HOMEWORK GUIDE
Deadline: 9th of May, 23:59

General Instructions

1. Follow the instructions carefully. If a question is unclear, you can ask about it in the Homework Q&A discussion in Moodle.

2. This homework should be completed in groups of two. Choose a teammate. If you are having trouble finding a teammate, post about it in Homework Groups discussion in Moodle.

3. You need to upload two files to Moodle. First one is the final filled-in homework_template.R file, which you need to rename to homework_STUDENT1_STUDENT2_YOURCITY.R before uploading.

   Second file should be an export from PowerBI with your dashboard in pdf format. The file name should be powerbi_export_ STUDENT1_STUDENT2_YOURCITY.pdf

   Use Homework 3 link in course main page to upload your solutions.

4. Copying solutions from each other is not allowed. Similar solutions or explanations will result in getting 0 points for both groups.

5. Similarly, you shouldn't use ChatGPT to complete this HW. I understand that you might still try to do so. Please note however, that ChatGPT tends to write codes in a way that is different from how I taught you in the class (usually offering more complex solutions). In case the solutions are too complex, too generic or too different from what I taught you in class, this will result in 0 points for that exercise.

Part 1: R
(16 points)

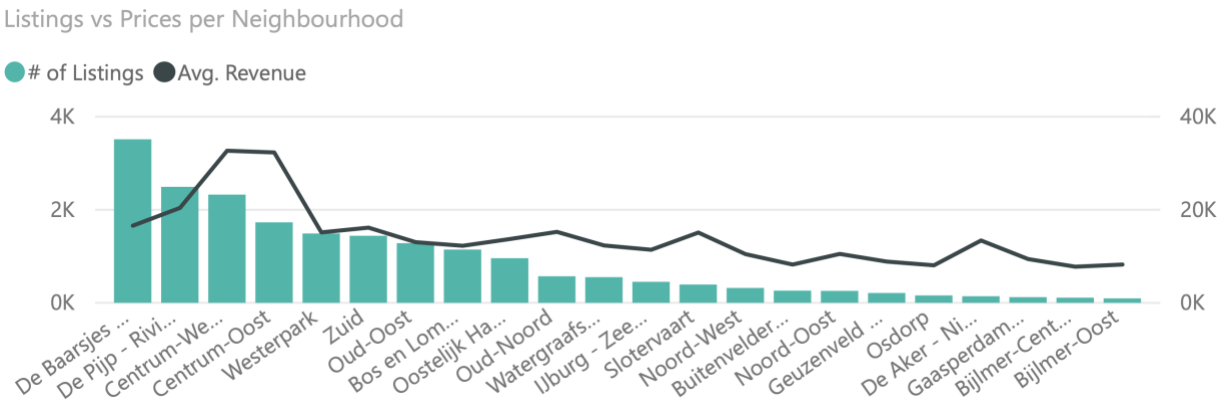
You **MUST** start with this section, because this is where you will download your data and make initial changes to it, before moving on to working with it in other parts (SQL and PowerBI).

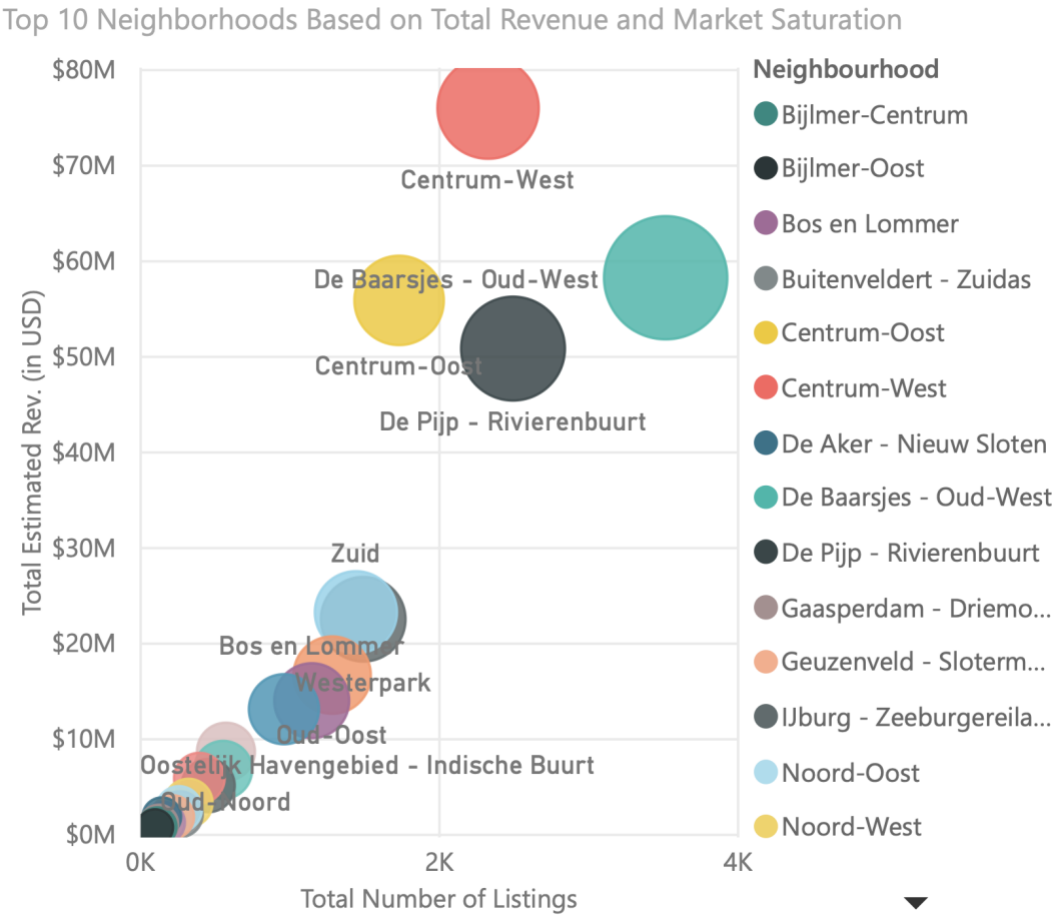
This section of the exercises needs to be completed in R. Further instructions are available in homework_template.R file under Homework Supplements in Moodle.

The template file is pre-filled in the first part of the file and all you need to do is run the codes in order to get your dataset ready. You need to modify the first line though and change the working directory to yours. Read carefully both commented and uncommented parts.

Make sure you include explanations to your codes by commenting. Failing to do so will result in points deduction.

Supplement for exercise 2: (plots to replicate, more instructions in R file)





Part 2: SQL
(12 points)

See the SQL questions in the homework_template.R file. Work on your solutions in Snowflake, but write down the questions directly in R file but commented (otherwise R complier will treat them as errors).

Part 3: PowerBI
(12 points)

Upload the csv file that you have saved in R to PowerBI.

You need to create 5 visuals.

For the first two, you need to replicate the exact visuals in a) and b) below. Remember these examples are for a particular snapshot of Amsterdam. Your data will be different.

For the other 3 you need to be creative and visualize any information that you think would be valuable for someone willing to invest into an apartment for the purposes of renting it out on Airbnb and making money. Make sure that your visuals are clear, make sense and are interesting.

a) Key metrics for your city's neighborhoods

Neighbourhood	Total Listings	Years active on Airbnb	Total Review Score (median)	Location Score (median)	Value Score (median)	Nights of stay (avg)	Revenue per night (avg)	Lifetime revenue (estimate, avg)
De Aker - Nieuw Sloten	142	1.27	97	8.9	9	4.23	134.0	$13,396.7
Oud-Noord	571	1.36	96	9.1	9	2.80	173.8	$15,250.4
Zuid	1441	1.40	97	9.5	9	3.76	189.2	$16,159.1

Hints for this visual:

- Years active on Airbnb is defined as the difference between today and the first review date in the given neighborhood.
- Lifetime revenue (avg.) is defined as the average of all the listings' annual revenue. The latter itself is defined as "365*nightly price" for each listing.

b) Saturation per neighborhood

Saturation Per Neighbourhood

Key

NEIGHBOUR... De Aker - Nieuw Sloten Oud-Noord Zuid