**Project Title:** Malnutrition Analysis & Dashboard Using Power BI
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📄 **MALNUTRITION ANALYSIS REPORT**

***By Somnath Pratapure***

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**1. Executive Summary**

Malnutrition continues to be a major global public health issue, affecting millions of children and adults across developing and developed nations. To better understand global malnutrition trends, this project uses **Power BI** to analyze an international dataset containing indicators such as **stunting, wasting, overweight, and severe malnutrition** across various countries, years, and income groups.

The final dashboard allows users to visually explore patterns and disparities based on **country**, **year**, and **World Bank income groups**, enabling quick decision-making and better understanding of global nutritional health.

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**2. Project Objective**

The main objective of this project is to:

✓ Collect and clean malnutrition-related data
✓ Prepare and transform data for analytical use
✓ Design a fully functional and interactive **Power BI dashboard**
✓ Generate insights on malnutrition trends and distribution
✓ Provide meaningful visualizations to support research and policymaking

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**3. Dataset Description**

Dataset used:
📌 *malnutrition_simple_dataset.xlsx*

The dataset contains the following columns:

| Column Name | Description |
|---|---|
| Country | Name of the country |
| Income Group | World Bank income classification (Low, Lower-Middle, Upper-Middle, High) |

| Column Name | Description |
|---|---|
| Year | Year of survey |
| Stunting (%) | Percentage of children who are stunted |
| Wasting (%) | Percentage of children who are wasted |
| Severe (%) | Percentage with severe malnutrition |
| Overweight (%) | Percentage of children overweight |

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**4. Tools & Technologies Used**

| Tool | Purpose |
|---|---|
| **Power BI Desktop** | Data cleaning, modeling & dashboard creation |
| **Excel** | Initial dataset preparation |
| **GitHub** | Version control and project hosting |

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**5. Data Preparation and Cleaning**

**✓ Step 1: Import the dataset**

The Excel dataset was loaded into Power BI using *Get Data > Excel*.

**✓ Step 2: Remove unnecessary columns**

Only the relevant indicators (Stunting, Wasting, Severe, Overweight) were kept.

**✓ Step 3: Data type corrections**

- Year → Whole Number
- Country → Text
- Numeric values → Decimal Number

**✓ Step 4: Handling nulls and errors**

Rows with missing data were detected and removed to ensure accurate visualizations.

**✓ Step 5: Model verification**

A single clean table was used; no complex relationships were needed.

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**6. Dashboard Design**

The final dashboard includes the following visual elements:

🟦 **1. Stunting (%) by Country (Bar Chart)**

Shows highest to lowest stunting rates.
Example insights: Japan lowest, Pakistan higher ranges.

🟩 **2. Wasting (%) vs Severe (%) by Income Group (Stacked Column Chart)**

Comparison of malnutrition types across income groups.

🟧 **3. Overweight (%) Trend by Year (Line Chart)**

Shows how overweight trends fluctuate over time.

🟪 **4. Count of Country & Sum of Overweight (Clustered Bar)**

Shows dataset coverage + overweight distribution.

All visuals are placed in a clean, symmetrical layout for easy navigation and understanding.

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**7. Key Insights from Dashboard**

📌 **1. High-income countries have lower malnutrition levels**

Stunting and wasting are significantly lower in high-income regions.

📌 **2. Lower-middle income countries show highest severe malnutrition**

Indicating resource scarcity and nutritional challenges.

📌 **3. Overweight trends fluctuate over years**

Some regions show increasing overweight cases despite undernutrition problems.

📌 **4. South Asian and African regions show significant stunting**

These regions need major nutritional programs.

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**8. Recommendations**

✓ Governments should increase child nutrition programs in low-income countries
✓ Investment in health and food security must be increased
✓ Overweight trends need monitoring due to rise in dual burden of malnutrition
✓ Awareness programs for rural areas can reduce severe malnutrition rates
✓ Strengthen global partnerships for food distribution and nutrition research

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**9. Conclusion**

This Power BI dashboard provides a simplified and interactive view of global malnutrition trends. Using visualization techniques, it helps users instantly identify problematic regions and track trends in various forms of malnutrition.

The project demonstrates the ability to:
✓ Clean and prepare real-world datasets
✓ Build professional dashboards
✓ Generate actionable insights
✓ Present results using Power BI and GitHub

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**10. Project Links**

📁 **GitHub Repository**

🔗 *https://github.com/somnath0202/malnutrition-powerbi-project*
*(Replace with your exact GitHub link if different)*

📊 **Dashboard File**

- malnutrition_dashboard.pbix uploaded successfully
- Dataset uploaded: malnutrition_simple_dataset.xlsx