# Flipkart Data Scientist - Home Assignment

As the biggest e-commerce company in India, Flipkart's selection holds just about any type of product one could think of. In this assignment, we'll take a closer look at Flipkart's online mobile phone store. Just like any big or small business, Flipkart offers discounts or deals every now and then to boost sales. One of the data science team's most prominent tasks is to help the mobile category at Flipkart to plan the big sales days, called "events". An event at Flipkart is 5-6 consecutive days of additional discounts that are advertised both on Flipkart's platform and on social media. Please answer the following questions. In your solution try to provide clear explanations and rationales of any decisions you made along the way.

1. Which phone model had the highest interest from users during October's event? Was it in fact the event's highest selling phone? Which one generated the most revenue?
2. Estimate the number of units sold during the Jan2024 event, for each product?
3. How would you evaluate your prediction?
4. At Flipkart we use an evaluation metric called wMAPE. You can read about it here: https://en.wikipedia.org/wiki/Mean_absolute_percentage_error
   Evaluate your prediction with Flipkart's metric and provide insight on your model's accuracy.
5. Suppose Flipkart is interested in launching a new phone during the Jan 2024 event. Can you suggest a way to price the new phone? How many units are expected to be sold? (No need to Implement)

The data for this exercise consists of three data sets:

- **product_data.csv** contains columns that describe each product: **product_id**: The unique identifier of the product
  - **when_added_ts**: the timestamp of the product's launch on the website
  - **name**: the name of the product that's presented on the product's page
  - **brand**: product's manufacturer

- **product_history.csv** contains data on each product's sales and revenue at a daily level:
  - **product_id**: The unique identifier of the product
  - **gross_revenue**: The total amount of revenue in INR ₹
  - **gross_units**: The total number of units sold.
  - **impressions**: The number of times an ad for the product was seen on social media
  - **primary_ppvs**: The number of times the product's page was viewed
  - **date**
  - **asp**: stands for 'average sales price'

- **events_calendar.csv** contains information on recent events' dates
  - **event_name**
  - **event_start_time**: The first day of the event
  - **event_end_time**: The last day of the event