

David Luke  
Program Profitability Calculator  
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Final Project

## I. Executive Summary

For my project I created a gross margin projector. This tool can be used by retailers that enter into contracts with vendors wherein they agree upon a set gross margin percentage for a certain time period for a specific collection of merchandise. This tool was something that would have been very useful at my previous job working as a buyer at Kohl's Corporation, and is something that I plan to take with me to utilize at my future employer if I end up working for a retailer. I also plan to share it with former colleagues who are still working in corporate retail.

The tool requires certain inputs by the users that will then calculate their projected gross margin for the season. These inputs are (for both current year and previous year): Regular Sales Units (i.e. non-clearance), Ticket Price (aka Retail Price), Regular Selling Price (aka Average Unit Retail or Out-the-Door price), Unit Cost, and Receipt Units.

Metric	TY	LY
Reg Sales U	70,000	80,000
Ticket	\$27.00	\$25.00
Reg Selling Price	\$19.00	\$17.00
Cost	\$8.00	\$6.00
Receipt Units	146,850	250,000

The agreed upon Gross Margin Plan is also entered as a benchmark to compare how deficient (or sufficient) the projected gross margin is based upon the inputs entered.

GM % Plan	35.0%	35.0%
Gross Margin Projected:	33.7%	33.7%

If the program (any specified collection of merchandise) is being projected to be less than the agreed upon gross margin the tool then uses a *Goal Seek* function in Excel to suggest strategies for changing inputs to achieve gross margin plan.

There are some assumptions about clearance prices that are included in this tool. These assumptions can be changed by the user, although they are the most widely used in the industry so adjusting these may not be necessary. The first assumption is regarding the first markdown of clearance, calculated from the ticket price, not the regular selling price. This is assumed to be 75% off. The second markdown is assumed to be 90%. The second assumption made is how many of the remaining units (the units remaining after the regular priced items have been sold) will be “sold through” (known as ST% or sell-through percentage in the industry) during the first and second round of clearance pricing. I set the default assumptions for these at 75% and 100% respectively.

#### Assumptions:

First Markdown:	75%
Second Markdown:	90%

First Markdown Sell-Through %:	75%
Second Markdown Sell-Through %:	100%

This tool can either be used as a pre-season planning tool, an in-season scorecard tool, or an end of season tool used to help negotiate for gross margin support with vendors. Ideally it would be used as all three with sales projections updated with the most current information. In this way, the retailer would be able to supply the vendor with real-time information. This would be advantageous because the vendor would be able to plan for exactly the amount they are deficient to GM plan. It is much easier to formulate a strategy several weeks before the end of the season than it is when it is a surprise that must be dealt with immediately – which happened frequently when I was at Kohl’s. Additionally, the tool includes a search string function that will search for similar products on Amazon.com and will return a range of prices being charged for the product. A retailer can use this feature to ensure they are pricing competitively with similar products being sold online.

## **II. Implementation**

### **Subroutines and Functions**

The following subroutines were created to perform various aspects of the project (the below functions are assuming that all other inputs are held constant):

- Subroutines to manipulate the Excel 2010 Ribbon and user form: This particular button in the ribbon was created to search Amazon.com for prices of products that are similar to the ones that are being analyzed in the tool.

*For domestic vendors where cancelling shipments is an option:*

1. Sub btnProductSearch\_click: This function is used to...
2. Sub searchForm: This function is used to...

3. Sub GSRunShortfall: This function simply takes the percentage of the plan below gross margin and converts it to a dollar amount. This function is useful because it dollarizes a
4. Sub GSReceipts & Sub GSCancels: These subroutines work together to analyze the number of units remaining that are to be shipped to the retailer. If the retailer and vendor agreed to simply cancel a certain number of these remaining units, this function will tell exactly how many units would need to be cancelled.
5. Sub GSDebitNeed: This function works in tandem with a user-entered value in cell I14. If the vendor were to agree to cancel a certain number of units, but that number of units is insufficient to help the retailer achieve GM plan, this function shows the new debit need based upon the number of units the vendor agrees to cancel.
6. Sub GSUnitCost: This subroutine also takes the value entered by the user in cell I4 and analyzes what the discount on the remaining on-order (the remaining on-order represent the remainder of the units the vendor does **not** agree to cancel) the retailer would need to receive from the vendor in order to achieve GM plan.

*For international vendors where cancelling shipments is **not** an option:*

7. Sub GSRegSell: This function recommends the regular sales price (aka the AUR – *average unit retail* or OTD – *out the door* price) needed based on the inputs to achieve GM Plan.
8. Sub GSSalesU: This function shows the number of units that would need to be sold in order to achieve GM plan.
9. Sub GSTicket: This function details indicates the ticket price (or the regular retail price) needed to achieve GM plan.

## Loops

I used several loops in the project. All loops were used for the purposes of the search string to search Amazon.com for the prices of similar items. Below are some examples of these loops:

First I used a *Loop > If > Else > End If* that returns the message “No Results Found” if the search was not successful in finding a similar product.

```
Loop  
  
If lstResults.ListCount = 0 Then  
    MsgBox ("No Results Found")  
Else  
End If  
  
End Sub
```

---

Another loop I utilized was a *For Next* loop in the agent module that Professor Gove Allen set up in class. A screen shot for that loop is listed below.

```

Public Function documentSourceIE()
    Dim x As Long

    For x = 0 To ie.document.all.Length
        If ie.document.all(x).tagname = "HTML" Then
            documentSourceIE = ie.document.all(x).outerhtml
            Exit Function
        End If
    Next
End Function

```

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This “agent” object was written by Professor Allen to be utilized by students. The “agent” object’s definitions are located in a class module simply labeled “agent.” This object allows the program to manipulate Internet Explorer.

## Controlling Internet Explorer

As mentioned previously, the “agent” is used to control an Internet Explorer browser. I used several different commands to get the agent to run correctly. These were: *a.open page*, *a.visible*, *a.position*, *a.getText ()*, *a.moveTo*, and *a.moveBackTo*.

## Comments

I tried to include appropriate comments where I thought they would be useful in order to make it easier for another programmer to go through the code and understand what the various subroutines are doing. I also tried to name the subroutines something intuitive, so the names themselves would give a clue into what task the function performs. Below are a few examples of this:

```

Sub RunShortfall()
    ' This sub details how many dollars short of achieving gross margin plan

    Range("I10").Select
    ActiveCell.FormulaR1C1 = "=R[37]C[-5]"
    Selection.Copy
    Selection.PasteSpecial Paste:=xlPasteValues
    Application.CutCopyMode = False
    Range("I10").Select
End Sub

Sub GSReceipts()
    ' This and the next sub shows the number of cancels (of the remaining on-order) there would need to be
    ' to achieve GM plan

    Range("D21").Select
    ActiveCell.FormulaR1C1 = "=R[-5]C"
    Range("D21").Select
    Selection.Copy
    Selection.PasteSpecial Paste:=xlPasteValues

```

## III. Learning Concepts

I encountered several obstacles during this project. The first one was trying to figure out how to get the *Goal Seek* Excel function to work with VBA. I ended up getting help from an acquaintance I know from a

sports forum on the internet, who I knew used VBA frequently in his job as an actuary. Other errors I encountered involved manipulating Internet Explorer, specifically a.moveTo and a.moveBackTo functions. I had to use a great deal of trial and error in order to get it to work.

#### **IV. Conclusion**

##### **Summary**

This project ended up taking a bit longer than I thought. I put in approximately 40 hours of work in total. Besides the ribbon button and the search string function, the coding was fairly straight-forward. Figuring out conceptually how I wanted to lay everything out and making sure I was my calculations were all correct ended up taking a few hours because the process of calculating the gross margin for a specific period of time with a high-low retailer is quite complicated and I had forgotten how to do it. Now that I have completed this project, I am confident that this will be a very useful tool if it is used correctly. This type of work took several hours and was generally not done until the end the season (right before gross margin support from vendors came due). This can be now easily be done several times throughout the season. It could also theoretically be used by the vendors. After working for Kohl's, I worked for a smaller vendor on the Wal-Mart, Target, and Kohl's accounts. Each of these retailers were willing to share detailed sales information with their vendors - other smaller retailers are less willing to do this so it might not be possible with them. If a vendor were to anticipate deficiencies in agreed upon gross margin, I am confident that their retail partners would very much appreciate this kind of analysis. No vendors that I ever worked with or knew of was doing this kind of analysis and bringing it to the retailers. In general, I am excited that this tool is beneficial for all parties involved.

##### **Assistance**

Besides the programs written by Professor Gove Allen for use by his students – e.g. Class Module Agent, and Ribbon Wizard.xlsm, the only direct assistance I received was from an acquaintance (who I have never met personally) that I know from an online sports forum – who I knew used VBA extensively in his profession.

##### **Next Phases**

I am excited to share this project with previous colleagues and to get their feedback on its usefulness. I also hope to be able to make use of this project in my internship this summer that I will be doing with PetSmart. I will most likely be in their Real Estate Finance group, so I won't be using it in my immediate function, but there is also a Merchandise Finance group that I think would be able to make use of it.