**Module 1**

**Excel Challenge 1 - 23 November 2023**

**Introduction**

In Challenge 1 I have been given a data spreadsheet titled Crowdfunding Book.xlsx, and series of instructions to show that I have understood how to process such data using the functions provided in Excel.

During the main challenge I start with the spreadsheet called Crowdfunding. As the challenge progresses this becomes the Crowdfunding workbook, as I add sheets in solving the questions presented.

**Conditional Formatting**

* Column F (outcome) contains the outcome of each of the projects in four divisions as text entries. The four divisions are “successful”, “failed”, “canceled” and “live”. The task is to use conditional formatting to fill each cell in the outcome column with a different colour, depending on whether the associated campaign was successful, failed, cancelled, or is currently live.
* This was achieved by:
  + Blocking off the entire **outcome** column,
  + Going to the Conditional Formatting function on the **Home** ribbon and creating four new rules “using a formula to determine which cells to format”,
  + I created four new rules to assign the colours”.
    - Green = “successful”
    - Red = “failed”
    - Yellow = "canceled”
    - Blue = “live”
* The result is in CrowdfundingBook.xlsx.
* For the second part of the task, I created a column call **Percent Funded** next to **outcome.** I inserted the formula pledged/goal (E2/D2) and formatted the result as a percentage. I copied the formula to every cell in the column.
  + Block off the entire **outcome** column,
  + Going to the Conditional Formatting function on the **Home** ribbon and creating four new rules for the Percent Funded column “using a three-colour format where the colour is based on their value”,
  + I created a three-colour format starting at 0% with a dark shade of red, and it should transition to green at 100% and blue at 200%. Note that you can’t put 200% in the maximum box as it doesn’t recognise 200 as being a percentage. I put 2 and it worked well.
  + Result is on the CrowdfundingBook.xlsxworksheet.

**Adding Columns**

* + *I created a column called* ***Average Donation*** *and filled it using the formula.*  **=IF(H2=0, "N/A", $E2/$H2),** where **H2** = **backers\_count** and **E2** = **pledged.**
  + I tested the **backers\_count** value to see whether it was 0. If zero it returned N/A, otherwise it returned the percentage.
  + In creating the average **Donation Column**, I inserted the column next to the **Outcome** column.
* I created two columns called Parent\_Category and Sub\_Category to split up the data in the column **category & subcategory**.
  + I used this formula to split off the first the left side of site of the category and subcategory string - **=LEFT(O2, FIND("/", O2) - 1)** in the parent category.
  + I used this formular to split off the right side of the string - **=MID(A1, FIND("/", O2) + 1, LEN(O2))** into the sub-category.
  + I copied the appropriate formula to all cells in each column.
* I also created a column that I named “**country**”. I wrote a nexted **IF()** function to convert the values in the “currency” column to “country” based on the “currency” value.

**Pivot Tables and Charts**

* I named the work sheets either **“PT-“** or **“PC-“** depending on whether it is a Pivot Table or a Pivot Chart.
* I created the following Pivot Tables and Charts:
  + ***PT-Outcome-vs-Category -*** a pivot table that analyses your initial worksheet to count how many campaigns were successful, failed, cancelled, or are currently live per **category (category & sub-category)**
  + ***PC-Outc-vs-Categ***– a stacked-column pivot chart of “**outcome**” vs “**category**”.
  + ***PC-Outc-vs-Categ-Filt-Country –*** a stacked-column pivot chart of “**outcome**” vs “**category**” that can be filtered by country.
  + **PT-Output-sub-Category** - a pivot table that analyses your initial sheet to count how many campaigns were successful, failed, or cancelled, or are currently live per **sub-category.**
  + **PC-Outc-vs-par-Categ-Filt-Coun&PC -** a stacked-column pivot chart that can be filtered by **country** and **parent category** based on the table **PT-Output-sub-Category.**
  + **PT-Outcomes-vs-Creation Year** - a pivot table that has a column of **outcome**, rows of **Date Created Conversion**, values based on the **count of outcome**, and filters based **on parent category** **and Years**.
  + **PC-Outcome vs Year\_Create -** a pivot-chart line graph that visualises the above table.

**Report**

I will assume that the reason for analysing the data is to explore several relationships. These relationships include:

* The success rates and the amount of money raised,
* The success rates and the categories for which the money is raised,
* The success rates in each country
* The success rates over time.

**Three Conclusions**

1. The analysis of these data show what categories and sub-categories are likely to be successful in attracting crowdfunding. The data indicate that projects falling into categories and sub-categories where activities involve wide appeal and at least some audience participation, such as Journalism, Photography, Music, and Theatre (Plays) have relatively high success rates.
2. While the United States has by the far the larges number of crowdfunding projects, The other countries represented show similar rates of success.
3. The analysis of data in the bonus section indicates that the more backers you have the higher your success rate will be.

**Some Limitations of the Data Set**

1. Financial Comparison – Each country provides figures in its own currency. So we can’t compare Goal, and Pledged values between countries as they haven’t been converted to a common base currency.
2. Factors outside the dataset, such as the economy, marketing efforts, how well the project creators are known to the world around them are not considered.
3. Incomplete data in fields such as backer numbers and pledged amount my have an negative influence on the results.
4. The quantity of engagement with social media during the collection period.
5. I am sure there are many others.

**What are some other possible tables and/or graphs that we could create, and what additional value would they provide?**

1. A line graph showing the number of projects launched over time or the total amount pledged over time. This could help identify trends, seasonal patterns, or growth in crowdfunding activity.
2. A scatter plot or bubble chart showing the relationship between backer count and success rate. This will explore whether projects with more backers generally have higher success rates. My work in the Bonus Section indicates that it probably will.
3. A bar graph comparing the average donation amount across categories. This may reveal which categories tend to attract higher average donations, indicating potential donor preferences.

**Bonus**

The workbook **Bonus1** contains the work requested as below.

* Using the COUNTIFS() formula, count how many successful, failed, and cancelled projects were created with goals within the ranges listed above. Populate the Number Successful, Number Failed, and Number Cancelled columns with these data points.
* Add up each of the values in the Number Successful, Number Failed, and Number Cancelled columns to populate the Total Projects column. Then, using a mathematical formula, find the percentage of projects that were successful, failed, or cancelled per goal range.
* Create a line chart that graphs the relationship between a goal amount and its chances of success, failure, or cancellation. **Bonus1**

**Bonus Statistical Analysis**

The work and results are shown in the worksheet **Bonus2**

**End of Excel Challenge 1**