✓ **Congratulations! You passed!**
TO PASS 80% or higher

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Week 1 Final Assignment

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1. Your task is to build a simple financial model using some of the design techniques that you have just learned about. Download the workbook, open it and get ready for your task instructions.
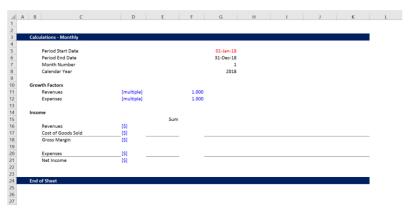
   1 / 1 point

   Important:

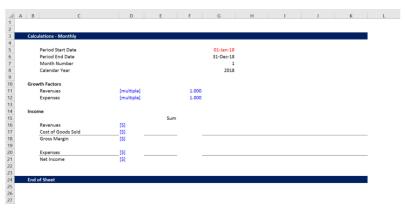   *Remember to save your workbook frequently as you progress through the exam.*

   > C4 W1 Final Assessment.xlsx

   The provided workbook includes the **Inputs** worksheet. You will need to build calculation worksheets in order to model the forecasted **Revenue**, **Cost of Goods Sold**, **Expenses** and overall **Net Income** for each month from **Jan 2018** to **Dec 2022**. The calculations will need to be flexible enough to allow changes to the user-variable input values without the need to re-write any calculation formulas.

   Start by adding a new worksheet and name it **Calcs_Monthly**. Have a look at the supplied image. Note that "1.000" is "1", with three decimal places.
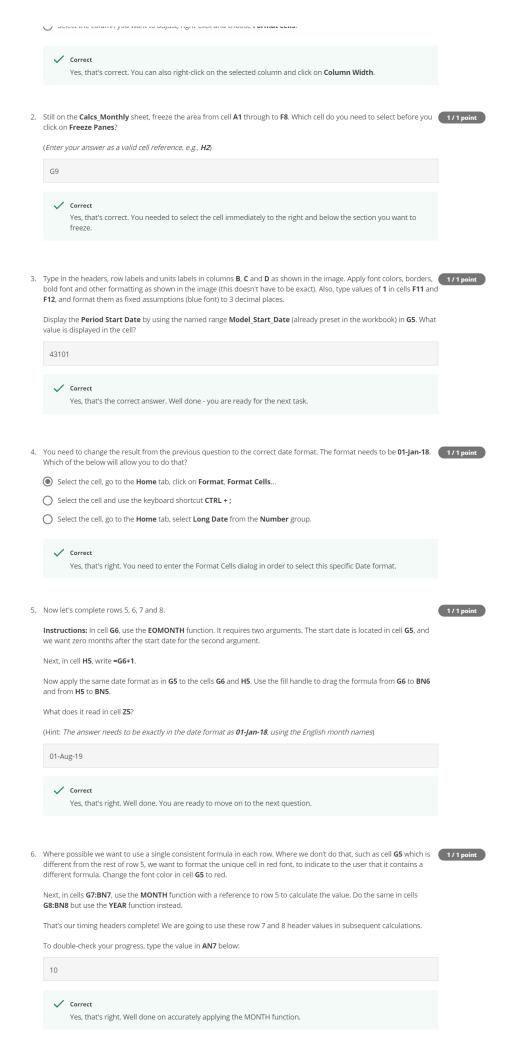

   You can also download the image:

   We suggest that you keep this open in another browser tab or window so that you can refer back to it easily. This is the look of the worksheet we are going to build, except it is going to extend out to column **BN**, not just column **L**. As you build it you will be asked questions about certain calculated values.

   Begin by adjusting the column widths to match the image. Adjust the widths so that

   - **A** and **B** are width 4,
   - **C** is 30,
   - **D** and **F** are 9,
   - **E** is 12, and
   - columns **G:BN** are 12.

   How do you go about changing the column width?

   - ⦿ Select the column you want to adjust, go to the **Home** tab, click on **Format**.
   - ◯ Select the column you want to adjust, go to the **Page Layout** tab, and select **Width** from the **Scale to Fit** area.
   - ◯ Select the column you want to adjust, right-click and choose **Format cells**.

> ✓ **Correct**
>
> Yes, that's correct. You can also right-click on the selected column and click on **Column Width**.

2. Still on the **Calcs_Monthly** sheet, freeze the area from cell **A1** through to **F8**. Which cell do you need to select before you click on **Freeze Panes**?   `1 / 1 point`

   (*Enter your answer as a valid cell reference, e.g., **H2***)

G9

   > ✓ **Correct**
   >
   > Yes, that's correct. You needed to select the cell immediately to the right and below the section you want to freeze.

3. Type in the headers, row labels and units labels in columns **B**, **C** and **D** as shown in the image. Apply font colors, borders, bold font and other formatting as shown in the image (this doesn't have to be exact). Also, type values of **1** in cells **F11** and **F12**, and format them as fixed assumptions (blue font) to 3 decimal places.   `1 / 1 point`

   Display the **Period Start Date** by using the named range **Model_Start_Date** (already preset in the workbook) in **G5**. What value is displayed in the cell?

43101

   > ✓ **Correct**
   >
   > Yes, that's the correct answer. Well done - you are ready for the next task.

4. You need to change the result from the previous question to the correct date format. The format needs to be **01-Jan-18**. Which of the below will allow you to do that?   `1 / 1 point`

   - ⦿ Select the cell, go to the **Home** tab, click on **Format**, **Format Cells**...
   - ◯ Select the cell and use the keyboard shortcut **CTRL + ;**
   - ◯ Select the cell, go to the **Home** tab, select **Long Date** from the **Number** group.

   > ✓ **Correct**
   >
   > Yes, that's right. You need to enter the Format Cells dialog in order to select this specific Date format.

5. Now let's complete rows 5, 6, 7 and 8.   `1 / 1 point`

   Instructions: In cell **G6**, use the **EOMONTH** function. It requires two arguments. The start date is located in cell **G5**, and we want zero months after the start date for the second argument.

   Next, in cell **H5**, write **=G6+1**.

   Now apply the same date format as in **G5** to the cells **G6** and **H5**. Use the fill handle to drag the formula from **G6** to **BN6** and from **H5** to **BN5**.

   What does it read in cell **Z5**?

   (Hint: *The answer needs to be exactly in the date format as **01-Jan-18**, using the English month names*)

01-Aug-19

   > ✓ **Correct**
   >
   > Yes, that's right. Well done. You are ready to move on to the next question.

6. Where possible we want to use a single consistent formula in each row. Where we don't do that, such as cell **G5** which is different from the rest of row 5, we want to format the unique cell in red font, to indicate to the user that it contains a different formula. Change the font color in cell **G5** to red.   `1 / 1 point`

   Next, in cells **G7:BN7**, use the **MONTH** function with a reference to row 5 to calculate the value. Do the same in cells **G8:BN8** but use the **YEAR** function instead.

   That's our timing headers complete! We are going to use these row 7 and 8 header values in subsequent calculations.

   To double-check your progress, type the value in **AN7** below:

10

   > ✓ **Correct**
   >
   > Yes, that's right. Well done on accurately applying the MONTH function.

7. Now to calculate the Growth Factors. To follow good design practices, we need a single formula in cell **G11** that can be copied across cells **G11:BN11**. It will escalate in value each year according to the assumptions on the **Inputs** tab. Remember it also needs to be flexible enough to allow for changes to the inputs, such as a change in the month of growth at **Inputs!F32**.

For this assessment, we will provide a way of writing the formula, since the emphasis right now is on model design and not the use of particular functions.

Try and make sure you understand what each part of the formula is doing though, and why it is structured the way it is.

Enter the formula below in **G11** - you can use copy and paste.

=F11*(1+IF(G$7=Inputs!$F$32,INDEX(Inputs!$F$26:$F$30,MATCH(G$8,Inputs!$E$26:$E$30,0)),0))

Then apply the formula across **G11:BN11**.

Finally, Format row **11** to three decimal places. What is the value in **BH11**?

(*Type your answer rounded to three decimal places, e.g.* **1.234**)

> 1.174

✓ **Correct**
  Yes, that's exactly right. Let's move on to the next question.

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8. The formula from the previous question is quite hard to read and understand - let's name some of the components in the formula to improve this.

Go to your workbook and name the following ranges — **make sure to be exact!**

Inputs worksheet:

E26:E30: **GrowthRevYR**

F26:F30: **GrowthRevPCT**

F32: **GrowthRevMth**

Take a look at the original formula:

=F11*(1+IF(G$7=Inputs!$F$32,INDEX(Inputs!$F$26:$F$30,MATCH(G$8,Inputs!$E$26:$E$30,0)),0))

Type below what the formula will look like when you use your newly named ranges. Don't use extra spaces in the formula when you enter your answer below.

> =F11*(1+IF(G$7=GrowthRevMth,INDEX(GrowthRevPCT,MATCH(G$8,GrowthRevYR,0)),0))

✓ **Correct**
  Yes, well done. Working with Named Ranges in your formulas not only helps to understand what the formula is doing but also to make changes to it - as you will see in the next task.

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9. We will use the same formula construction to write the formula for cells **G12:BN12**, but making reference to the growth rate for expenses this time.

Name your ranges again first on the **Inputs** worksheet:

E36:E40: **GrowthExpYR**

F36:F40: **GrowthExpPCT**

F42: **GrowthExpMth**

Type below what the formula will look like now.

(*Hint: Once you get the formula to work in Excel, use copy and paste to enter your answer below rather than typing it in manually.*)

> =F12*(1+IF(G$7=GrowthExpMth,INDEX(GrowthExpPCT,MATCH(G$8,GrowthExpYR,0)),0))

✓ **Correct**
  Yes, your answer is correct. Really well done. You have named the ranges correctly and replace the correct names from the previous formula.

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10. Format row 12 to three decimal places. Drag the formula to complete the row through to column **BN**.

What is the value in cell **AZ12**? (The October 2021 expenses growth factor.)

Type your answer rounded to three decimal places (e.g. **1.234**)

> 1.170

11. Next we will build the five rows in the **Income** section. These are more straight-forward formulas.

`2 / 2 points`

First though, we need to format rows **16:21** to display numbers the way we are seeing in the image.

Select all of rows **16:21**, right click and select **Format Cells**. Select the **Number** tab, then the **Custom** category, and then click in the **Type** box. This lets us type in our own custom number format. Delete anything that may already be in the **Type** box and then type:

#,##0;(#,##0)

if your local number system uses a comma as the thousands separator or

#.##0;(#.##0)

if you use a period as the thousands separator.

Note: We are not going to explain all the details of custom number formatting here. The short explanation to this particular format is that it will display numbers to 0 decimal places, with a comma or period as a thousands separator, and with negative numbers shown in brackets.

Press OK when you are done.

In row **16** (columns **G:BN**) we want a formula that multiplies the **Revenue** (from **Initial Values**, **Inputs**) with the **Growth Factors** we calculated in row **11** on our calculations sheet.

Define the name for cell **F19** on the **Inputs** sheet as **ValueRev**.

Type the formula you need to input into **G16** in the field below (make sure you test the formula in Excel before you submit your answer).

Hint: Once you get the formula to work in Excel, use copy and paste to enter your answer below rather than typing it in manually.

=ValueRev*G11

12. Drag the formula you wrote in **G16** to complete the whole row.

`2 / 2 points`

The next step is to calculate the row sum at cell **E16**.

What is the sum in **E16**?

*Type your answer as a whole number without the thousands separator (e.g. **12345**)*

5022769

13. In **G17**, write a formula that calculates the **Cost of Goods Sold** (this is the **Revenues** amount multiplied by the value in **F20** on the **Inputs** sheet).

`3 / 3 points`

Make the process easier by naming **F20** (**ValueCost**) on the **Inputs** sheet first. Then enter the formula into **G17**, drag it to complete the row through to column **BN**. Note that **Cost** should be negative.

When you are done, calculate the sum of the **Costs of Goods Sold**.

In **G18**, calculate the **Gross Margin** as the sum of the two rows above it, then drag the formula across to complete the row through to column **BN**.

What is the value of the **Gross Margin** in the month of December 2022 (column **BN**)?

*Type your answer without the thousands separator (e.g. **12345**)*

31586

14. In row **20**, calculate the expenses. Remember they should be a negative value. Make reference to the **Initial Expenses $ / month** value on the **Inputs** sheet, and to the Expenses growth factor at row 12 on the **Calcs_Monthly** sheet. Complete

`2 / 2 points`

the row through to **BN**.

Calculate the row sum at cell **E20**. What is the value in **E20**?

Type your answer without the thousands separator and without the brackets (e.g. 12345)

799105

✓ **Correct**

Yes, well done. You are nearly done with the Monthly calculations.

15. Finally, calculate the **Net Income** as the sum of the **Gross Margin** and **Expenses**. What is the value of **Net Income** in the month of April 2020?   1 / 1 point

Type your answer without the thousands separator (e.g. 12345)

15223

✓ **Correct**

Congratulations! You have built a simple monthly financial model.