UNDERSTANDING THE COST OF LIVING

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ABSTRACT

This project revolves around the analysis of the cost of living in various cities and countries across the globe. The dataset used for this analysis encompasses a wide range of economic indicators, from the price of basic commodities to the cost of housing, transportation, and even entertainment. By harnessing the power of Power BI, we aim to gain valuable insights into the economic disparities between different regions and understand the factors that contribute to the varying costs of living. This project serves as an exercise in data visualization, analysis, and interpretation, offering a comprehensive view of the world's economic landscape.

PROBLEM STATEMENT

The cost of living is a crucial metric that impacts individuals and businesses alike. Understanding the cost
of living in different cities and countries is vital for making informed decisions regarding relocation, investment, or business expansion. This project aims to address several key questions:

- What are the cities and countries with the highest and lowest costs of living?
- What are the major cost components contributing to the overall cost of living in a region?
- How do factors like average salary, housing costs, and transportation expenses correlate with the cost of living?
- Are there any trends or patterns in the data that can help individuals and organizations make strategic decisions?

DATASET DETAILS

- City: Name of the city.
- Country: Name of the country.
- ColumnDescription
- city Name of the city
- countryName of the country
- x1 Meal, Inexpensive Restaurant (USD)
- x2 Meal for 2 People, Mid-range Restaurant, Three-course (USD)
- x3 McMeal at McDonalds (or Equivalent Combo Meal) (USD)
- x4 Domestic Beer (0.5 liter draught, in restaurants) (USD)
- x5 Imported Beer (0.33 liter bottle, in restaurants) (USD)
- x6 Cappuccino (regular, in restaurants) (USD)
- x7 Coke/Pepsi (0.33 liter bottle, in restaurants) (USD)
- x8 Water (0.33 liter bottle, in restaurants) (USD)
- x9 Milk (regular), (1 liter) (USD)
- x10 Loaf of Fresh White Bread (500g) (USD)
- x11 Rice (white), (1kg) (USD)
- x12 Eggs (regular) (12) (USD)
- x13 Local Cheese (1kg) (USD)
- x14 Chicken Fillets (1kg) (USD)
- x15 Beef Round (1kg) (or Equivalent Back Leg Red Meat) (USD)
- x16 Apples (1kg) (USD)
- x17 Banana (1kg) (USD)
- x18 Oranges (1kg) (USD)
- x19 Tomato (1kg) (USD)
- x20 Potato (1kg) (USD)
- x21 Onion (1kg) (USD)
- x22 Lettuce (1 head) (USD)
- x23 Water (1.5 liter bottle, at the market) (USD)
- x24 Bottle of Wine (Mid-Range, at the market) (USD)
- x25 Domestic Beer (0.5 liter bottle, at the market) (USD)
- x26 Imported Beer (0.33 liter bottle, at the market) (USD)
- x27 Cigarettes 20 Pack (Marlboro) (USD)
- x28 One-way Ticket (Local Transport) (USD)
- x29 Monthly Pass (Regular Price) (USD)
- x30 Taxi Start (Normal Tariff) (USD)
- x31 Taxi 1km (Normal Tariff) (USD)
- x32 Taxi 1hour Waiting (Normal Tariff) (USD)
- x33 Gasoline (1 liter) (USD)
- x34 Volkswagen Golf 1.4 90 KW Trendline (Or Equivalent New Car) (USD)
- x35 Toyota Corolla Sedan 1.6l 97kW Comfort (Or Equivalent New Car) (USD)
- x36 Basic (Electricity, Heating, Cooling, Water, Garbage) for 85m2 Apartment (USD)
- x37 1 min. of Prepaid Mobile Tariff Local (No Discounts or Plans) (USD)
- x38 Internet (60 Mbps or More, Unlimited Data, Cable/ADSL) (USD)
- x39 Fitness Club, Monthly Fee for 1 Adult (USD)
- x40 Tennis Court Rent (1 Hour on Weekend) (USD)
- x41 Cinema, International Release, 1 Seat (USD)
- x42 Preschool (or Kindergarten), Full Day, Private, Monthly for 1 Child (USD)
- x43 International Primary School, Yearly for 1 Child (USD)
- x44 1 Pair of Jeans (Levis 501 Or Similar) (USD)
- x45 1 Summer Dress in a Chain Store (Zara, H&M, ...) (USD)
- x46 1 Pair of Nike Running Shoes (Mid-Range) (USD)
- x47 1 Pair of Men Leather Business Shoes (USD)
- x48 Apartment (1 bedroom) in City Centre (USD)
- x49 Apartment (1 bedroom) Outside of Centre (USD)
- x50 Apartment (3 bedrooms) in City Centre (USD)
- x51 Apartment (3 bedrooms) Outside of Centre (USD)
- x52 Price per Square Meter to Buy Apartment in City Centre (USD)
- x53 Price per Square Meter to Buy Apartment Outside of Centre (USD)
- x54 Average Monthly Net Salary (After Tax) (USD)
- x55 Mortgage Interest Rate in Percentages (%), Yearly, for 20 Years Fixed-Rate
- data_quality 0 if Numbeo considers that more contributors are needed to increase data quality, else 1data_quality: A binary variable (0 or 1) indicating data quality, with 0 suggesting the need for more contributors and 1 indicating satisfactory data quality.

SCOPE

Data preprocessing and cleaning to ensure data quality.

Exploratory data analysis (EDA) to identify trends, outliers, and relationships among variables.

Visualization of the cost of living data using Power BI's interactive features.

Interpretation of the results to draw meaningful conclusions.

Presentation of findings in a clear and concise manner.

Steps involved
1. Data Import and Preparation:

• Step 1: I imported the dataset into Power BI.
• I ensured data types are correctly assigned to columns (e.g., city and country as text, x1 to x55 as numbers). I also changed the column names for easy identification

2. Data Cleaning:

• Step 2: Handle missing values
• I used Power BI's data cleaning tools to replace null values.

• Step 3: I ensured data consistency by checking for duplicate entries and correcting data entry errors.

3. Data Transformation:

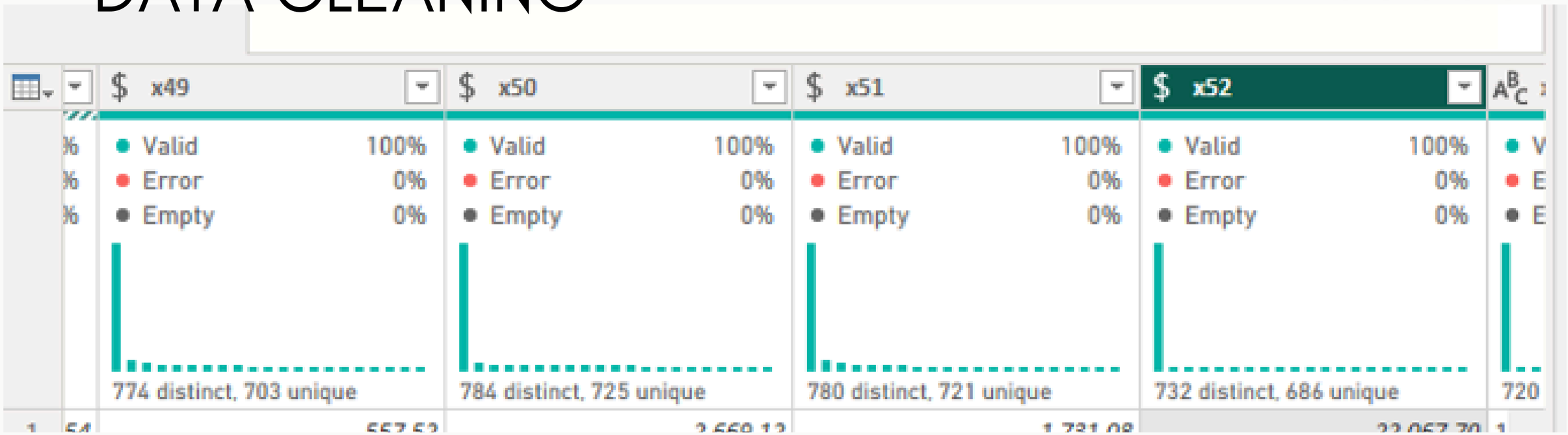
• Step 4: I created calculated columns or measures for additional insights.
• I used DAX (Data Analysis Expressions) to create new metrics e.g., average of certain variables.

4. Exploratory Data Analysis (EDA):

• Step 5: I created visualizations to explore data distribution and identify patterns.
• I used bar chart to examine the distribution and relationships between variables.
• I analyzed the correlation between variables.

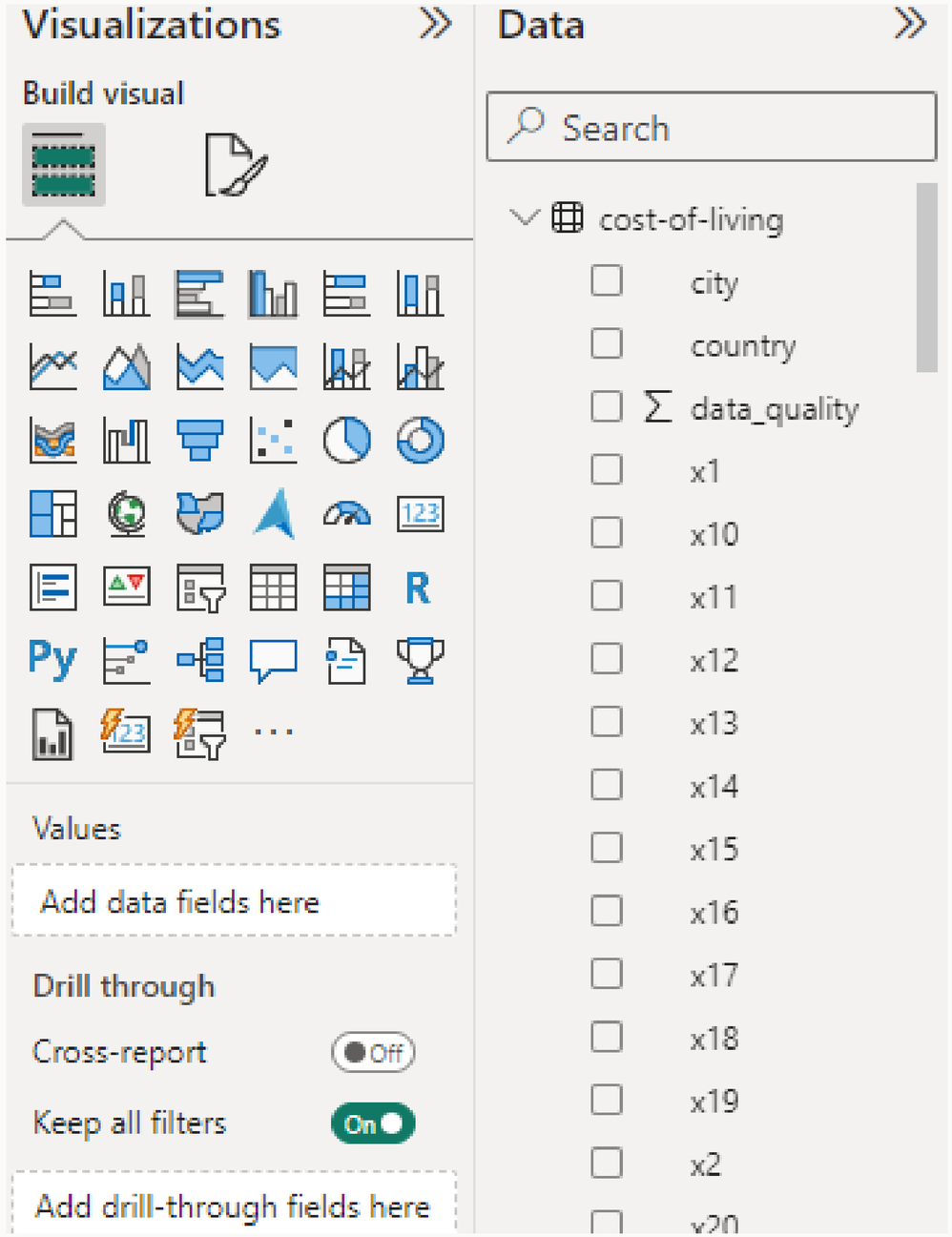
5. Comparative Analysis:
I compared metrics across cities and countries.
• Using bar charts, pie chart, and funnel to compare performance on various indicators.
• I dentified top-performing and underperforming cities based on specific metrics.

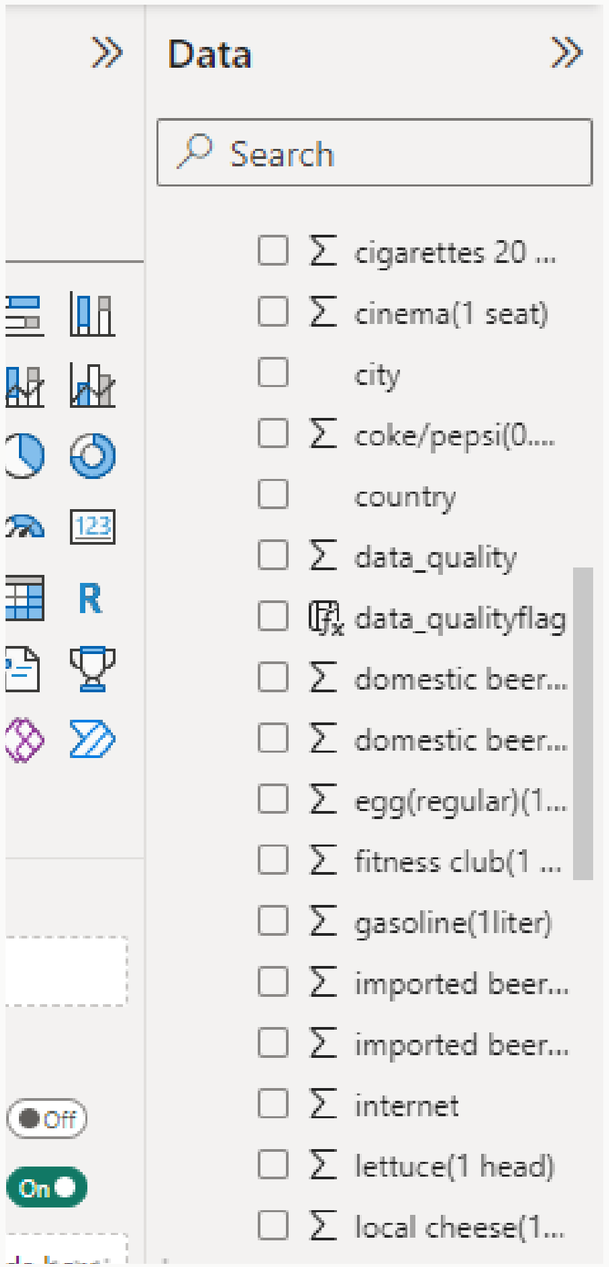
DATA CLEANING

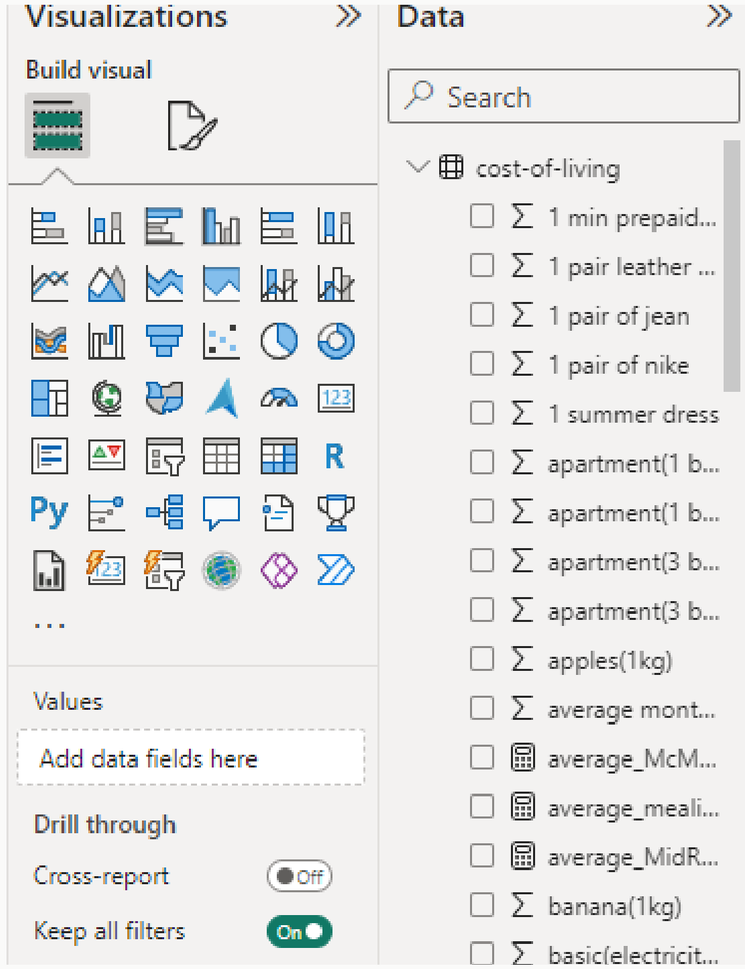


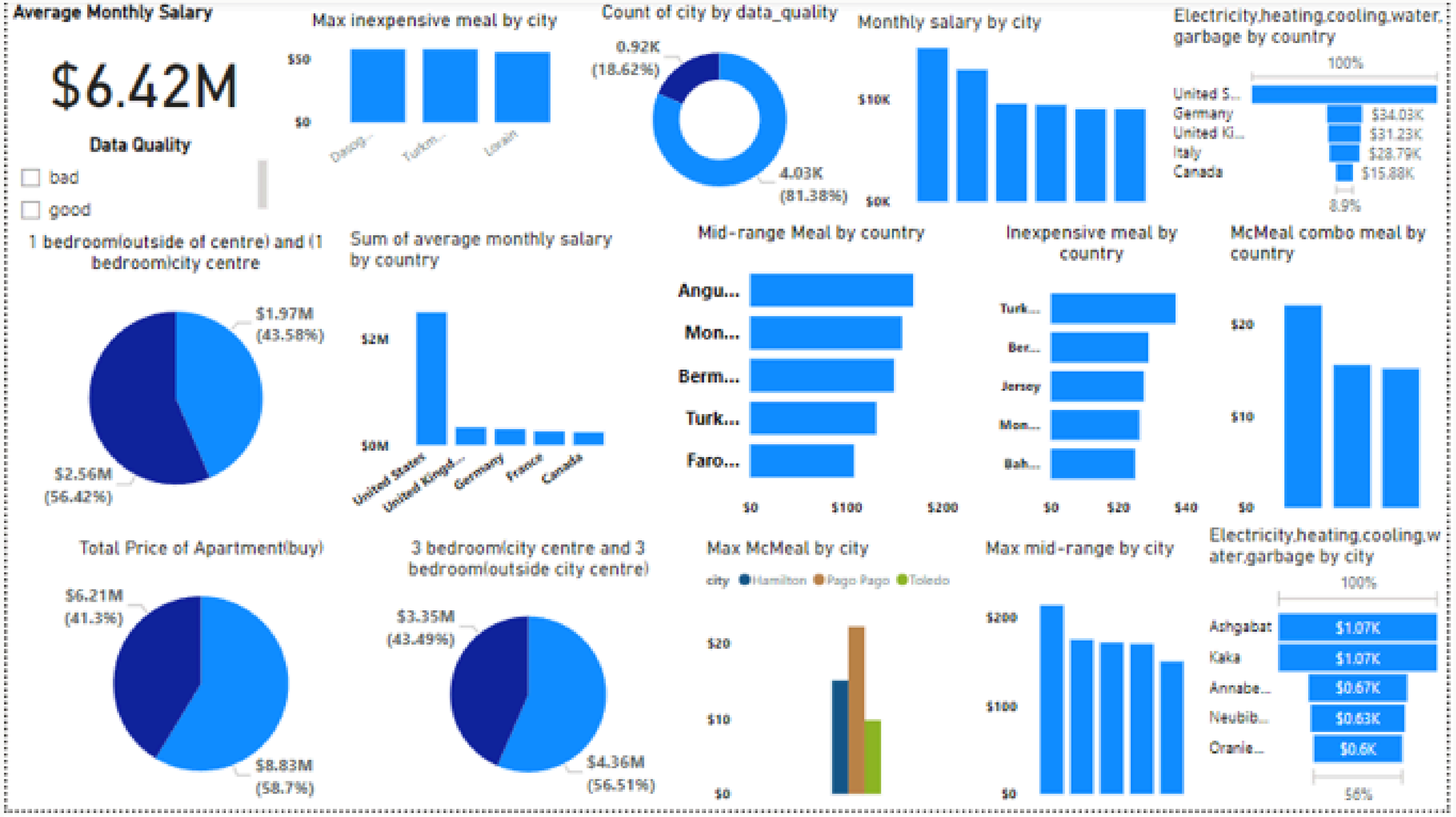
	994 distinct, 988 unique	210 distinct, 137 unique	397 distinct, 222 unique	473 distinct, 313 unique	356 distinct, 189 unique	293 distinct, 12(
1	Seoul	South Korea	7.68	53.78	6.15	3.07
2	Shanghai	China	5.69	39.86	5.69	1.14
3	Guangzhou	China	4.13	28.47	4.98	0.85
4	Mumbai	India	3.68	18.42	3.68	2.46
5	Delhi	India	4.91	22.11	4.3	1.84
6	Dhaka	Bangladesh	1.95	11.71	4.88	5.85
7	Osaka	Japan	7.45	48.39	5.36	3.35
8	Jakarta	Indonesia	2.59	22.69	3.57	2.06
9	Shenzhen	China	4.27	28.47	4.98	1.14
10	Kinshasa	Congo	15.11	42.63	10.08	1.74

CALCULATED COLUMN, NEW MEASURE








Average Monthly Salary
$6.42M
Data Quality
bad
good
Max inexpensive meal by city
$50
$0
Count of city by data_quality
0.92K
(18.62%)
4.03K
(81.38%)
Monthly salary by city
$10K
$0K
Electricity,heating,cooling,water,garbage by country
100%
United S...
Germany
United Ki...
Italy
Canada
$34.03K
$31.23K
$28.79K
$15.88K
8.9%
1 bedroom(outside of centre) and (1 bedroom(city centre
$1.97M
(43.58%)
$2.56M
(56.42%)
Sum of average monthly salary by country
$2M
$0M
United States
United Kingd...
Germany
France
Canada
Mid-range Meal by country
Angu...
Mon...
Berm...
Turk...
Faro...
$0
$100
$200
Inexpensive meal by country
Turk...
Ber...
Jersey
Mon...
Bah...
$0
$20
$40
McMeal combo meal by country
$20
$10
$0
Total Price of Apartment(buy)
$6.21M
(41.3%)
$8.83M
(58.7%)
3 bedroom(city centre and 3 bedroom(outside city centre)
$3.35M
(43.49%)
$4.36M
(56.51%)
Max McMeal by city
city
Hamilton
Pago Pago
Toledo
$20
$10
$0
Max mid-range by city
$200
$100
$0
Electricity,heating,cooling,water,garbage by city
100%
Azhgabat
Kaka
Annabe...
Neubib...
Oranie...
$1.07K
$1.07K
$0.67K
$0.63K
$0.6K
56%