# Explanation of Python Code for Impulse Purchase Prediction

## Goal of the Project

The main goal was to predict whether a person would make an impulse purchase using their personal details and social media behavior. We also wanted to see which cities were more impulsive overall.

## Step 1: Importing Tools

We brought in tools (called libraries) like pandas for handling Excel data, and sklearn for machine learning. Think of them as apps inside your coding environment.

## Step 2: Loading the Data

We opened the Excel file you provided and made sure the column names were clean (no extra spaces).

## Step 3: Picking Useful Information

We selected only the important columns: age, gender, income, how much they use social media, and the platform they use. We also chose their city and whether they said 'Yes' to a purchase.

## Step 4: Preparing Data for the Model

We separated the data into two types: numbers (like age, income) and text (like gender, platform). We used special techniques to convert the text into numbers so the model could understand it.

## Step 5: Creating a Model

We built a model that learns from past data to predict if a person will say 'Yes' to buying something. It’s a bit like teaching a child by showing them lots of examples.

## Step 6: Making Predictions

The model gave each person a score (between 0 and 1) that shows how likely they are to buy. A score close to 1 means they are very likely to buy.

## Step 7: Summarizing by City

We calculated the average impulse score for each city, along with how many people said 'Yes' and how many total users were there.

## Step 8: Saving to Excel

Finally, we saved both the detailed data and the summary into a new Excel file, so you could use it in Power BI to make all your visuals.