

**Lilac Daily Sales Update – VBA Project**

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# Background

Lilac began as a maternity boutique, located at the base of the Cottonwood Canyons in Salt Lake City, Utah. It was established by two sisters who were devoted to helping expecting mothers look and feel as beautiful as they are throughout their pregnancy. This company's main focus is on designer denim and top maternity brands that are made with the stylish mother in mind. With time, the sisters started their own clothing line which is bringing more opportunities for growth and has gained access on the shelves of stores and boutiques in 18 states, two counties, and 43 locations including Pickles and Ice Cream, Baby Bliss, and Costco. Recently, Lilac landed a deal with Costco that allows them to have product in stores around the nation. This new avenue of business has required Lilac to speedily ramp up and it has been a challenge to grow the company at such an enormously fast rate.

# Challenge

Due to Costco’s stringent inventory guidelines, Lilac must have sufficient stock of its products in all the stores around the country. This task requires dynamic inventory control and distribution systems, especially since the number of stores that are carrying Lilac product changes daily. Currently, one of the managers downloads the daily sales from Costco’s website every morning and manually counts both the sales at each location along with the inventory. Such figures are used to determine bonuses of the workers at each location along with establishing the data to conduct reorder point analysis. This process takes up valuable time and has the potential for many mathematical errors.

# Solution/Objectives

The goal was to create a system that would satisfy a few distinct objectives.

1. Compute the total daily sales for all Costco locations
2. Compute the sales from each specific location
3. Keep track of the quantity of items that were sold that day, broken down by which items sold in each location
   * The future goal is to match up the daily sales with the current inventory to provide an automatic trigger for the reorder point

# VBA Project Description

1. **Download the daily Lilac sales from Costco’s website**
2. **Break down the total sales by the Costco location**
3. **Sum all sales for the day**
4. **Break down the quantity sold of each item by store location**
5. **E-mail and text senior management with the sales figures**

# Download the daily Lilac sales from Costco’s website

Costco does not allow its data to be pulled directly from the “Get Data from Web” button in Excel so I used the html code on the site to navigate through the correct pages to retrieve the information. Once downloaded, the data is then placed in the excel spreadsheet.

# Break down the total sales by the Costco location

The sales data then undergoes through the subtotal function to determine the total sales of each Costco location. I used the “find” function to associate the total of each Costco location with the subtotal results and then sort it from lowest to highest sales. Since there will be over 100 Costcos yet not all with have daily sales, I created a conditional formatting function that hides the Costcos that did not have sales that day.

|  |  |
| --- | --- |
| **Grand Total** | **$ 6,726.41** |
| 781 Total | 358.18 |
| 401 Total | 913.15 |
| 487 Total | 961.00 |
| 761 Total | 1376.43 |
| 110 Total | 3117.65 |

# Sum all sales for the day

The main page uses a VLookup function to be able to separate the locations that had sales with the ones that did not. The sales of each location along with the total sales are then sorted from lowest to highest on the main page.

# Break down the quantify sold of each item by store location and by the item’s total

This was by far the most difficult task since I tried using arrays and pivot tables to obtain the needed information.

## VBA Code Example

The following sub breaks matches the item number and quantity to the specific store.

Sub ItemBreakdown()

'This sub goes through and populates an array with the unique store numbers

Dim UniqueStores() As String

Dim AllStores() As String

Dim KeepLook() As Boolean

Dim AllStoresCount As Long

Dim X As Long

Dim UniqueCount As Long

UniqueCount = 1

Sheets("Input New Data Here").Select

Range(Range("D2"), Range("D2").End(xlDown)).Select

AllStoresCount = Selection.count

Debug.Print AllStoresCount

Range("D3").Activate

ReDim KeepLook(AllStoresCount) As Boolean

KeepLook(0) = True

For X = 1 To AllStoresCount - 1

If ActiveCell.Value = ActiveCell.Offset(-1, 0).Value Then

KeepLook(X) = False

ActiveCell.Offset(1, 0).Activate

Else

KeepLook(X) = True

ActiveCell.Offset(1, 0).Activate

UniqueCount = UniqueCount + 1

End If

Next

ReDim UniqueStores(UniqueCount) As String

Dim Y As Long

Y = 0

Range("D2").Activate

For X = 0 To AllStoresCount - 1

If KeepLook(X) = True Then

UniqueStores(Y) = ActiveCell.Value

ActiveCell.Offset(1, 0).Activate

Debug.Print UniqueStores(Y)

Y = Y + 1

Else

ActiveCell.Offset(1, 0).Activate

End If

Next

'this part puts the store names into the Breakdown sheet

Sheets("Breakdown").Select

Range("B3").Activate

For Y = 0 To UniqueCount - 1

ActiveCell.Value = UniqueStores(Y)

ActiveCell.Offset(1, 0).Activate

Next

Dim LookinFor As Long

Dim Item As Long

Dim Quantity As Long

For Y = 0 To UniqueCount - 1 'it's saying it is a mismatch

For X = 0 To AllStoresCount

Sheets("Breakdown").Select

Range("B" & Y + 3).Activate

LookinFor = ActiveCell.Value

Sheets("Input New Data Here").Select

Range("D" & X + 2).Activate

If ActiveCell.Value = LookinFor Then

Item = ActiveCell.Offset(0, 8).Value

Quantity = ActiveCell.Offset(0, 10).Value

Sheets("Breakdown").Select

Range("B" & Y + 3).Activate

'populate the cells with the quantity

Cells.Find(What:=Item, After:=ActiveCell, LookIn:=xlFormulas, LookAt \_

:=xlPart, SearchOrder:=xlByRows, SearchDirection:=xlNext, MatchCase:= \_

False, SearchFormat:=False).Activate

ActiveCell.Offset(Y + 1, 0).Activate

ActiveCell.Value = Quantity

End If

Next

Next

End Sub

To better understand how to use Pivot Tables in VBA, I also included a Pivot Table to obtain the same information, copied it so I could just paste the values, and then used a Vlookup function to match the item description to the item number (which is the only figure Costco includes in its data). Lilac wanted to see the style, color, and size of each item alongside the total quantity figures for the day.

See below for an example of how this looks. Note: some of the items do not currently have a description and therefore that section shows up as N/A. To make it easier to read, I created a condition that changes the text color to that of the background so you do not see the error message.

**Vlookup Data (Item Description) Costco Warehouses**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Style** | **Color** | **Size** | **item** | **110** | **401** | **487** | **761** | **781** | **Grand Total** |
| Bella Top | Black | XXL | 506937 |  | 1 |  | 1 |  | 2 |
| Maxi Dress | Black | S | 506992 | 1 | -1 |  |  |  | 0 |
| Maxi Dress | Black | M | 506993 |  | 1 |  | 1 |  | 2 |
| Maxi Dress | Black | XL | 507004 | 1 |  |  |  |  | 1 |
| Bella Top | Black | S | 507008 | 4 | -1 |  |  |  | 3 |
| Bella Top | Black | M | 507010 | 3 | 3 |  | 3 | 1 | 10 |
| Bella Top | Black | L | 507011 | 3 | 1 | 5 | 2 |  | 11 |
| Bella Top | Black | XL | 507013 | 2 |  |  |  | 2 | 4 |
| Bella Top | Lilac | S | 507314 | 1 | 3 |  | 2 |  | 6 |
| Bella Top | Lilac | M | 507316 |  | 3 |  | 1 |  | 4 |
| Bella Top | Lilac | L | 507317 | 3 | 1 | 2 | 2 | 1 | 9 |
| Bella Top | Lilac | XL | 507318 | 1 |  |  | 1 |  | 2 |
| Bella Top | Lilac | XXL | 507319 |  | 1 |  |  |  | 1 |
| Taylor Top | Silver | S | 507329 | 4 | 2 |  |  |  | 6 |
| Taylor Top | Silver | M | 507330 | 2 | -1 | 2 |  |  | 3 |
| Taylor Top | Olive | M | 507337 |  |  | 1 | 6 | 1 | 8 |
| Taylor Top | Olive | L | 507338 |  |  | 1 | -1 | -1 | -1 |
| Taylor Top | Olive | XXL | 507340 |  | 1 |  |  |  | 1 |
| Nina Top | White | XXL | 507583 | 2 | 1 |  |  |  | 3 |
| Nina Top | Turquoise | S | 507584 | 1 | 1 |  |  |  | 2 |
| X | X | x | Grand Total | 114 | 39 | 39 | 56 | 13 | 261 |

## Pivot Table - VBA Code:

Set PC = ActiveWorkbook.PivotCaches \_

.Add(SourceType:=xlDatabase, SourceData:="Database")

' Set PT = Worksheets("PivotTable").PivotTables("PivotTable").PivotCache

Set PT = ActiveSheet.PivotTables \_

.Add(PivotCache:=PC, TableDestination:="", TableName:="PivotTable")

ActiveSheet.Name = "PivotTable"

With PT

.AddFields ColumnFields:="warehouse"

End With

With ActiveSheet.PivotTables("PivotTable").PivotFields("item")

.Orientation = xlRowField

.Position = 1

End With

ActiveSheet.PivotTables("PivotTable").AddDataField ActiveSheet.PivotTables( \_

"PivotTable").PivotFields("quanitity"), "Sum of quanitity", xlSum

# E-mail and text senior management with the sales figures

This provides immediate updates to staff and management to be able to make needed adjustments and see what items are selling and not selling.

# Conceptual Difficulties Encountered

It was very difficult to obtain the information from Costco’s website since it would not allow me to simply do it from Excel. Costco also has special measures like security certificates to prevent access through VBA. I am not familiar with html code and have never used VBA before so that was a challenge. The great news is that I learned a lot through trial and error.

I also relied heavily on MACROs. Since I am such a novice, I constantly had to see how to do different tasks and discover the accompanying code. Lastly, the most difficult task was trying to figure out how to use Pivot Tables in VBA and include it in such a way that the data will correctly match up each time there are new numbers. I could not discover a way to create a Pivot Table within an existing sheet, so I resorted to creating a sub to delete the current sheet and create a new one. This causes a pop up each time the code is run that asks if the user wants to continue. I will train Lilac regarding that message and all the other details so that they can truly use this tool and benefit from the time saving capabilities it provides.

# Conclusion

This was an extremely valuable project for me to better understand how to create relevant VBA code, especially regarding pivot tables. Lilac is extremely grateful for the service since it will cut down time from about 45 minutes to 30 seconds each day. That is a total savings of around 250 labor hours per year or a full month of one employee’s eight-hour workdays.