

Homework N3

Part 1: Analytical Questions (Python & R)

Hint: Convert all the currencies to dollars using the following logic:

1 PKR = 0.0036 USD

1 INR = 0.011 USD

1 CNY = 0.14 USD

1 AED = 0.27 USD

1. Does battery capacity influence the launched price of a smartphone? Check this variability across all currencies. Is there any type of difference between behaviors?

Answer: No strong correlation. Budget phones often have large batteries, while premium models prioritize design. This trend is **consistent across all currencies**. Battery capacity alone **does not determine price**—other factors like processor and brand matter more.

2. Does RAM size impact the price of smartphones? Check this variability across all currencies. Is there any type of difference between behaviors?

Answer: Yes, **higher RAM = higher price** across all regions. The impact is more noticeable in **premium phones**. In China, price differences between RAM variants are **smaller** than in the USA.

3. Do Apple devices have a higher price variation across different regions compared to other brands? In which country do Apple devices have the highest markup? Are there brands with more stable pricing across regions?

Answer: Yes, **Apple has the highest price variation** across regions. The **biggest markup** is in **Pakistan** due to taxes. **Samsung and Xiaomi have more stable pricing.**

4. Do all smartphone brands have flagship and budget-friendly models, or do some brands only focus on premium devices?

Hint: Categorize brands into budget, mid-range, and premium segments (Budget: < \$300, Mid-range: \$300 - \$700, Premium: > \$700). Check how many models each brand has in each segment. Determine whether a brand covers all three segments or focuses only on premium/mid-range.

Answer: No. **Apple only makes premium phones.** Samsung covers **all price segments.** Xiaomi and Realme focus on **budget/mid-range**, while OnePlus has **shifted to premium.**

5. Which region offers the most affordable smartphone prices on average? Are there any brands that price their phones significantly lower in one region compared to others?

Answer: **China has the lowest prices.** The **USA and Dubai are more expensive**, especially for premium brands. Some brands **price their phones much cheaper in China** than elsewhere.

Part 4: Personal findings

Apart from battery and RAM, there are **a bunch of other things** that impact smartphone prices. I dug into **processor type, brand reputation, display tech, camera specs, and regional pricing strategies** to see what's really going on.

Key Findings

1. Processor & Performance

- High-end processors like **Apple's A-series & Snapdragon 8 Gen** push prices **way up**.
- Budget phones use **older or mid-tier chips** (MediaTek, older Snapdragons) to keep costs low.

- **Performance = Price**, but only if the brand markets it well.

2. Brand Power & Ecosystem

- **Apple & Samsung** charge premium prices **because they can**—people trust the brand.
- Brands like **Xiaomi & Realme** keep prices low to compete.
- If a phone has **exclusive software (like iOS)** or a **premium design**, it's gonna be expensive.

3. Screen & Display Tech

- **Bigger screen** \neq **higher price**, but **better display tech** does.
- **OLED, AMOLED, 120Hz+ refresh rates** drive up costs.
- Cheap phones usually stick with **LCDs** to cut costs.

4. Camera Game

- **More megapixels** \neq **more \$\$\$**, but **better sensors & extra lenses** do.
- Phones with **telephoto, ultrawide, & periscope zoom** setups cost more.
- **AI software processing** (like Google Pixel's magic) also adds to price.

5. Regional Pricing & Import Taxes

- **Where you buy a phone** changes the price a LOT.
- **India & China** have cheaper phones because they make them locally.
- **Pakistan & Dubai** have **higher import taxes**, which makes some brands crazy expensive.
- Apple phones have **huge markups in high-tax regions**.

Conclusion

So yeah, smartphone prices are about **way more than just RAM & battery**. It's a mix of **processor hype, brand clout, display tech, camera tricks, and where you live**. Some brands charge extra just for the name, while others focus on value. Now it makes sense why the same phone costs **\$800 in one country and \$1200 in another!**