# Analyzing Business Problem

# Specialization: Product Analysis

## 1. Task requirements

In the world of e-commerce, understanding how much time it takes for users to make a purchase on our website is vital. This analysis helps us see how efficient our website is and identify areas for improvement.

Our product manager wants us to measure and analyze the time from a user's first visit to their first purchase each day. This data will help us refine our marketing strategies and improve the overall user experience.

In this analysis, we'll explain our methods and share insights on user purchase times to enhance our website's performance and better understanding of users behavior.

- Create a presentation centered around the dynamic daily duration.
- See whether you can apply 1-2 techniques learned in this module course material to enhance your presentation on this subject.
- Explore the data. See whether there are interesting data points that can give more insights to your presentation.
- Provide analytical insights, what are the drawbacks of this analysis, what further analysis could you recommend?
- You should use the turing_data_analytics.raw_events table to answer this question. Please write a SQL that would extract data from the BigQuery, make a make a visualisation using your preferred data visualisation tool (Google Sheets / Looker Studio / Looker Studio) and comment your findings.

## 2. Main Questions

For the business to understand user purchase behavior and the times when they are purchasing the most is crucial so for that reason I raised a few questions.

**How purchase times differ on weekdays?**

> Examining user purchase duration across weekdays can help us identify if specific days of the week are associated with faster or slower conversions. This insight can influence our promotional scheduling, customer engagement strategies, and staffing levels for customer support.

**How do user purchase times differ per device type?**

Splitting users purchase behaviour by device type can reveal the channel users willing to make their first purchase. This information can be used to refine ad placement, email marketing schedules, and customer service availability for maximum impact.

**How do purchase times differ per country?**

Understanding how user purchase duration differs by country is crucial for tailoring our global strategy. Are there cultural or regional factors influencing this duration? By identifying these variations, we can optimize pricing, localization efforts, and customer support to improve user experiences.

With the answers of these questions we will have a better understanding of our customers and where we could improve our services and customer experience.

## 3. Prepare & Process

In the second part I went through the data source and checked what kind of data I have. In the provided raw_events table, I check that we have the data with each step how customers interact with our website, purchases amount geographical data and their initial purchases amount.

As I checked the data, I had a better understanding of what kind of field to use in order to extract the information properly and of course I have all the data I need for the raised questions to answer.

Later on, I prepared a query to extract the initial information for used for my analysis and created additional few field from the extracted data

- Purchase time of the day group the purchases and
- Time difference - Calculating time in minutes from their first page view on the same day as the purchase happens and the purchases.

After I have the data extracted from the ***raw_events*** table with a query I created a Looker Studio dashboard which for the business owners and other departments will help to answer the main questions easier.

Link to the Looker Studio dashboard : https://lookerstudio.google.com/u/0/reporting/9aabcc13-542b-456c-94f7-2de3403289e1/page/3wJaD

## 4. Analyze & Share

From received data and ready with Looker Studio public now I can deliver the answers to the questions and bring insights

For the main analysis I created a Looker Studio Dashboard where users can easily interact with it, just by one press of the chart on the parts of the day, selected region or just just by the day, the end users can filter their results by a variety of the questions they have by looking at customers purchase times.

**Main information**

- **How many purchases did we have from our users ?**
  - Unique users purchased 5182 times.

- **How much revenue these purchases generated?**
  - Total revenue generated from the purchases were around $ 3,6 M

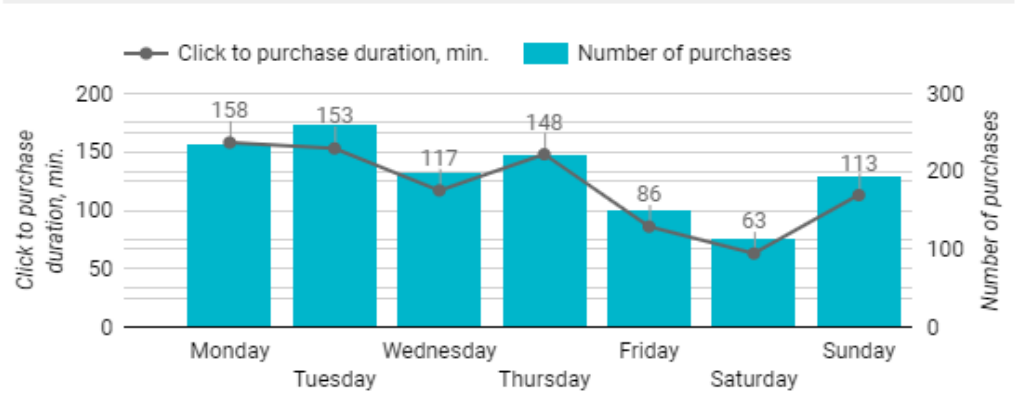
- **What customers average time from the purchase and the page view on the same day as the purchase was made.**
  - Average time from all purchases, from customers purchase and page view of the same day was median 24 minutes.

| Number of purchases | Revenue in USD | Duration, min |
|---|---|---|
| 5,182 | 3.6M | 24 |

**How purchase times differ on weekdays?**

Here I created a chart where we can see at which days people tend to buy more and spend more time on the website searching for the product till buying it.

From the chart we can see that people are spending more time on website from the viewing the page and buying the product in the beginning of the week, the least time people spending on weekend as they spend more time with friends and family members.

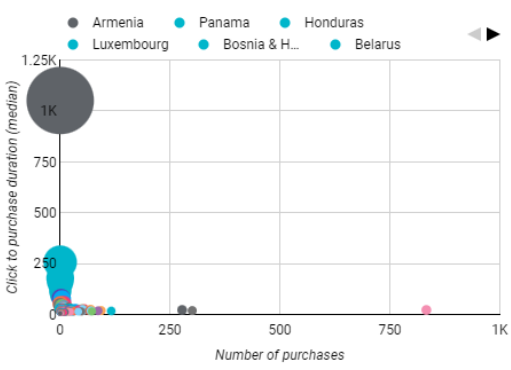


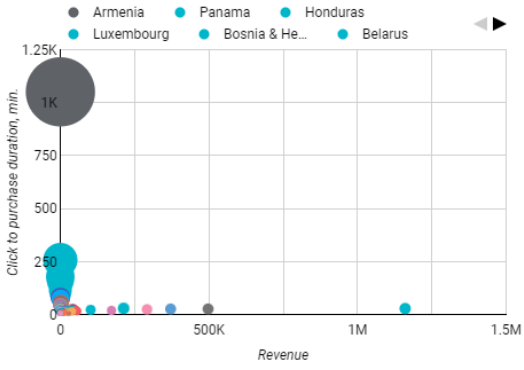
**How do user purchase times differ per device type?**

**Desktop:**
Click-to-Purchase Duration (Minimum): The minimum duration for desktop users to make a purchase is 20 minutes.
Number of Purchases: There were 1,730 purchases made by desktop users.
**Mobile:**
Click-to-Purchase Duration (Minimum): The minimum duration for mobile users to make a purchase is 21 minutes.
Number of Purchases: There were 1,330 purchases made by mobile users.
**Tablet:**
Click-to-Purchase Duration (Minimum): The minimum duration for tablet users to make a purchase is 17 minutes.
Number of Purchases: There were 95 purchases made by tablet users.


**How do purchase times differ per country?**

In here I created an additional dashboard where project manager could see all the data directly and if wants to go deeper in each country results, he can just press on the country and all the charts will filter out in order to have a better understanding how each people are behave in each country and with parts for the days and weekdays people spending the most of the times for their purchases.



**Purchase count, revenue and duration by Countries:**

**United States:**
Dominates in terms of overall purchase count and revenue but show longer click to purchase duration and therefore longer conversion process.

**India and Canada:**
Shows quite high number of purchase, higher revenue and moderate click to purchase duration.

**United Kingdom, Spain and France:**
Shows significant purchase count and shorter duration therefore shorter conversion process. United Kingdom also shows higher revenue but other countries beneficial from revenue side are China, Australia, Italy.

**Outliers:**
Armenia, Panama, Honduras and Luxembourg stand out as potential outliers. For all of them duration is based on single click to purchase event. More data is needed to investigate the duration for these countries.

## 5. Key Insights

As from the analysis we now have a better picture of our customers.

Here are some key insights:

- **Overall Weekday Trends**:
  On average people are spending 24 minutes from their initial view page
  End of the week (Fridays and Saturdays) shows the lower durations from visit to purchase. Though during those days there are lowest numbers of purchases.

- **Conversion Speed by category:**
  Mobile users often show similar or longer conversion times compared to desktop users but still most of the purchases comes from desktop.

- **Conversion Speed by country:**
  United States shows the highest number of purchase and higher revenue but also a longer conversion speed. There are also visitors from other countries with similar click to purchase duration that show good results in revenue and purchase count. Therefore, range 19-29 min click to purchase duration might be considered as good for selected product.