The Digital City: Warmoesstraat in 16th Century

Manual: Weixuan Li, summer 2017

PART I: A data view of Warmoesstraat and its surroundings

You probably have wandered in the restaurant/shop-packed Warmoesstraat in the heart of Amsterdam. Now you have a chance to create a virtual time machine taking people back to the 16^{th} century by visualizing the same street using the data available from historical records.

The historical information about Warmoesstraat and its surroundings is summarized in an Excel spreadsheet including the following columns:

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1223	6017	333	Fflorijs van Roedenburch		m	Warmoesstraat	G374		;			m	200			
1224	6018	333	Govert Jansz		m	Warmoesstraat	G373/372		3			m	150			
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1227	6021	333	Adriaen Paeuw		m	Warmoesstraat	G367	1	1			m	200			
1228	6022	333	Cornelis Louffsz		m	Warmoesstraat	G366	1	5		h. van Griet Barten	v	300			
1229	6023	333v	Harman Int boot		m	Warmoesstraat	G364	16a				m	140			
1230	6024	333v	Hans Wilkes		m	Warmoesstraat	G363	1	8		h. van Gerijt Stuver	m	210			
1231	6025	333v	Gerijt Jansz in Parijs		m	Warmoesstraat	G362	2)	In Parijs	h. van Jacob Henricxz	m	162			

- ID An unique number that indicates the number of the record in the entire
- document Fol.

Page number of the original document

Persoonsnaam
 Person's name

Street

- Beroep
 Profession
- M/V bewoner
 Male/Female inhabitant/tenant
- Straat
- KadSectieNr
 Section in 19th century map
- Nr. House number
- Bouwblok Building block, we can add this, based on the block map
- Aanduiding/ huisnaam House name
- Opmerkingen h. van means: tenant, house is owned by XX
- M/V eigenaar
 Male/Female house owner
- Huurwaarde
 Rent value of the house (per year)

The following assignments will guide you to present this information on a map of Amsterdam using QGIS.

PART II: Install QGIS and introduction

1. Installation:

For Windows users:

Download and run the standalone installer, available here:

http://qgis.org/en/site/forusers/download.html (QGIS Standalone Installer Version 2.12)

When it gives you the option, you do not need to download the sample datasets, although feel free to do so and use them for other tutorials or examples.

Double click your installation package and follow the steps.



Video guide: https://www.youtube.com/watch?v=IoNPpcOb-sE

For Mac OS users:

OS 10.7 and Higher: Follow the installation instructions provided here:

http://www.kyngchaos.com/software/qgis

OS 10.6.8: Try using the latest experimental builds for Mac OS 10.6.8 provided here: <u>http://qgis.dakotacarto.com/</u> (scroll down to and click on "Nightly for Snow Leopard - Mac OS X 10.6"). Alternatively, try compiling with HomeBrew (http://brew.sh/), following instructions here: https://github.com/OSGeo/homebrew-osgeo4mac

Notes for Mac OS users:

Unlike Windows, QGIS has 4 packages for Mac OS to install. They are numbered in the package you have just downloaded, so please install following the sequence.

Video guide: https://www.youtube.com/watch?v=MnXi5b2pqDo

LET OP: Since QGIS is a third-party software (i.e., not from the Apple store), you *may* need an extra step to authorize the installation. When you double click on the first package, you will see this window:



Click **[OK]**, and this window will pop up, then click **[Open the General panel for me**], and in the following window, click **[Open anyway]**:

Mac Help	
Q Search	
Open an app from an unidentified developer	
If you try to open an app that is not registered with Apple by an identified developer you get a warning dialog.	
I his doesn't necessarily mean that something's wrong with the app. For example, some apps were written before developer ID registration began. However, the app has not been reviewed, and macOS can't check	
whether the app has been modified or broken since it was released.	
A common way to distribute malware is to take an innocent app and insert harmful code into it, and then	
redistribute the infected app.	
The safest approach is to look for a later version of the app from the Mac App Store or look for an alternative	
app.	
To override your security settings and open the app anyway:	
1. In the <u>Finder</u> , locate the app you want to open.	
Don't use Launchpad to do this. Launchpad doesn't allow you to access the shortcut menu.	
2. Control-click the app icon, then choose Open from the shortcut menu.	
3. Click Open.	
The app is saved as an exception to your security settings, and you can open it in the future by double-	
clicking it just as you can any registered app.	
Note: You can also grant an exception for a blocked app by clicking the "Open Anyway" button in the General pane of Security & Privacy preferences. This button is available for about an hour after you try to open the app.	
To open this pane, choose Apple menu > System Preferences, click Security & Privacy, then click General.	
Open the General pane for me	
To change your sequrity settings, see Dignet your Mas from malware	
to change your security settings, see Protestabili mac non marware.	
C > IIII Security & Privacy Q. Search	
Convert Fildforth Figure Deinen	
Senterial FileVault FileWall Privacy	
A login password has been set for this user Change Password	
Show a message when the screen is locked Set Lock Message	
Allow apps downloaded from:	
App Store and identified developers	
"1 GDAL Complete.pkg" was blocked from opening because it is not from an identified developer.	
Click the lock to make changes.	

After you have clicked **[Open anyway]**, the new window will have a [Open] button. Click it and do the same for all four packages. Then follow the instructions to install.



After successfully installing QGIS, you can open it by clicking: \swarrow

2. The basics of the QGIS user interface:



The elements identified in the figure above are:

- 1. Toolbars
- 2. Side Toolbar
- 3. Layers List / Browser Panel
- 4. Map canvas
- 5. Status bar

You will use the sections for the next tasks.

In the following sections, Text that [Looks like this] directs you through menus and buttons.

PART III: Creating your own maps in QGIS

Task 1: Create a new map and set coordinate system

- Open QGIS and create a blank project (default)
- Set coordinate system:
 - Click top menu: [**Project**] \rightarrow [**Project Properties...**]



- In the pop up window:
 - Click [CRS] on the side menu
 - Check [Enable 'on the fly' CRS transformation (OTF)] box
 - Type in *Amersfoort* in the [Filter]
 - Select Amersfoort RD/new; EPSG:28992 from the list below
 - Click [OK]

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Task 2: Load the shape files

• Go to [Layer] \rightarrow [Add Layer] \rightarrow $\bigvee_{\square}^{\square}$ [Add Vector Layer]



- In the pop up window, click [Browse] and select shapefile AMS_Blokkenkaart.shp from the list.
 This shape file shows the building blocks of Amsterdam around 1550s.
- Click [**Open**] and it loads into your QGIS project

(You only need to load the .shp file, since the other files in the shapefile folder provide supporting information for .shp file.)

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			Brow	vse
Dataset				

Congratulations! You now have a basic map. Repeat the previous steps to load the other layer Warmoesstraat_percelen1550.shp (with parcels of land along Warmoesstraat).

The two layers will serve as a basis for your future mapping.

- Now would be a good time to save your work.
- Click on the [Save as] button:
- Save the project under the folder of your choice. Your project will be saved in .qgs format.

Once the shapefile is loaded, you can see the blocks and parcels of Amsterdam in simple, (random) singlecolor polygons. Now you can zoom around it using the map navigation tools (in the red bar area).

[Tip] Apart from using the \bigcup^{pan} and $\overset{\text{pan}}{\overset{\text{rom-in}}{\Rightarrow}}$ / $\overset{\text{rom-out}}{\overset{\text{rom-out}}{\Rightarrow}}$ icons on the toolbar with the mouse, navigating can also be done with the mouse wheel, spacebar and the arrow keys.



[Tip] in case you 'lost' the map (by zooming out too much or move it out of your sight), you can always click[zoom full] to bring the shape file to your screen.

Let's take a look at the data behind the polygons:

■ Open the attribute table of Warmoesstraat_percelen1550: Right click the layer → [Open Attribute table]

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3	G613	6236	345v	Jan Moerlinck	m	Warmoesstr	49	80	NULL	NULL	m	120	Warr
4	G614	6237	345v	Thonis Dirckx	m	Warmoesstr	47	80	Zuidhoek He	h. van Jacob	m	180	Warr
5	G607/650	6220	344	Hans van Ru	m	Warmoesstr	59	80	Noordhoek I	h. van Jan V	m	122	Warr
6	G1122	6145	340	Jan Jacobsz	m	Warmoesstr	199	95	Noordhoek P	h. van Neel J	v	105	Warr
7	G1123	6146	340	Davidt Baren	m	Warmoesstr	197	95	NULL	NULL	m	60	Warr
8	G1125	6147	340	Jan Woutersz	m	Warmoesstr	195	95	Met achterhuis	NULL	m	70	Warr
9	G1126	6148	340v	Henrick Elbe	m	Warmoesstr	193	95	NULL	NULL	m	130	Warr
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11	G1128	6150	340v	Geerte Mart	v	Warmoesstr	189	95	NULL	NULL	v	70	Warr
12	G1129	6151	340v	Lijsbeth Hen	v	Warmoesstr	187	95	NULL	h. van Geert	v	40	Warr
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21	G263	6096	337v	Claes Henricxz	m	Warmoesstraat	138	70	Zuidhoek Pa	NULL	m	120	Warr

Take a close look at the attribute table. If you feel more comfortable playing with data in Excel, the Excel spreadsheet of the same dataset can also be found in the package.

In the following assignments, you will use the information in the attribute table to create your own map showing the desired information.

Task 3: Add a new layer/ Copy a layer to show rental values

At this stage we have a base map showing the building blocks in Amsterdam and the parcels along Warmoesstraat. We will need another layer to show the spatial distribution of rental values along Warmoesstraat. Instead of creating another map file from scratch, we can simply duplicate the *Warmoesstraat_percelen1550* layer and change the display to a different attribute, in this case, the rental value.

• Right click on Warmoesstraat_percelen1550, then click on [Duplicate]

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- In the [Layers Panel] on the left, click on the box before the copied layer to make it visible and drag it to the top of the list. Please note that the display of layers in QGIS follows the sequence showing on the [Layers Panel]. For layers with overlapping area, you need to place the layer you want to show on top, or make the layers above invisible by unchecking them.
- Then, right click on the layer name, select [Rename] and change the layer name to 'Huurwaarde.'



Task 4: Color-coding Warmoesstraat parcels based on Huurwaarde

- Double click the layer's name: Huurwaarde (or right click on layer's name, then click on [Properties])
- Click on the [**Style**] side menu

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	Help Style - Apply	Cancel

- Select [Graduated] from [No symbols] drop-down menu
- In the [Column] drop-down menu, select [Huurwaarde]. This option defines which attribute will be presented on the map.¹
- Then in the [Mode] menu, select [Quantile (Equal Count)]
- Change the [Classes] number from the default 5 to 8, then click [Classify]

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• Click [Values] column to have the value show in a descendent order

¹ The rental value is mentioned in the kohier of 1562. People who rented a house had to show the tax officials the lease agreement, which also mentioned the sum they should pay for rent. The tax officials estimated the value of the houses, which were occupied by their owners. How they exactly came to this estimation, is still a theme for further research.

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• Click the [Color ramp] menu, and select [New color ramp]

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	180.00 - 200.00	180 - 200		

In the pop-up window, select [ColorBrewer] – [Scheme name] to Spectral and [Colors] to 8 and click [OK] (you can save the scheme with the name of your choice)

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Colors	5	\$
Preview		

• Click **[OK]**. You will now see the parcels are shown in different colors based on *huurwaarde*. Your map may look like this:



Question: What can you learn from this map?

PART VI: Export a Map

Before you export a map or start working with the *Print Composer*, you need to load the QGIS map canvas and adapt its properties to suit your own convenience (i.e., zooming in to the parts you want to show). After

everything is rendered and symbolized to your liking, click the $\stackrel{\text{Low Print Composer}}{\cong}$ icon in the toolbar or choose [**Project**] \rightarrow [New Print Composer]. You will be prompted to choose a title for the new Composer.

🔏 Composer title 🛛 🔋 🗙	
Create unique print composer title (title generated if left empty)	
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OK	

Task 1: Add a Mapping Area

Click on the Add new map toolbar button in the Print Composer toolbar to add the QGIS map canvas. Now, drag a rectangle onto the Composer canvas with the left mouse button to add the map.

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Task 2: Edit a Mapping Area

You can resize the map item by clicking on the Select/Move item button, selecting the element, and dragging one of the blue handles in the corner of the map. This button also helps to move the map to another place. Select the item and while holding the left mouse button, move to the new place and release the mouse button.

To move layers within the map element, select the map element, click the 😰 Move item content icon and move the layers within the map item frame with the left mouse button.

To zoom in and out for the content area of the map, click the R^{Move item content} icon, and scroll up and down to zoom in and out within the content area. Or click [Set to map canvas extent] on the [Item properties] tab.



[Tip] After you have found the right place for an item, you can lock the item position within the Print Composer canvas. Select the map item and use the toolbar Lock Selected Items (on the top of this Map Composer window). A locked item can only be selected using the **[Item properties]** tab. Once selected, you can use the **[Items]** tab to unlock individual items. The Unlock All Items icon will unlock all locked composer items. With the map selected, you can now adapt more properties in the map **[Item properties]** tab.

Task 3: Add a Legend

To add a map legend, click the ^{Add new legend} icon, place the element with the left mouse button on the Print Composer canvas and drag to position. To customize the appearance in the legend use the **[Item properties]** tab on the right side of the window.

Because we are only showing the rental values in this map, we can uncheck the [Auto Update] box, and use the [minus] button to remove the other layers you do not want to list in the legend. This change only applies to the legend of the output. If you want to change the visibility of your layer, you have to go back to the main map.



Task 4: Add a Title

It is like adding a text box in a PowerPoint.

- Click on ^{add text} in the sidebar
- Type in: Title of your map, your name and the date into the box on the right
- You can also change the font size by clicking on the [Font...] button on the right

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Task 5: Export Your Map



• Select the type for export:

The Print icon allows you to print the layout to a connected printer or a PostScript file, depending on installed printer drivers.

The Export as image icon exports the Composer canvas in several image formats, such as PNG, BPM, TIF, JPG,...

The Export as SVG icon saves the Print Composer canvas as an SVG (Scalable Vector Graphic).

The Export as PDF icon saves the defined Print Composer canvas directly as a PDF.

(NOTE: the Save Project icon can only save the features of your design in QGIS, but cannot be used to export a map.)

- Enter the name of your map. You can also select your desired file type (.jpg, .png, etc.)
- Click **[Save]**, then in the pop up window you can change other options, the default is usually preferred. Then click on **[Save]** to finish export.

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Your final map may look like the following:



Task 6: Your Own Question and Solution

With all the tools you have learned (color-code the housing value based on the information you want to present) what question(s) are you interested in? Can you use the tools to answer your own question? Think freely about the data you would need and the way in which to answer the question.

PART V: To own, or to rent, that is the question (Week 2)

With the house ownership information available, we are curious which houses were owned by the resident and which were rented. We would need your help to create a map showing the spatial distribution of ownership.

Based on the value from the attribute table, we have 4 types: eig/huur, and eig?/huur?, when we are not sure. To visualize them on the map, we need to mark the parcel differently.

- 1. Make a copy of *Warmoesstraat_percelen1550* layer (Hint: right click the layer -> [Duplicate])
- 2. Change the layer name into *Eighuur* (Hint: right click the layer -> [Rename])
- 3. Move *Eighuur* layer to the top of the layers menu
- 4. Go to [Properties]
 - In the top drop down menu, selected [Rule-based]
 - Click the green plus button P to add a filter

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	Control feature renderi	ng order						
	Help Style -	Apply					Cancel	ОК

- 5. In the pop-up window, we can create our own filter. We want to select the parcels of which the value in 'Opmerking' column includes *h. van XXX*
 - In [Lable]: type in *Rent*
 - In **[Filter]:** type in "*Huurwaarde*" > 0 AND "Opmerking" Like '%h.%', meaning "select the parcels of which the value in column *Huurwaarde* is greater than 0 (meaning we have the

information in the other columns) and column *Opmerking* includes '*h*.' (or click for more options).

• [*LIKE*] is an operator that returns 1 if the string matches the supplied pattern.

Description		
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	Unit Millimeter C Transparency 0% Color	
- E	Symbols in group	Open Library
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- (You can change the color composition in the [Color] menu)
- Once you finish editing, click [OK]

Then repeat the same steps to create a filter for owner:

0.0		🕺 Layer Properties - Eighuur S	tyle			
General	Rule-based					
Style Labels Fields Rendering Display Actions	Label	Rule "Huurwaarde" > 0 and "Opmerking" like % "Huurwaarde" > 0 and "Opmerking" is Null	Min. scale	Max. scale	Count	Duplicate count
🧃 Joins						
	2 L					
Diagrams		Refine selected rules * Co	ount features		Sy	mbol levels
Diagrams	tayer rendering	Refine selected rules +	ount features		Sy	mbol levels
Diagrams Metadata Variables	▲ Layer rendering Layer transparency Layer blending mode Draw effects	Refine selected rules • Co	ount features	Norma	Sy	mbol levels

• Once you finish editing, click [OK]

Then you will see your map colored based in the ownership, like the following example:



6. Export your map as *Eigendomkaart* [Review Part IV for instructions]

Question: Comparing the *Huurwaardekaart* (from Task 3) and the *Eigendomkaart* you have just generated, is there a relationship between the estimated house value and the ownership situation?

PART VI: You are what you do: Occupation (Week 2)

From the attribute table, we also know the occupation of the resident of each house. Can we visualize the spatial distribution of occupation on the map? Of course, we can filter the whole street by certain occupation. Let's use merchants (*koopman*) as an example:

- 1. Make a copy of *Warmoesstraat_percelen1550* layer (Hint: right click the layer -> [Duplicate])
- 2. Change the layer name into *Beroep* (Hint: right click the layer -> [Rename])
- 3. Turn off all the layers we generated earlier by unclick box before the layer's name



- 4. Right click *Beroep* layer -> [Properties]
 - In the top drop down menu, selected [Rule-based]

• Click the green plus button $\textcircled{\bullet}$ to add a filter

00	E Single Symbol	🕺 Layer	Properties - Beroe	p Style				
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(abc) Labels	 Point Displacement Inverted Polygons Heatmap 							
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🎸 Rendering								
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🕎 Diagrams		Refine s	elected rules *	Count feat	ires		Symbol	levels
🧿 Metadata	✓ Layer rendering							
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	-,							
	Draw effects							<u>.</u>
	Control feature render	ng order						-
	Help Style •	Apply				C	ancel	ОК

- 5. In the pop-up window, we can create our own filter. We want to select the parcels that the value in 'beroep' column includes *koopman*
 - In **[Lable]:** type in *koopman*
 - In [Filter]: type in "beroepCa15" LIKE '%koopman%', meaning "select the parcels of which

the value in column *beroep* looks like *koopman* (or click _____ for more options).

* [LIKE] is an operator that returns 1 if the string matches the supplied pattern

	🕺 Layer Properties - Beroep Style	
Label koopman		
Filter "beroepCa15" LIKE %koop	nan%'	Te:
Description		
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- (You can change the color composition in the [Color] menu)
- Once you finish editing, click [OK]

In the steps above, we only create one filter to show the houses of the merchants, therefore only the parcels that the residents' occupation registered as *koopman* are marked in the map.



Questions:

- 1) Can you create another filter for a profession (or set of professions) of your choice?
- 2) What can you learn from the spatial distribution of the houses of *koopman*?
- 3) Do you think "koopman" is a good category for professions? Please explain your answer.
- 4) How would you like to group the professions of residents? Can you come up with a guideline to group the professions into categories?