# Smart Devices Sales Analysis

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## Tools Used:

Microsoft Excel – Power Query – Pivot Tables – Dashboard Design

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## *1-Introduction*

This report documents the sales data analysis project conducted using Microsoft Excel. The main objective is to extract actionable insights that support business decisions and help improve sales performance.

The analysis was performed using the following Excel

### TOOLS:

- **Power Query** – for cleaning and transforming raw data
- **Pivot Tables & Pivot Charts** – for data summarization and visualization
- **Interactive Dashboards**– to present key metrics and trends in a user-friendly format

This documentation covers all project phases:

1. Data Exploration
2. Data Cleaning
3. Pivot tables and Dashboards
4. Insights

## 2-Data Exploration

### 2.1 Structure Overview

- **Number of rows:** 10,000
- **Number of columns:** 17

- **Key columns:** Order Id, Customer name, Email, Order date, Deliverey Date, Product name, Category, Quantity, Unit Price, City, Country, Payment Method, Delivery status, Notes, currency, Total, Combined field

### 2.2 Missing Values

All columns contain missing data. We will cover them in the cleaning.

### 2.3 Outliers

We identified several outliers and inconsistent data entries in the dataset:

1. **In the Unit Price column:**

- There were values containing both letters and numbers
- sometimes combined with a currency symbol (e.g., "100EGP", "two thousand", "2000$").

**These entries were considered invalid and were either corrected or removed.**

2. **In the Customer Name column:**

- we found inconsistent naming formats, Some entries were in English only (e.g., "John Doe").
- Others were in Arabic only (e.g., "أحمد").
- Some entries mixed were Arabic and English characters (e.g., “Ahmedمحمد").

**These were cleaned to ensure consistent formatting based on the project context.**

3. **In the Email column:**

- several entries were invalid
- others were in incorrect email formatting e.g.:(####@)/ (@...)

4. **In Order Date column:**

- There are dates for the year 2035, which is an anomaly compared to the rest of the order date distribution.

### 2.4 Value Distribution

- **Quantity:** Most orders ranged between 1 and 3 items.
- **Payment Methods:** “Cash” was the most frequently used, followed by “Credit Card”.
- **Sales:** Most sales over the years "2023-2025"

### 2.5 Data Types

- Dates converted to proper Date format
- Quantity and Price converted to Whole Numbers
- Text fields such as Product Name, Customer Name and Order ID confirmed as Text

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## 3. Data Cleaning

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### 3.1 Handling Missing Values

- We **deleted rows** that had too many blanks.
- Used **Fill Down** for missing Order IDs, Dates, Customer Name, payment method, delivery status
- Replaced missing values in City, Country, Quantity and Currency with the **most common value**.
- Corrected some City names based on Country and correct some product based on category.

- Used the average value for unit price

### 3.2 Fixing Data Types:

- Split and restructured **Order Date** into day, month, and year then merged it to be date type
- Converted **Quantity** and **Unit Price** to numbers
- Ensured **Names**, **Categories, city, country, product, Order Id and currency** were proper text

### 3.3 Standardizing Data:

- Standardized values like:
    - "cash", "CASH", "Cash" → **Cash**
    - "iphone", "Iph0ne" → **IPhone**
    - **"**lap_top**"** →Laptop
    - " egypt "→**Egypt….etc**
    - capitalized each word at **country, product, category , customer name and city column**
- Replaced invalid price values with real numbers
- Translated **Arabic currency symbols** into English
- Unified **customer names** into English
- Replaced empty Unit Price cells with the **average price**

### 3.4 New Calculated Column

We added a new column:

Unit Price by dollar = Currency × Unit Price
Total Sales by dollar = Quantity × Unit Price by dollar

## *3- Pivot tables and Dashboard*

To extract valuable insights from the cleaned dataset, we divided our analysis into **seven key business areas**.
For each area, a separate **Pivot Table and Dashboard** were created to explore the data from different perspectives and highlight important patterns and trends.

The seven analytical sections are as follows:

1. **Sales**
   To monitor total revenue, monthly trends, and performance across different time periods.
   KPIs (Total Revenue -Total units sold - Avg. unit price- Avg. sales)

2. **Product**
   To identify best-selling products, low-performing items, and product category performance.
   KPIs (Top Category-Top product- Product variety sold)

3. **Customer**
   To understand customer distribution, repeat buyers, and buying behavior by region.
   KPIs (No. of total customers and No. of (Delivered/lost/Pending) Customers)

4. **Orders**
   To analyze order volumes, frequency, and delivery patterns over time.
   KPIs (Total Orders-Delivered Orders Count- lost Orders Count- Pending Orders Count)

5. **Shipping**
   To evaluate delivery status (delivered, pending, lost) and shipping trends across cities

KPIs (Average Delivery days- Lost Deliveries-Pending Deliveries- %On-Time delivery Rate)

6. **Payment**
   To identify preferred payment methods (cash, credit card, etc.) and their relation to delivery outcomes.

   KPIs (payment methods- Most/Least payment method used)

7. **Region**
   To compare sales and customer activity across different countries and cities.
   KPIs (Orders in each country), Top city By Orders-Countries Served)

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Each sheet provided a focused view of its specific dimension and helped to build a comprehensive dashboard that summarizes the key business insights in a visual and interactive format.

## *4-Insights*

- **Total Sales**: 10,617,390 USD
- **Total Units Sold**: 13,945 items
- **Top-Selling Product**: iPhone
- **Best-Selling Category**: Mobile
- **Total Number of Customers**: 6,413
- **Most Used Payment Method**: Cash
- **Least Used Payment Method**: PayPal
- **Top Country by Sales**: Egypt
- **City with Highest Number of Orders**: Cairo