


## **MBA PLLG 4: Technical Assignments in Modules 4, 6 and 7 are used for assessment.**

### **Module 4 Technical Assignment:**

In this module, we also reviewed sample Excel data file with RFID tag data for pallets. Assume you are a manager working for a manufacturer of consumer product goods. Using the RFID reader and tag data, arrive at answers to the following questions:

1. On what days did a given pallet with EPC 48 3 5 0614141 000734 347900 move from one location to another? What are the chronological movements of the pallet?
2. (A) What is the average time taken between producing a pallet at our facilities and the pallet reaching a retail store? (B) What is the average time taken between producing a pallet at our facilities and the pallet reaching a retail store for each of the following specific product categories: Pallet of Diapers, Pallet of Soaps, Pallet of Detergents, Pallet of Probiotics? (C) How do the averages for each product category in part (B) compare to the overall average in part (A)?
3. What is the average number of days that a pallet is spending in the distributor's warehouse?
4. What is the average number of days that shipping trucks are taking to deliver a pallet from the manufacturing facility to the distributor's warehouse?
5. What is the average number of days that shipping trucks are taking to deliver a pallet from the distributor's warehouse to the retail store?
6. Are some types of pallets (types of products) getting delivered quicker to the retail stores from the distributor's warehouses?
7. What is the average number of days that a pallet is spending in our manufacturing facilities before it is picked up by a shipping truck? Hint: On a sheet named "Question 7", create two separate pivot tables with EPC Read and Tag Read Date and Time. For both pivot tables, filter by "Type of Interaction". For the first pivot table, filter by "Pallet stored in the storage area" and select MAX of Tag Read Date and Time. For the second pivot table, filter by "Pallet loaded on a shipping truck" and select MIN of Tag Read Date and Time. Now subtract the two times in the two pivot tables to obtain the total days product is spending in the manufacturing facility. Now take the average of these days.
8. What is the average number of days that a pallet is spending in transit between locations?
9. Arrive at the total number of days that each pallet took between manufacturing and reaching the retail store. Are there any trends in terms of the type of pallets and the time taken?
10. Between 1/3/2019 and 1/9/2019 (both inclusive), which pallets have recorded activities and what are these activities by pallet?

### **Module 6 Technical Assignment:**

As a manager, you will be required to understand and draw conclusions based on security data. Your skills to analyze and interpret security data can help you allocate the required budget and implement appropriate security measures and controls at your organization. The [attached file](#)  indicates a sample of logins at a fictitious organization. Assume that the company is selling products to business customers via its website. It contains data on the following:

- Name of the individual logging in
- Organization they represent
- Address
- Phone Numbers
- Email Address
- Website the users are logging into
- User id
- Password
- Login Successful? (failed, successful, expired means that the password expired and the users needed to update password)
- Account Type (New or Old account)
- IP Address from which the users are logging
- Authentication Type: Authentication via Phone or OTP (one time password) or Regular (which means using user id and password).

Using this file, you can address questions such as the following:

1. How many logins have been successful versus how many unsuccessful? What is the percentage of successful versus unsuccessful logins?
2. What percentage of logins were successful versus failed versus expired (passwords) for different authentication types: call, OTP, regular?
3. What is the distribution of logins in the categories of successful, failed, expired by state? What are the percentages by state?
4. What is the distribution of logins in the categories of successful, failed, expired by user id? What are the percentages by user id?
5. Your organization is thinking of implementing one of the following four policies. If you analyzed the Excel file for passwords, what percentage of passwords will satisfy each of the policies 1, 2, 3, and 4?:

POLICY 1: Password should be at least 8 characters long with at least one number, at least one upper-case letter, and at least one lower-case letter

POLICY 2: Password should be at least 8 characters long with at least one number, at least one upper-case letter, and at least one lower-case letter; in addition, password should contain at least one of the following three special characters: @, #, \$

POLICY 3: Password should be at least 10 characters long with at least one number, at least one upper-case letter, and at least one lower-case letter

POLICY 4: Password should be at least 12 characters long with at least one number, at least one upper-case letter, and at least one lower-case letter

**Instructions:**


You are expected to complete this assignment in Microsoft Excel. Complete and submit the assignment by 23:59 CST Sunday.

**Submission Instructions:**

See the [course grading policies page](#) so that you understand policies on late work and the rubrics used for this assignment. The specific rubric used for this assignment is included below.

**Module 7 Technical Assignment:**

This assignment has two parts: Part (A) and Part(B). You need to complete both parts.

As a manager, you will be required to understand and draw conclusions based on enterprise data. This unit's application exercise uses data from a simpler CRM system. The CRM data is available for you in two different formats: [Excel](#)  and [Microsoft Access](#). Please feel free to use any one of these formats. These files contain data on the following:

- Customer data including name, address, emails, phone numbers etc.
- Customer demographics data
- Customer call data
- Customer sales data via different channels: web sales, telephone sales, field sales retail sales
- Data on advertisements directed towards the customers


**PART A:**

Using this data, you can address questions such as the following:

1. Is there a relationship between the income ranges of customers (consider four income ranges: 0-25K, 25-50K, 51-75K, 76-100K, 100+K) and the total purchases made by customers? In the Excel file, these income ranges are already codes as income levels 1, 2, 3, 4, and 5. Depict this as a chart.
2. Is there a relationship between the race of customers and the total purchases made by customers? Depict this as a chart.
3. What is the distribution of total sale amounts into field sales, web sales, retail sales, and telephone sales? What are the percentages? Based on the data, what conclusions do you draw in terms of the type of sales you should focus on?
4. Compare the total customer purchases made by different genders in the categories of field sales, web sales, retail sales, and telephone sales? Are there trends based on gender in terms of these sales?
5. What are the total number of customer service calls by each gender? What are the percentages?

The original data was distributed among different worksheets in the Excel file. I combined the data into single Excel file for your convenience. You may not be able to find answers to the above questions using a single pivot table (or a single query). It is fine to use multiple pivot tables (or multiple queries in Microsoft Access) to find answers to these questions. Any methods you use to analyze the data is fine.

**PART B:**

On a Monday morning, when you already have a ton of work, your manager asks you to take on another task. S/he asks you to review the [attached sales data](#)  obtained from the CRM system and analyze it as stated in (B.1) and (B.2) below. *The data file shows sales for four income levels, 1, 2, 3 and 4.*

(B.1) Are there statistically significant differences in the total sales amounts between people who belong to different incomes levels? To answer this question, consider only income levels 1, 2, 3 and 4.

Hint: Use single factor ANOVA to conduct the above analysis.

(B.2) If the single factor ANOVA revealed statistical differences in (B.1), which income level groups are statistically different?

Hint: Conduct pairwise t-Tests between income levels 1 and 2, 1 and 3, 1 and 4, 2 and 3, 2 and 4, and 3 and 4. Conclude which pairs have statistically significant differences.