

DATA ANALYSIS AND VISUALIZATION WITH MS EXCEL



BY: CHIOMA .S. UZOCHUKWU

FunCookie Store Analysis

The Problem

COMPANY	CONTEXT	PROBLEM STATEMENT
FunCookie operates as a diversified cookie manufacturer, specializing in a range of cookie varieties. The company engages in strategic collaborations with distinct retail establishments, functioning as wholesale partners in the procurement of their products.	With a tenure of one year and four months in the industry, FunCookie seeks to conduct a comprehensive sales assessment of both its business and wholesalers store performance.	Our objective entails a comprehensive examination of key performance indicators within our cookie sales dataset and an extraction of valuable insights pertaining our business performance dynamics.

The Process

Sales data gotten from Kaggle.

Step 1

Initial Analysis

- Use of Power Pivot functionality to construct a comprehensive data model, seamlessly integrating data from three different Excel files to form the foundation for this analysis.
- Leveraged Power Query for data cleansing procedures, such as rectifying spelling errors, configuring accurate column data types, and resolving issues pertaining to missing or duplicated values

Step 2

Exploratory Analysis

- Introduced calculated columns that contain relevant metrics, enhancing the analytical scope through Power Query capabilities.
- Used Power Pivot to incorporate essential measures and KPIs, enriching the analytical depth of the dataset.
- Employed advanced data analysis techniques, including Time Series analysis, to uncover significant patterns, trends, and insights within the data, enabling informed decision-making

Step 3

Visualizations

- Used a diverse array of graphs, charts, slicers, and timeline with MS Excel, which facilitates clear communication of insights and findings.

MS EXCEL

PREPARING DATASET

The necessary data for conducting this data analysis was sourced from three distinct Excel workbooks

The screenshot shows the Microsoft Excel application with the 'Import Data' dialog box open. The dialog box is set to the 'FUN COOKIE' folder, which contains three files: 'Cookie Types', 'Customers', and 'Orders'. The background shows the Excel interface with the 'Data' tab selected and the 'What-If Analysis' and 'Forecast' options visible in the ribbon.

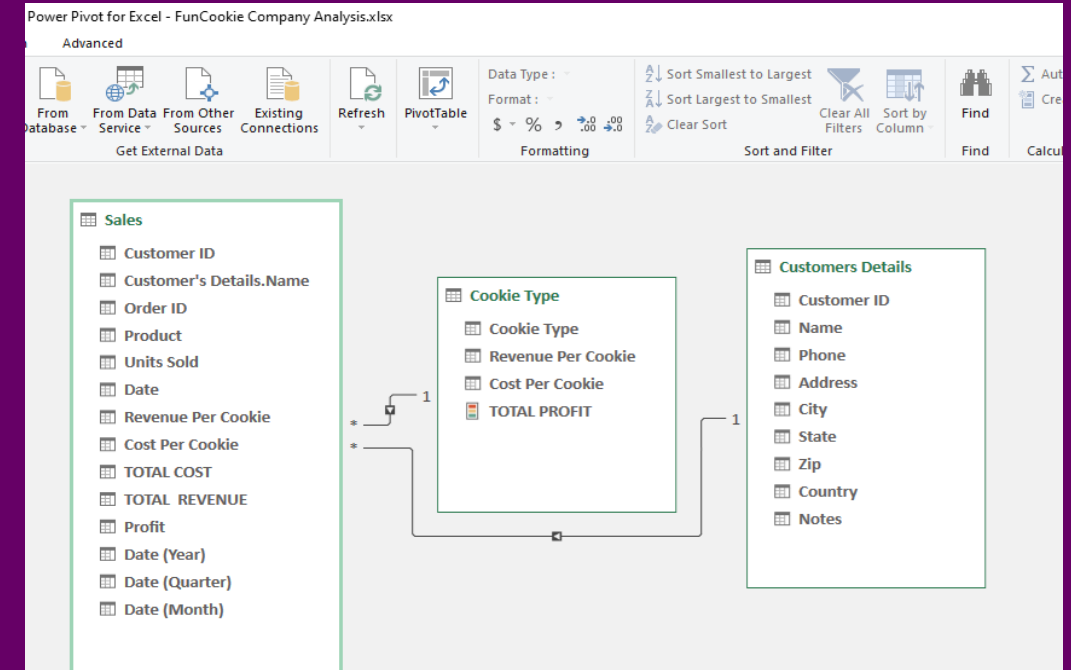
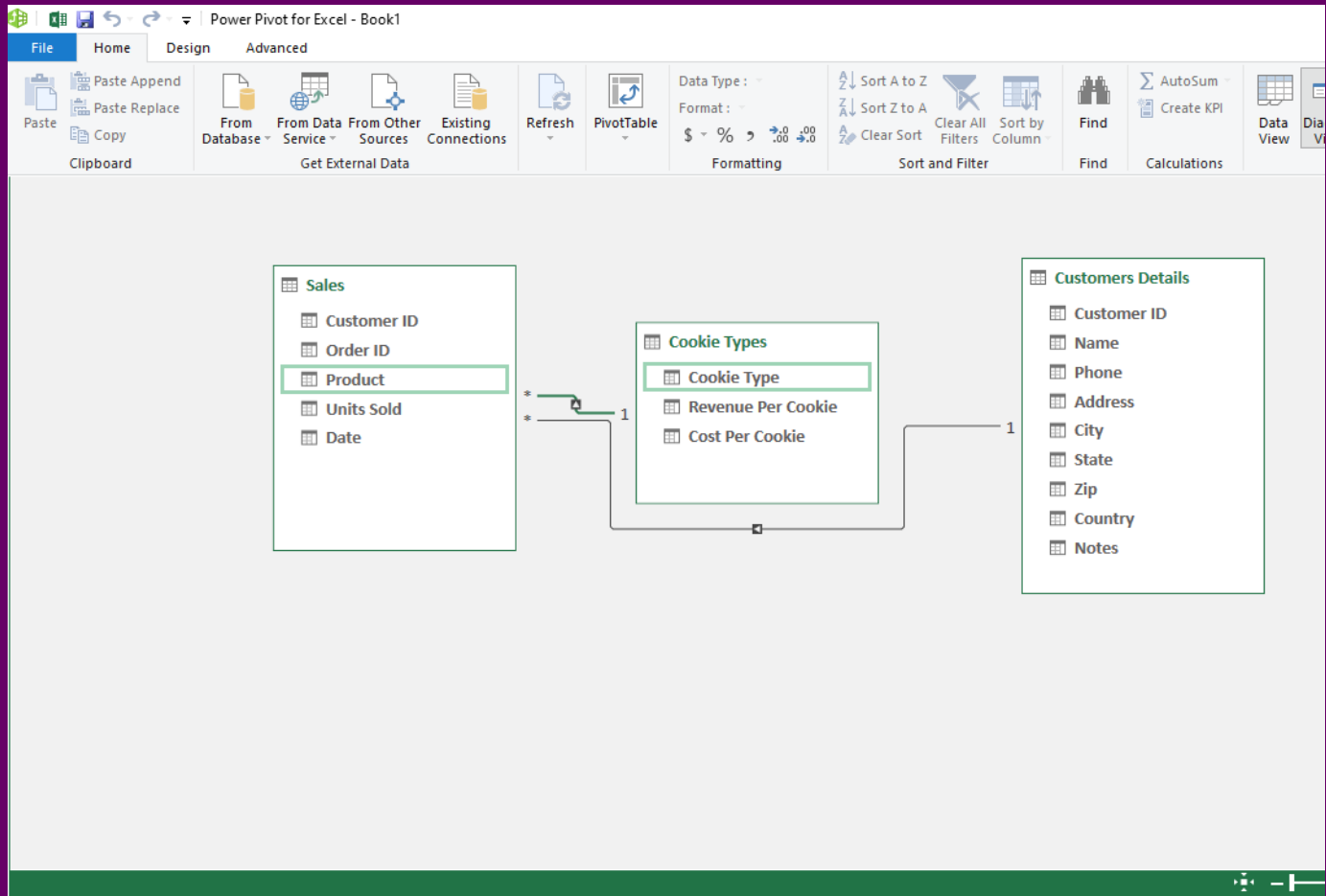
Name	Status	Date modified
Cookie Types	✓	7/3/2023 1:20 PM
Customers	✓	7/3/2023 1:19 PM
Orders	✓	7/5/2023 12:27 PM

MS EXCEL

DATA MODELLING

Power Pivot was used to establish a comprehensive data model which seamlessly interconnected the three different Excel files and created a unified dataset instrumental for subsequent analysis.

The application of Power Pivot also facilitated the incorporation of essential measures and key performance indicators (KPI) relevant to this analysis.





DATA PROCESSING

Data cleaning & preparation with Power query:
Performed a thorough validation process to rectify misspelled words and ensure accurate column data types.

Integrated datasets by merging and introducing new columns specifically tailored to capture the relevant metrics needed for this analysis

FileHomeTransformAdd ColumnView

Close & LoadClose

Refresh PreviewQuery

PropertiesAdvanced EditorManageQuery

Choose ColumnsManage Columns

Remove ColumnsManage Columns

Keep RowsReduce Rows

Remove RowsReduce Rows

Sort

Split Column

Group By

12Replace ValuesTransform

Data Type: AnyUse First Row as Headers

Merge QueriesCombine

Append QueriesCombine

Combine FilesCombine

Manage ParametersParameters

Data source settingsData Sources

New SourceRecent SourcesEnter DataNew Query

Queries [3]

Cookie Type

Customers Details

Sales

fx

= Table.AddColumn("#Added total cost", "Profit", each [TOTAL REVENUE]-[TOTAL COST])

	kie	\$	Cost Per Cookie	ABC 123	Customer's Details.Name	ABC 123	TOTAL REVENUE	ABC 123	TOTAL COST	ABC 123	Profit
1	5		2.00		ACME Bites		1460		584		8
2	5		2.00		ACME Bites		4870		1948		25
3	5		2.00		ACME Bites		12590		5036		75
4	5		2.00		ABC Groceries		1835		734		11
5	5		2.00		Wholesome Foods		5030		2012		30
6	5		2.00		Park & Shop Convenience Stores		4415		1766		26
7	5		2.00		Tres Delicious		2745		1098		16
8	5		2.00		Park & Shop Convenience Stores		3940		1576		23
9	5		2.00		Park & Shop Convenience Stores		12360		4944		74
10	5		2.00		ABC Groceries		5715		2286		34
11	5		2.00		Wholesome Foods		8625		3450		51
12	5		2.00		Tres Delicious		4560		1824		27
13	5		2.00		Park & Shop Convenience Stores		10760		4304		64
14	5		2.00		Wholesome Foods		9085		3634		54
15	5		2.00		ACME Bites		7565		3026		45
16	5		2.00		Wholesome Foods		19725		7890		118
17	5		2.00		Wholesome Foods		11480		4592		68
18	5		2.00		ACME Bites		5150		2060		30
19	5		2.00		ACME Bites		7570		3028		45
20	5		2.00		Park & Shop Convenience Stores		22462.5		8985		1347.
21	5		2.00		Wholesome Foods		3635		1454		21
22	5		2.00		ACME Bites		3935		1574		23
23	5		2.00		Wholesome Foods		9115		3646		54
24											

Query Settings

PROPERTIES

NameSales

All Properties

APPLIED STEPS

Source

Navigation

Merged Queries

Added more columns from Co...

Renamed Columns

Merged Queries1

Added more columns from Cu...

Added total revenue

Added total cost

Added Custom column (Total ...

Changed DataType

Inserted Month Name

Inserted Month

Renamed Columns to Month ...

Extracted First Characters

Reordered Columns

11 COLUMNS, 700 ROWS

Column profiling based on top 1000 rows

PREVIEW DOWNLOADED AT 1:36 PM

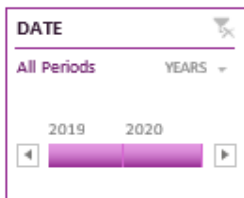


MS EXCEL

REPORT/ DASHBOARD

SALES DASHBOARD FUNCOOKIE SHOP

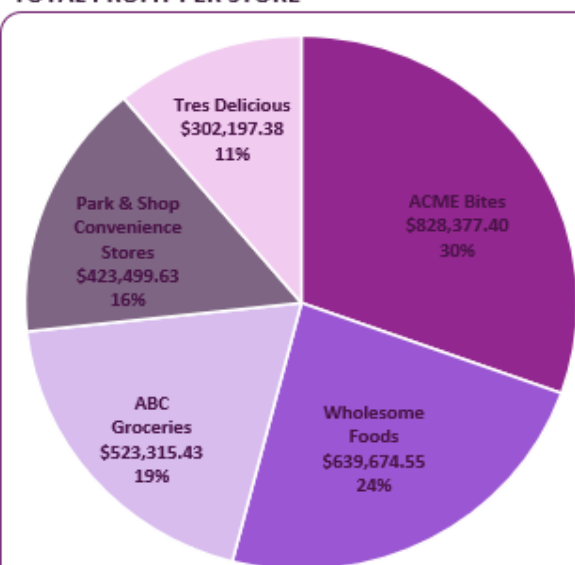
COOKIES SOLD:
1,125,806



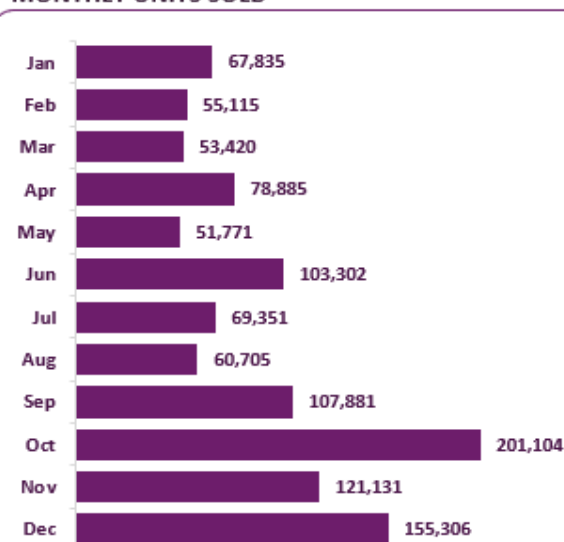
PRODUCT	QUANTITY	TOTAL COST	TOTAL REVENUE	TOTAL PROFIT
Chocolate Chip	338,238	\$ 676,479	\$ 1,691,198	\$ 1,014,719
Fortune Cookie	154,198	\$ 77,099	\$ 154,198	\$ 77,099
Oatmeal Raisin	155,316	\$ 341,693	\$ 776,575	\$ 434,882
Snickerdoodle	146,847	\$ 220,269	\$ 587,384	\$ 367,115
Sugar	168,782	\$ 210,979	\$ 506,349	\$ 295,370
White Chocolate Macadamia Nut	162,425	\$ 446,667	\$ 974,547	\$ 527,880
Grand Total	1,125,806	\$ 1,973,186	\$ 4,690,251	\$ 2,717,064



TOTAL PROFIT PER STORE



MONTHLY UNITS SOLD



INSIGHT:

Total cookie sales for 2019 and 2020 amounted to 1,125,806 units, with 264,674 cookies sold in the period of September to December 2019, and 861,132 cookies sold throughout January to December 2020

ABC Groceries, ranked 3rd in both 2019 and 2020, achieved its peak monthly sales in October for both years. Notably, **Chocolate Chip Cookies** were the best-selling product in both years, while **Fortune Cookies** (2019) and **Oatmeal Cookies** (2020) had comparatively lower sales.

ACME Bites, holding the top rank in 2019 and 2020, experienced its highest monthly sales in October (2019) and June (2020). Correspondingly, **Chocolate Chip Cookies** dominated sales in both years, while **Sugar Cookies** consistently underperformed in sales.

Park & Shop Convenience Store, securing the 4th rank in both 2019 and 2020, demonstrated peak monthly sales in November (2019) and December (2020). **Chocolate Chip Cookies** were the top-selling item across both years, whereas **Oatmeal Cookies** experienced relatively lower demand.

Tres Delicious, the least ranked store in 2019 and 2020, achieved its highest monthly sales in October for both years. **Chocolate Chip Cookies** (2019) and **Snickerdoodle Cookies** (2020) were notable high performers, while **Fortune Cookies** (2019) and **Oatmeal Cookies** (2020) lagged behind in sales.

Wholesome Foods, ranking 2nd in both 2019 and 2020, reached its peak monthly sales in November (2019) and October & December (2020). **White Chocolate Macadamia Nut Cookies** (2019) and **Chocolate Chip Cookies** (2020) stood out as top sellers, while **Fortune Cookies** (2019) and **Sugar**

Analysis By:
Chioma .S. Uzochukwu

INSIGHT

Key findings derived from the analysis of this dataset include:

- Total cookie sales for 2019 and 2020 amounted to **1,125,806** units, with **264,674** cookies sold in the period of September to December 2019, and **861,132** cookies sold throughout January to December 2020.
- **ABC Groceries**, ranked 3rd in both 2019 and 2020, achieved its peak monthly sales in October for both years. Notably, **Chocolate Chip Cookies** were the best-selling product in both years, while **Fortune Cookies** (2019) and **Oatmeal Cookies** (2020) had comparatively lower sales.
- **ACME Bites**, holding the top rank in 2019 and 2020, experienced its highest monthly sales in October (2019) and June (2020). Correspondingly, **Chocolate Chip Cookies** dominated sales in both years, while **Sugar Cookies** consistently underperformed in sales.
- **Park & Shop Convenience Store**, securing the 4th rank in both 2019 and 2020, demonstrated peak monthly sales in November (2019) and December (2020). **Chocolate Chip Cookies** were the top-selling item across both years, whereas **Oatmeal Cookies** experienced relatively lower demand.
- **Tres Delicious**, the least ranked store in 2019 and 2020, achieved its highest monthly sales in October for both years. **Chocolate Chip Cookies** (2019) and **Snickerdoodle Cookies** (2020) were notable high performers, while **Fortune Cookies** (2019) and **Oatmeal Cookies** (2020) lagged behind in sales.
- **Wholesome Foods**, ranking 2nd in both 2019 and 2020, reached its peak monthly sales in November (2019) and October & December (2020). **White Chocolate Macadamia Nut Cookies** (2019) and **Chocolate Chip Cookies** (2020) stood out as top sellers, while **Fortune Cookies** (2019) and **Sugar Cookies** (2020) experienced weaker sales performances.

SUGGESTION

Outlined below are a series of recommendations aimed at augmenting sales performance:

- Investigate the factors contributing to elevated sales during peak months across store locations.
- Determine actionable insights from peak months, see how we can leverage it to potentially enhance sales performance or a replication in other months.
- Conduct an investigation to ascertain the reasons behind the relative underperformance of our prominent product, the Chocolate Chip Cookies, which did not secure a position within the top three highest selling cookie variants at Tres Delicious, yr. 2020.
- Analyze the drivers behind the increased sales of Snickerdoodle Cookies (Tres Delicious yr. 2020) and White Chocolate Macadamia Nut Cookies(Wholesome Foods yr. 2019).
- Assess the feasibility of applying successful sales drivers from Snickerdoodle Cookies and White Chocolate Macadamia Nut Cookies to underperforming products for potential market revitalization.
- Conduct a comprehensive market research analysis aimed at gaining insights into customer perceptions of Oatmeal Cookies, Sugar Cookies, and Fortune Cookies, which currently represent the least performing cookies across the different Stores. This will help inform strategic decision-making and potentially enhance market positioning of these products.