INDIVIDUAL WORK

Question 1.

A Real estate company keeps daily data in an excel file

Using pandas:

1. Read the sales data file.
2. Delete two columns latitude and longitude
3. Filter and show products that sold more than 100 000.
4. Export the updated data to a new CSV file.
5. How many streets with type “Residential”

Question 2

A teacher has recorded exam results for students in a CSV file with the columns. Create a python program to make a data frame with at least 10 students with Student_ID, Name, Math, English, Science

Required:

1. Describe your data frame
2. Calculate each student's **average score** across all subjects.
3. Add a new column "Status": label "Pass" if average ≥ 50, else "Fail".
4. Sort the data by average score in descending order.
5. Display the top 3 performers.
6. Visualize your data with line graph Name against Math, English and Science. Add possible chart elements (titles, labels, legends, etc)
7. Visualize your Math performance by Pie Chart and add possible chart elements.

Question 3
Animal Shelter System
An animal shelter cares for different animals: **Dogs** and **Cats**. All animals have a name, age, and adoption_status.

- Dogs have breed and is_trained.
- Cats have color and likes_to_be_held (True/False).

Base Class: Animal

Subclasses: Dog, Cat
Question:
Create classes to represent this system. Add methods to:

- Display animal profile
- For dogs: mark as "ready for adoption" if trained.
- For cats: suggest only for experienced owners if they don't like to be held.

Question 4.

Write a Python program that collects the marks of a student in five modules: Python, ICT, Cryptography, Operations Research and Linear Algebra. The program should:

a. Prompt the user to enter a mark for each of the five modules.
b. Calculate and display:
    i. The average mark
    ii. The highest mark among the five
    iii. The overall grade, based on the average, using the grading scale below:

Average Score	Grade
80 – 100	A (Excellent)
70 – 79	B (Very Good)
60 – 69	C (Good)
50 – 59	D (Pass)
Below 50	F (Fail)

3. Validate that all marks entered are numeric and fall between 0 and 100.