Congratulations! You passed!

Grade received 90.90%

Latest Submission Grade 90.91%

To pass 80% or higher

Go to next item

1. In this week's assignment, you will be doing some analysis of basic weather data. Download and open the workbook: 1 / 1 point

C4 W2 Final Assessment
XLSX File

Important notes before you get started:

- Avoid inserting or deleting rows or columns in any of the worksheets, or moving the location of any existing cells. Doing so may cause the Check Sums to give different values, and then you won't be able to submit the correct answer.
- Make sure to save your progress on the workbook frequently.

The workbook contains annualised average high and low temperatures for 51 cities from the USA, in both Celsius and Fahrenheit. This is contained in the sheet **Raw_Data** in a random order. A subset of this data for the cities beginning with the letters A to D is also in the sheet **Table_Data** as an Excel Table with the name **City_Subset**.

To begin, go to the worksheet **Table_Data**.

We will start with filling in some simple formulas to make sure you are comfortable with using structured references.

In cell **C22**, use the **COUNTA** function to get a count of the number of cities in this table. Your formula must contain a structured reference.

Enter the formula below.

*Note: Don't add any spaces in your answer below, you must use the English name for the **COUNTA** function.*

```
=COUNTA(City_Subset[Location])
```

Correct
Yes, well done. This is the correct syntax for the **COUNTA** function to get the number of cities in this table.

2. Using similar structured references, but with a different function and different columns of the table, complete cells **C23** and **C24** with formulas to find the average High Fahrenheit temperature, and the Minimum Low Fahrenheit temperature. 1 / 1 point

In cell **C26**, calculate the product of **C22:C24**.

Submit your answer from cell **C26**.

33264

Correct
Yes, well done. You have correctly calculated the values for cells **C22:C24** in order to arrive at this CheckSum.

3. Now we are going to write a formula with structured references to convert the temperatures from Fahrenheit to Celsius. The way to do this is given in the yellow box at cell **F2**. For example, 104 F converted to Celsius is (104 - 32) * (5/9) = 40. Write a formula in cell **F6** that can be dragged across and down the rest of the green cells. Start by typing **=[City_Subset[** and then try and use the appearing menus to help with the rest of the syntax. Remember to use the **@** symbol to refer to the current row. 1 / 1 point

Once you have your formula in cell **F6**, apply it to the rest of the range of cells **F6:G19**.

Submit the answer from the **Check_Sum** in **G22**.

2294

Correct
Yes, that's the correct answer. You have performed all the calculations for this task correctly.

4. Now let's move on to the larger data set in the sheet **Raw_Data**. This has a larger list of 51 cities, but they are in a random order. The first thing we are going to do is use formulas to generate a list of the locations in alphabetical order. **1 / 1 point**

In column **K**, write a formula at cell **K4** using the **COUNTIFS** function that finds the relative ranking alphabetically of each of the locations. As a way to check your answer, San Antonio (row 4) should be ranked 43. When you are done, apply the formula to cells **K4:K54** and, submit the value of the checksum from cell **K1**.

38940

Correct
Yes, that's the correct answer. Well done. Using a function to sort data can come in really handy. The **COUNTIFS** helps with this task as **RANK** only sorts numerical data.

5. In column **L**, write a formula at cell **L4** using the **MATCH** function to find the location of the helper index value (column **I**) within the ranks you found in column **K**. For example, the number "1" (row **4** in column **I**) appears in the 6th cell in column **K**, and so the value in cell **L4** should be 6. **1 / 1 point**

When you are done, apply the formula to cells **L4:L54** and submit the value of the Check Sum from cell **L1**.

35027

Correct
Yes, well done. You have applied the **MATCH** function correctly to solve this problem.

6. Now we can get our sorted location list. In cell **M4**, use an **INDEX** function that refers to columns **B** and **L** to return the sorted Location list, and apply it to cells **M4:M54**. When you are done, submit the value of the Check Sum from cell **M1**. **1 / 1 point**

4698

Correct
Yes, excellent. Your answer is correct. You have used the **INDEX** function correctly to complete the table.

7. For the next question, we are going to use a multi-cell array formula. To do this, we will start by selecting ALL of the cells that our formula will be entered into, and then we will type our formula followed by Ctrl+Shift+Enter. Our formula is going to return 5 values, and so we will be entering it into 5 cells. **1 / 1 point**

Start by entering the numbers 1 to 5 in the yellow cells **O4:O8**. You can do this the conventional way or as an array. Then, in cells **P4:P8**, write a single multicell array formula using the **LARGE** function and references to columns **C** and **O** so that it returns the 5 largest values in the **High_F** data. When you are done, sum these 5 values at cell **P10** and submit the value in **P10**.

417

Correct
Your answer is correct. Well done. Array formulas can be a bit tricky but they are very useful to understand.

8. Let's try a single cell array formula now. We will focus on the Celsius values in columns **E** and **F**. If we were asked to find the sum of all **Low_C** (column **F**) values that are less than 10, we could do this pretty easily by using a regular **SUMIFS** function. But we could also do it with an array formula using the **SUM** and **IF** functions separately, and the syntax would be **=SUM(IF(F4:F54<10,F4:F54,0))** then Ctrl+Shift+Enter. There's not much advantage here to using one or the other, but the array option gives us more flexibility to modify the calculation, as we will see in this question which cannot be solved with a single regular **SUMIFS** function. **0 / 1 point**

Write a single cell array formula in **P15** that sums the value of **[High_C * Low_C]** for all locations that have a **Low_C** value less than 10. When you are done, submit your answer.

{=SUM(IF(Low_C<10,Low_C*High_C,0))}/3294

Incorrect
The answer you gave is not a number.

9. For the last part of this assignment, go to the **Distances** worksheet. Here we are going to complete a cross-table of distances for 5 fictional towns. We are provided with the distance between each town pairing at cells **B14:D38**, but we would like these presented in a 5*5 grid, with only the upper-right diagonal half of the grid activated. (Since the distance from Alphaville to Betaburg is the same as the distance from Betaburg to Alphaville, there is no need to list it twice!) **1 / 1 point**

We will have three tasks.

First, we will use array formulas and the **TRANSPOSE** function to fill in the table headers in the yellow cells. Then, we will write a formula to fill in the green cells of the top table. Finally, we will write an array formula to fill in the bottom table so that all of the grey cells are zero.

Select cells **H6:H10**, and type **=Towns** and then Ctrl+Shift+Enter. You have filled in the row headers. Now, select cells **I5:M5** and write an array formula using the **TRANSPOSE** function to fill in the column headers. When you are done, submit the value from the first of the 3 checksums at cell **H14**.

91256

Correct
Yes, that's the correct answer. Well done. You have correctly used the **TRANSPOSE** function.

10. Now we will populate the green cells at **I6:M10**. You will need to write a formula that refers to the distance table for the relevant town-pairing. This is probably best done by writing a regular formula in cell **I6** with a mix of absolute and relative references, and then dragging it across and down. There are many ways to do this, use whatever you prefer. If you are stuck, try using the **SUMIFS** function, with the criteria that your row headers must match Town 1 (column **B**) and your column headers must match Town 2 (column **C**). When you are done, submit the value from the second checksum at cell **H15**. **1 / 1 point**

2672

Correct
Yes, excellent work. You have correctly solved this problem and are ready for the last question of the assignment.

11. For the final question, we will use a multi-cell array formula to populate the final table. Row and column counters have been provided for us (the numbers 1 to 5 to the left and above the table). We can use these to help us fill in only the green cells by writing a condition that returns the value from the first table only when the row counter (**G21:G25**) is less than or equal to the column counter (**I19:M19**). **1 / 1 point**

Select all of the cells **I21:M25**, write a single array formula that refers to the top table and employs this counter-condition that will successfully accomplish the task, and press Ctrl+Shift+Enter. The values in the grey cells should be 0. When you are done, submit the value from the third checksum at cell **H16**.

HINT: Don't be alarmed if the main diagonal of the table gives values of zero. This is what we expect since the distance from a town to itself is zero.

Save your work. Well done.

3766

Correct
Yes, great job. You have correctly answered the final question of this week's exam.