ASSIGNMENT Data Mining in Python

Use New York City Airbnb data (the same as in the KNIME-exercise) and answer the questions below using Python. In Moodle, **provide: (1) the numerical values** (if available) and **(2) Python-scripts used** (as .py). **Observe:** The original dataset is available in https://www.kaggle.com/dgomonov/new-york-city-airbnb-open-data

1) Provide values:
    a. What is the mean price in Clifton *neighbourhood*?
    b. How many *private rooms* can you find in Harlem (*neighbourhood*)?
    c. How many hosts in Harlem (based on *host_id*) have more than one private room?

2) Write:
    a. A function that filters the Airbnb DataFrame of apartments with user given parameters on: 'neighbourhood', 'maximum price' and 'room_type' (*) returning the filtered DataFrame as a result

    b. Refine the function by adding an if-else condition that:
    - Prints *"No matching results"* if there are no results within the user-defined parameters (i.e. combination of 'neighbourhood', 'maximum price' and 'room_type'). No result is returned.
    - Prints (a maximum of) ten cheapest alternatives including only columns ['host_name', 'neighbourhood', 'price', 'minimum_nights'] returns the (full) filtered dataframe as a result

3) Create a summary table of *'Entire home/apt'* room_type displaying the number of places and number of hosts (= one host may own more than one place). See illustration below:

Neighbourhood	Average price	Number of places	Number of hosts
'Allerton'	…	…	…
'Arden Heights'	…	…	…
… k rows of data			
'Woodside'	…	…	…

Include neighbourhoods with five or more places:

    a. Which neighbourhood is the most expensive one? Provide price.
    b. Which neighbourhood has the highest [Number of places]/[Number of hosts] -ratio? Provide value of the ratio.

(*): In Python, the start of your function could look something like this:

```
def get_price(nbrh, max_price, r_type):
    """This function returns the prices of selected room type on a specific
    neighbourhood gapped to a given price maximum"""
```