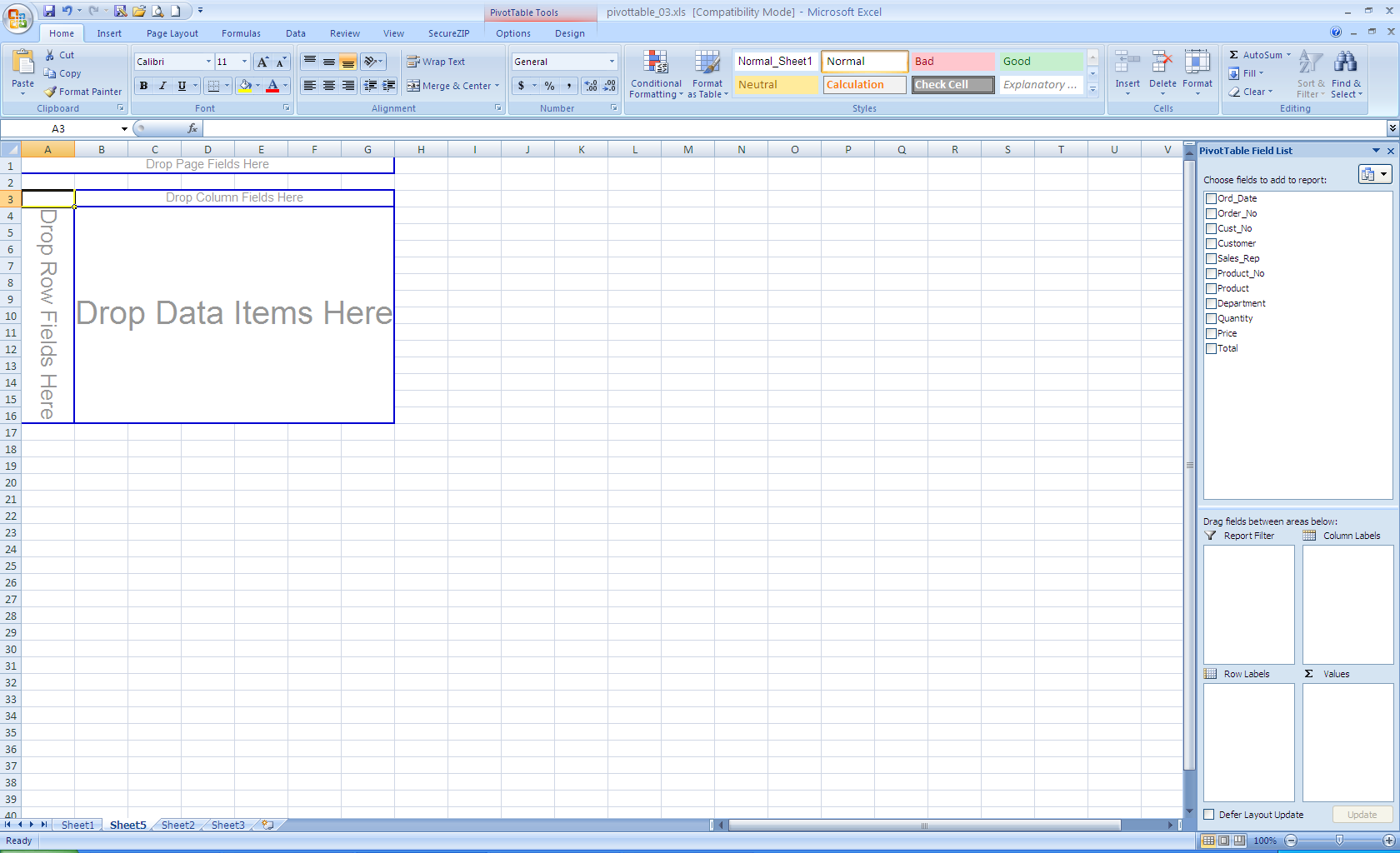


4. The next screen requires you to identify the data range to be analysed by the **PivotTable**. You will notice that Excel has automatically detected the data range. Also indicate where the **PivotTable** will be created.

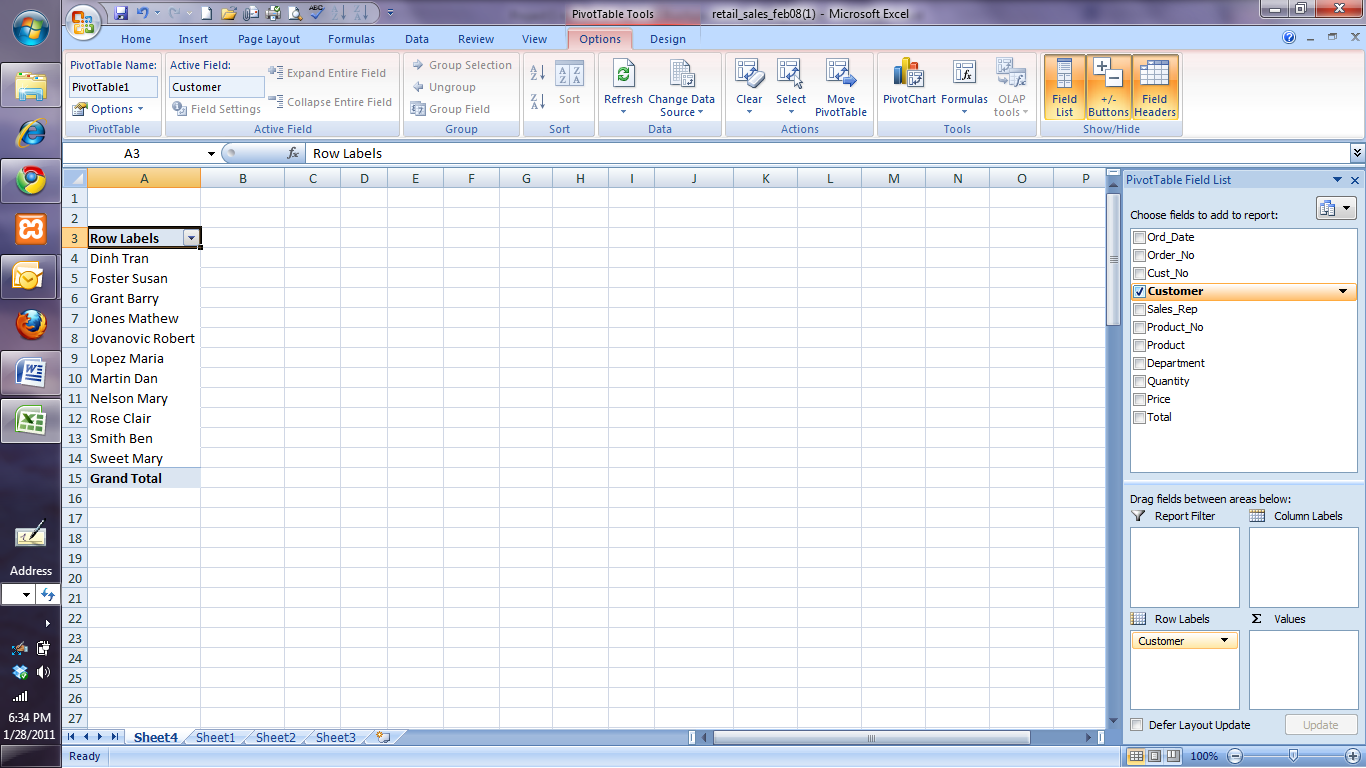


Click OK to continue

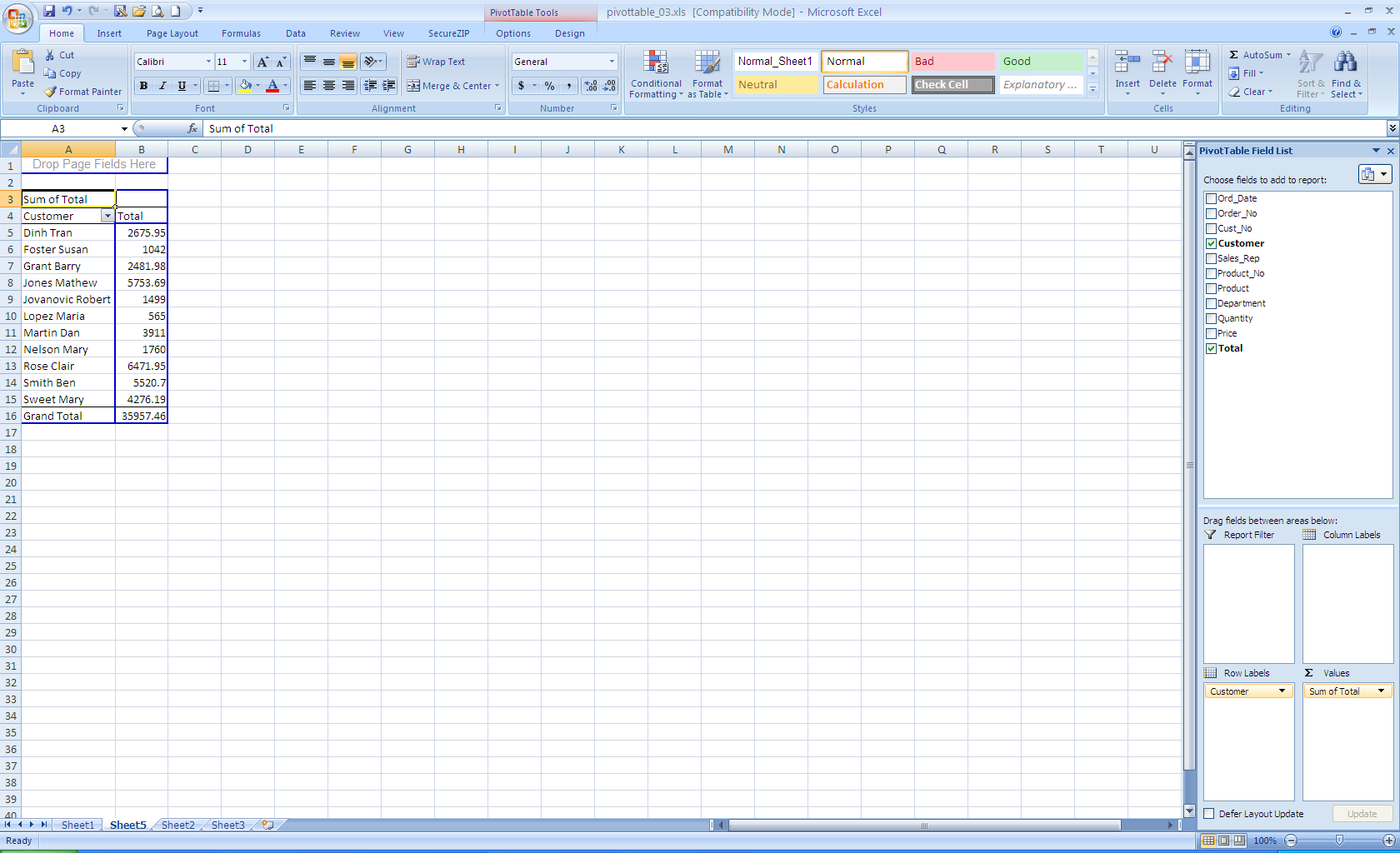
5. A new worksheet appears similar to below. The screen is divided into two sections. On the left is the **Design Area** where you define the structure of your **PivotTable**. On the right, is the **Field List** which corresponds with the column headings of your data.



6. Click the checkbox **Customer** field from the list on the right to display the list of customers. This is the same as dropping the **Customer** field in the **Row Labels** box on the lower right side of the screen. Your screen will look like this:



7. Drag & drop the **Total** field to the **∑ Values field** in the lower right corner of the screen. Notice the order total next to each customer and a Grand total in your pivot table.



Notice the answer to Q\_a: which customer spent the least amount of money in February?

**Multidimensional Pivot Table**

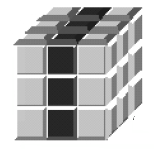
A multi-dimensional structure has been designed to enable a user to report on multiple dimensions at the same time – for example, **Department** sales by **Customer** and **Product**. This would display all records.

Department

Customer

Product

It is possible to navigate through the structure to view a subset of the data. For example a report which displays all sales for **Products** in all **Departments** for a particular **Customer**

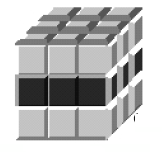


Department

Customer

Product

Alternatively a user could “**slice**” the data to view all **Customers** and **Products** they purchased for a particular **Department**.

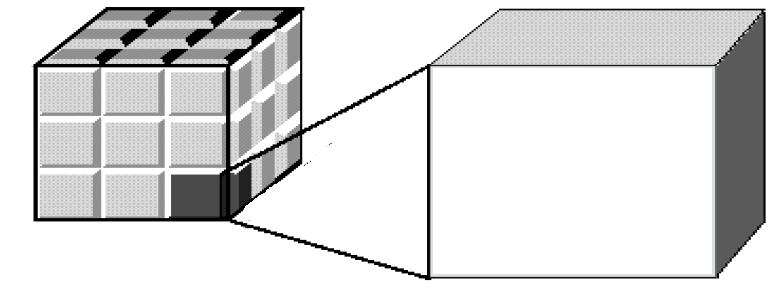


Department

Customer

Product

Through **“dicing”** more granularity can be achieved. For example:



Department

Customer

Product

Customer = Lopez Maria

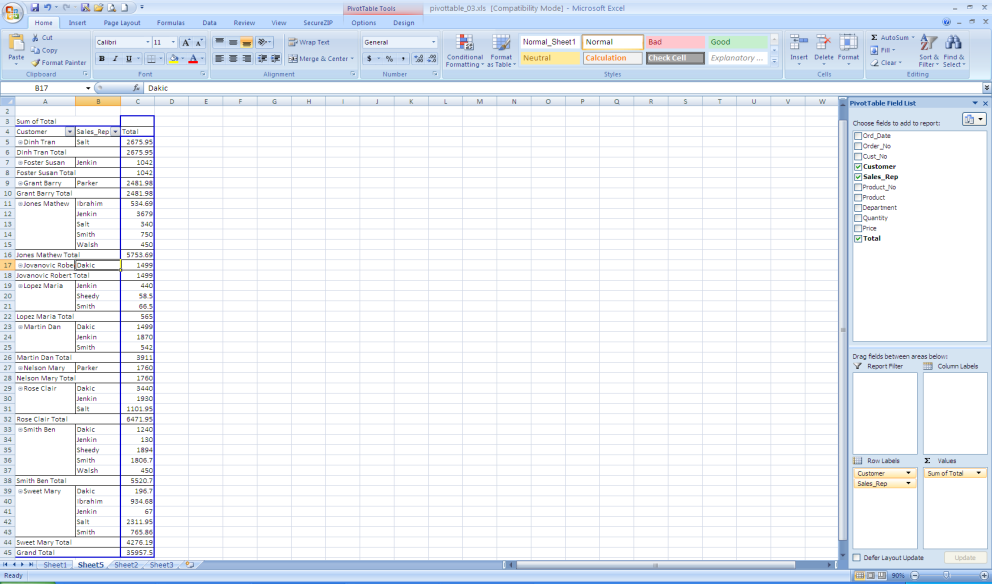
Product = Hub Caps

Department = Auto

Total Sales = $35.50

To answer Q\_b – “which customer spent the most in February and which sales person was responsible for the majority of these sales?” we need to create a two dimensional pivot table which includes information by customer and by salesperson.

7. In the Pivot Table created in Step 7, drag &drop the **Sales\_Rep** field from the list on the right to the **Row Labels** box on the lower right side of the screen (can be done by clicking the checkbox). Make sure that the **Sales\_Rep** field appears below the Customer field. You can drag and drop fields in this box to rearrange the order, if needed.



To answer Q\_b, think about the following: which customer has the highest order Total? For this customer, which sales person was responsible for majority of the sales?

**Questions for BI Assignment:**

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| QUESTIONS | YOUR ANSWERS |
| Which customer spent the least amount of money in February? | Maria Lopez spent the least amount of money in February which was $565. |
| Which customer spent the most in February and which sales person was responsible for the majority of these sales? | Rose Clair spent the most amount of money in February which was $6,471,95. The sales person responsible for the majority of the sales was Dakic with $3,440 of the sales. |
| Which product provided the most revenue? | The product which provided the most revenue was Laser Printers which was $9,210. |
| Which salesperson provided the most sales revenue? | The sales person who provided the most sales revenue was Jenkin which was $9,158. |