DESIGN ASSOCIATIVITY
DATA ANALYSIS

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DATA TO ANALYSE

Description:
In this analysis we looked at the population density of foreign nationaleties in barcelona and what different nationaleties occupy the largest groups of foreign residents

Date:
2012

Step 01
Collect necessary data from wikipidia in order to retrieve the necessary documnetation

(01)

Population density

Note: This text is entirely based on the municipal statistical database provided by the city council.

Barcelona is one of the most densely populated cities in Europe. For the year 2008 the city council calculated the population to 1,628,090 living in the 102.2 km^2 sized municipality, giving the city an average population density of 15,926 inhabitants per square kilometre.

In the case of Barcelona though, the land distribution is extremely uneven. Half of the municipality or 50.2 km^2, all of it located on the municipal edge is made up of the ten least densely populated neighbourhoods containing less than 10% of the city's population, the uninhabited Zona Franca industrial area and Montjuïc forest park. Leaving the remaining 90% or slightly below 1.5 million inhabitants living on the remaining 52 km2 at an average density close to 28,500 inhabitants per square kilometre.

Of the 73 neighbourhoods in the city, 45 had a population density above 20,000 inhabitants per square kilometre with a combined population of 1,313,424 inhabitants living on 38.6 km^2 at an average density of 33,987 inhabitants per square km. The 30 most densely populated neighbourhoods accounted for 57.5% of the city population occupying only 22,7% of the municipality, or in other words, 936,406 people living at an average density of 40,322 inhabitants per square kilometre. The city's highest density is found at and around the neighbourhood of la Sagrada Família where four of the city's most densely populated neighbourhoods are located side by side, all with a population density above 50,000 inhabitants per square kilometre.

Largest groups of foreign residents[71]

| Nationality	Population (2012)
Pakistan	23,281
Italy	22,909
China	15,875
Ecuador	15,511
Bolivia	14,154
Morocco	13,674
Peru	13,464
Colombia	12,328
France	11,922
Philippines	8,482

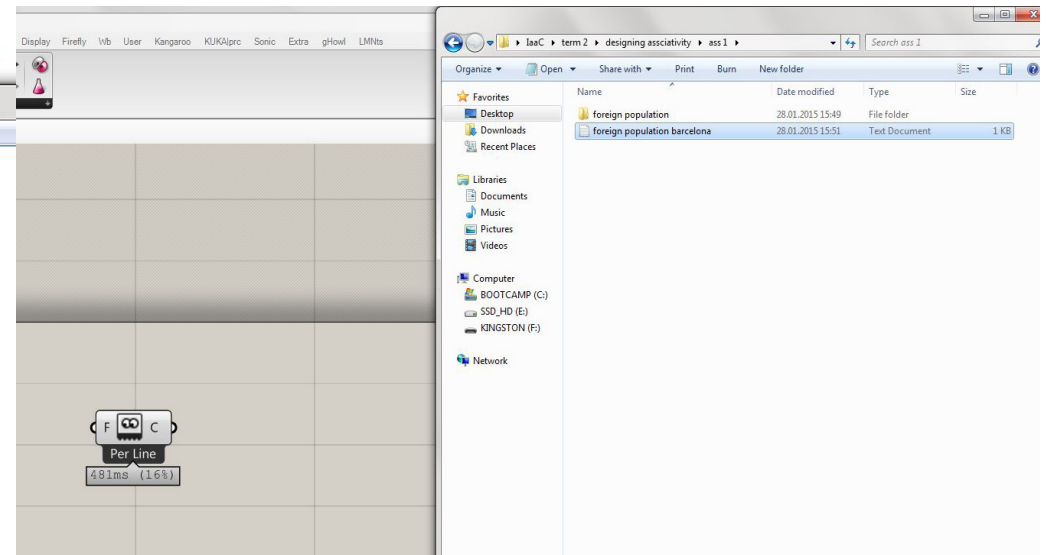**Step 02**
Copy the necessary data in a text file

Step 3
Go to the text file that is saved in your document file and Drag and Drop it into grasshopper canves
A **Read file** is created with all your data

02

Population density [edit]

Note: This text is entirely based on the municipal statistical database provided by the city council.

Untitled - Notepad

File   Edit   Format   View   Help

Pakistan	23,281
Italy	22,909
China	15,875
Ecuador	15,511
Bolivia	14,154
Morocco	13,674
Peru	13,464
Colombia	12,328
France	11,922
Philippines	8,482

03

Per Line
481ms (16%)
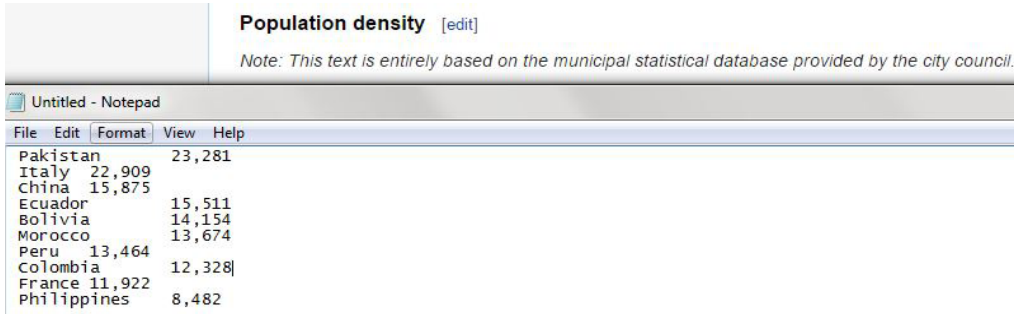
Step 05
Use **Replace Text** and connect a **Panel** with
a comma in order to clean up all comma's
in the file so the numbers would be read
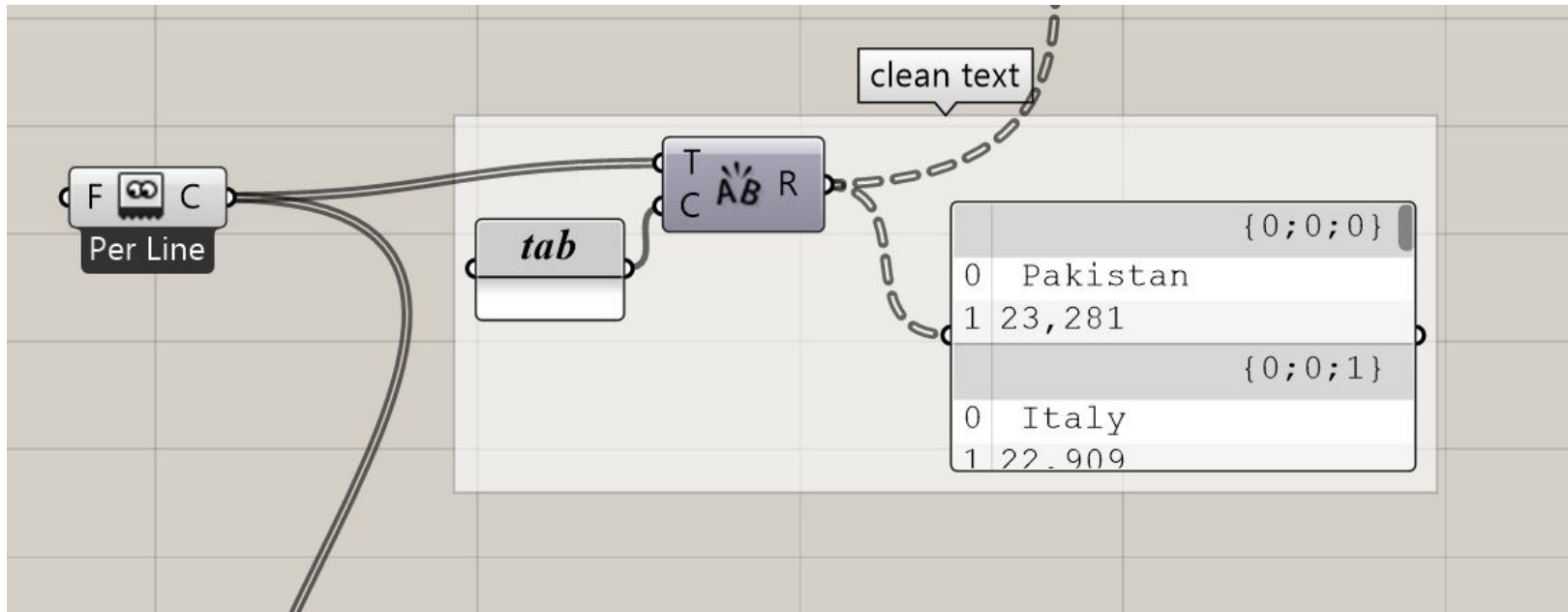correctly. Insert a **Panel** to view the result

(05)
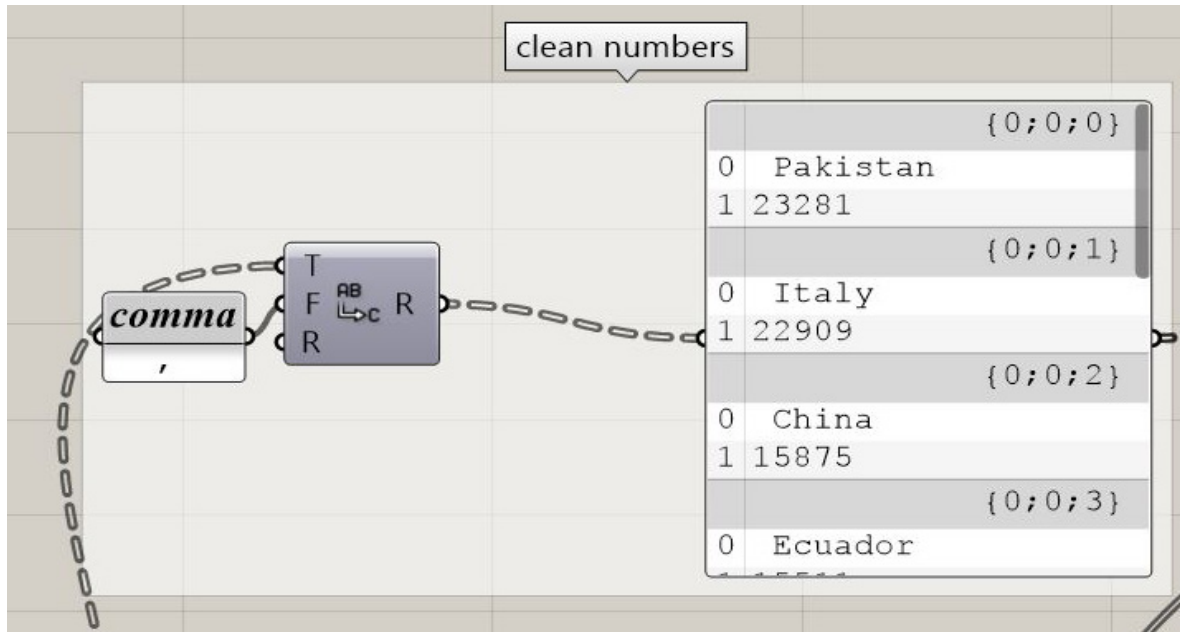
Step 06
Use **Text split** in order to seperate between text and
number. Connect a **Panel** with space in it in order to
create the seperation.
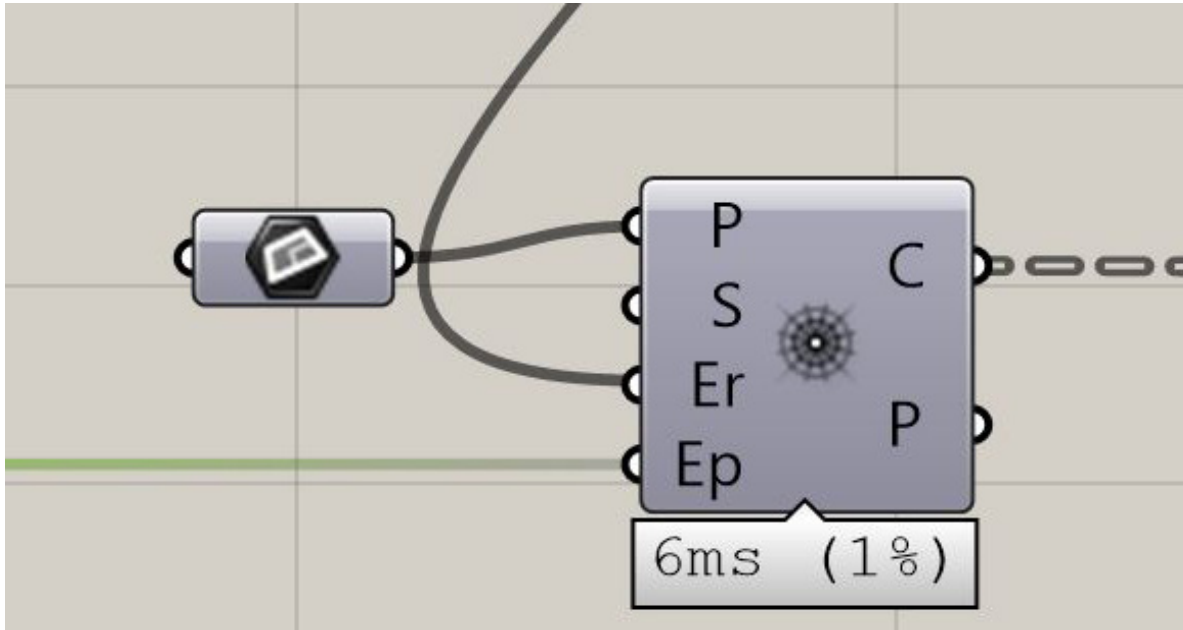Use a panel in order to view your result

⑥

clean text

F 🔘 C
Per Line

tab

T ᴬᵛ R
C ÀB

{0;0;0}	
0	Pakistan
1	23,281

{0;0;1}	
0	Italy
1	22,909

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Step 07
Insert **2D Radial Grid** and extract parameter
for better viewing

Step 08
Use **List length** combined and connect
it to the read file to have the number
of components for the **2D Radial Grid**
seperation

(08)

	{0;0}
0	Pakistan23,281
1	Italy22,909
2	China15,875
3	Ecuador15,511
4	Bolivia14,154
5	Morocco13,674
6	Peru13,464
7	Colombia12,328
8	France11,922

Step 09
Use **Flip Matrix** to chose the radial

Step 10
Use **List item** to seperate part of the grid

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DT_Design Associativity
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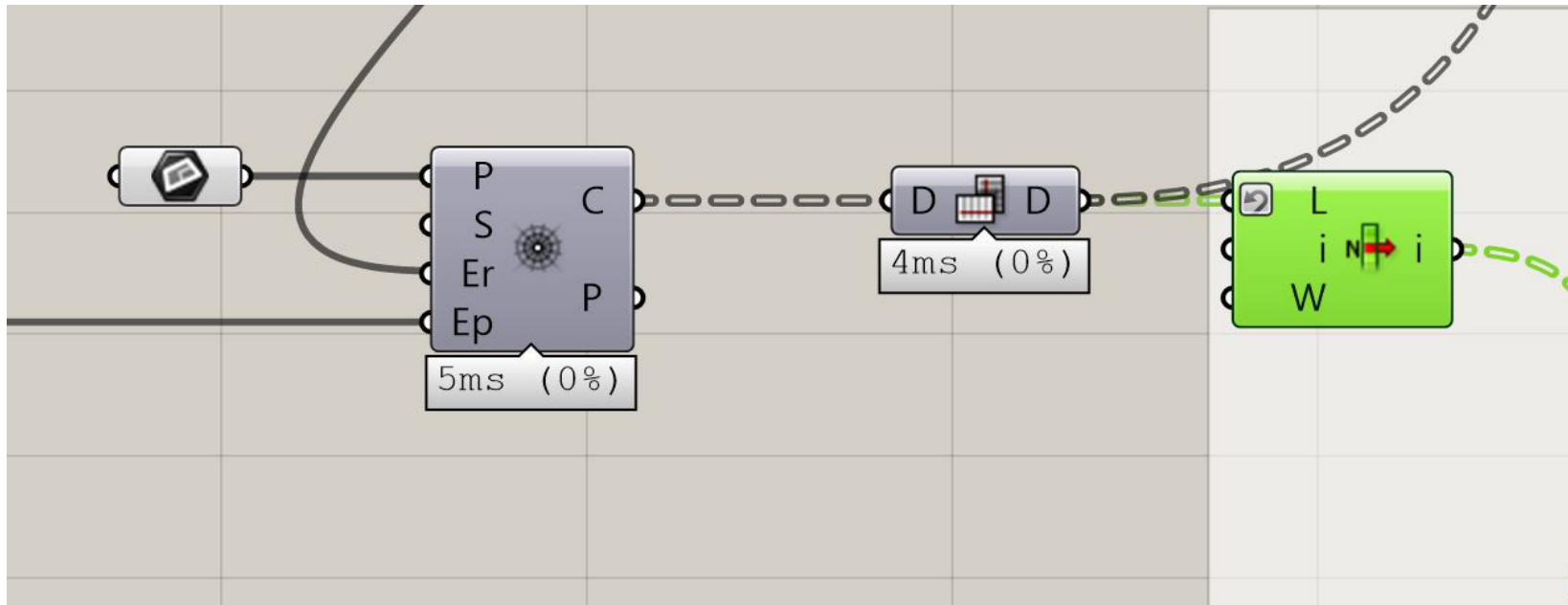
Step 11
Use **Reverse List Item** to select the
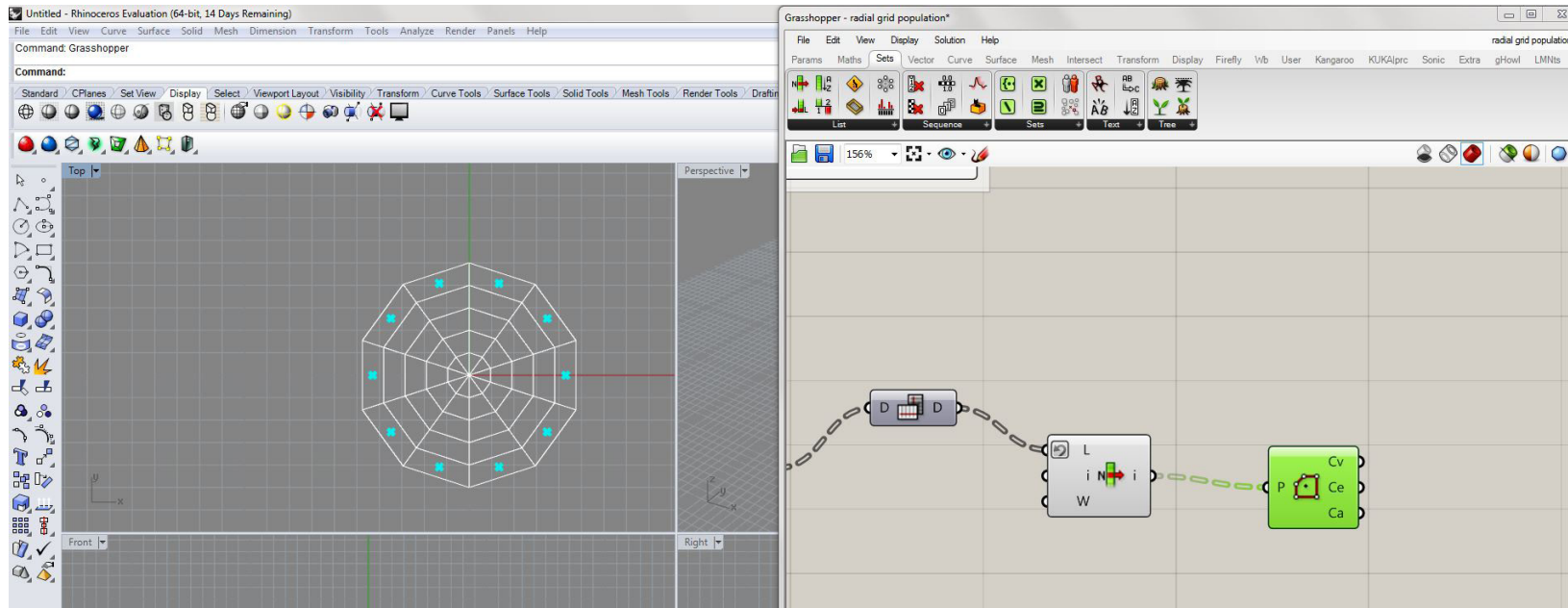outside row of your radial grid

⑪
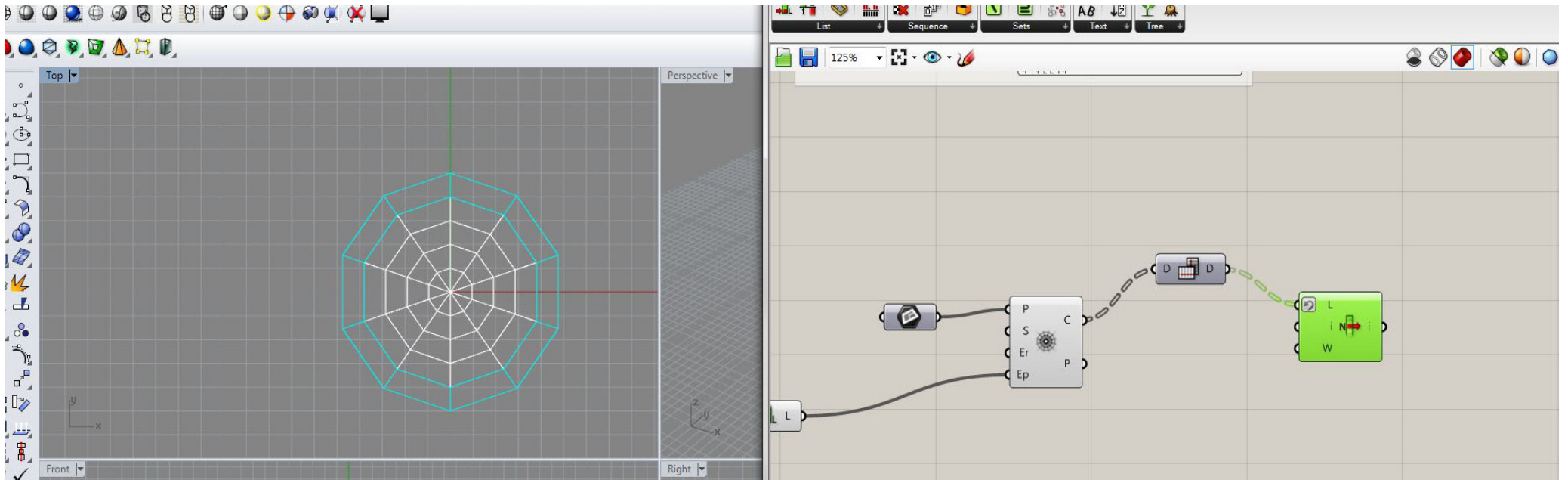
Step 12
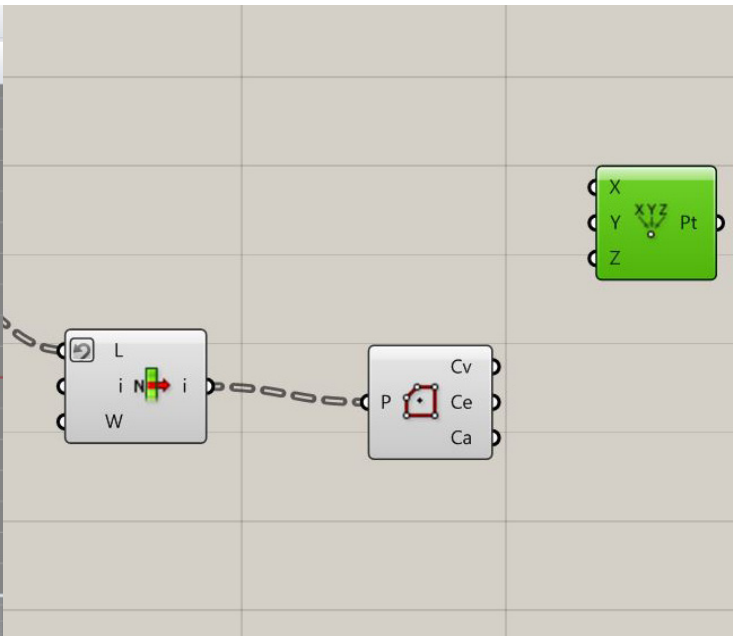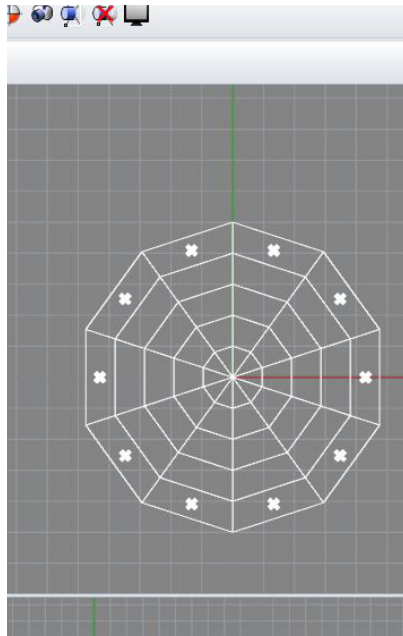Use **Polygon Center** to get the center of the
radial grids

(12)

Step 12
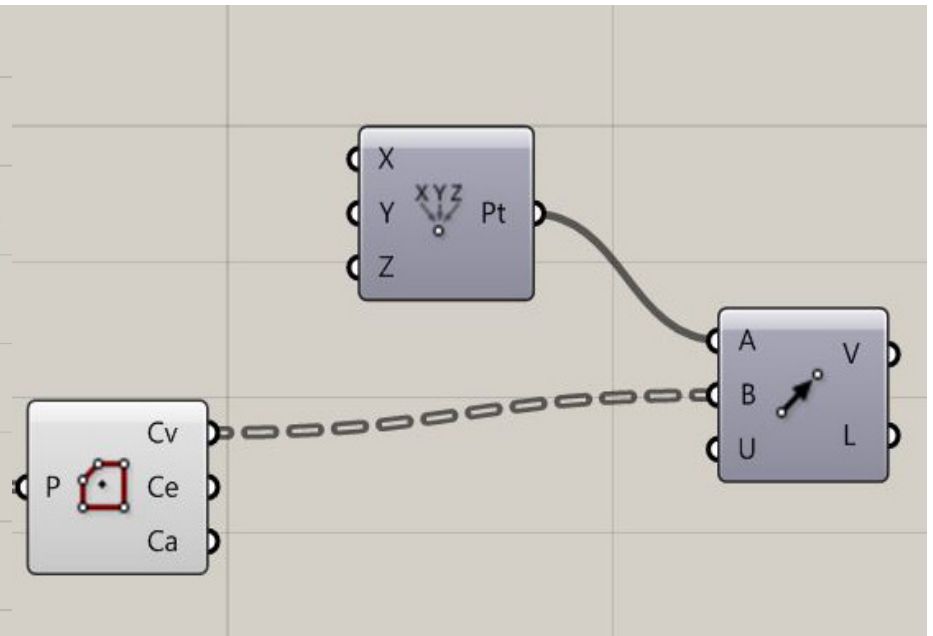Use **Construct Point** to create points in the center of the polygon

Step 13
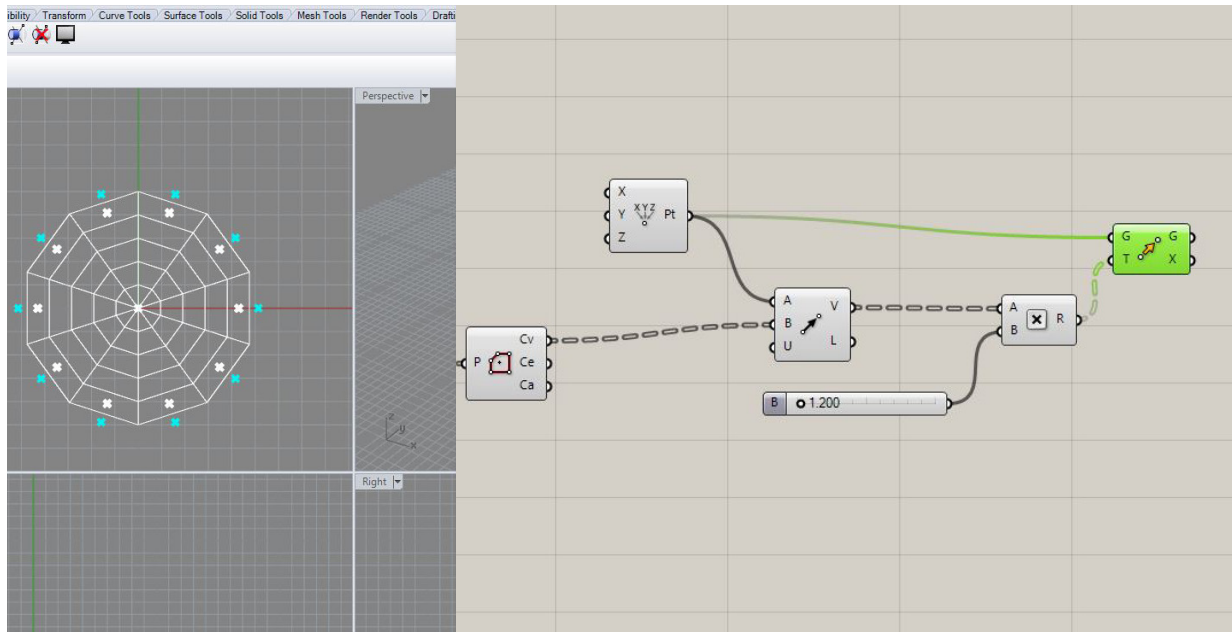Use **Vector 2Pt** to move the constructed point out of the grid

Step 14
Use **Multiplication** with a slider to define
the distance

Step 15
Use **Move** to move the points to the aquired
distance
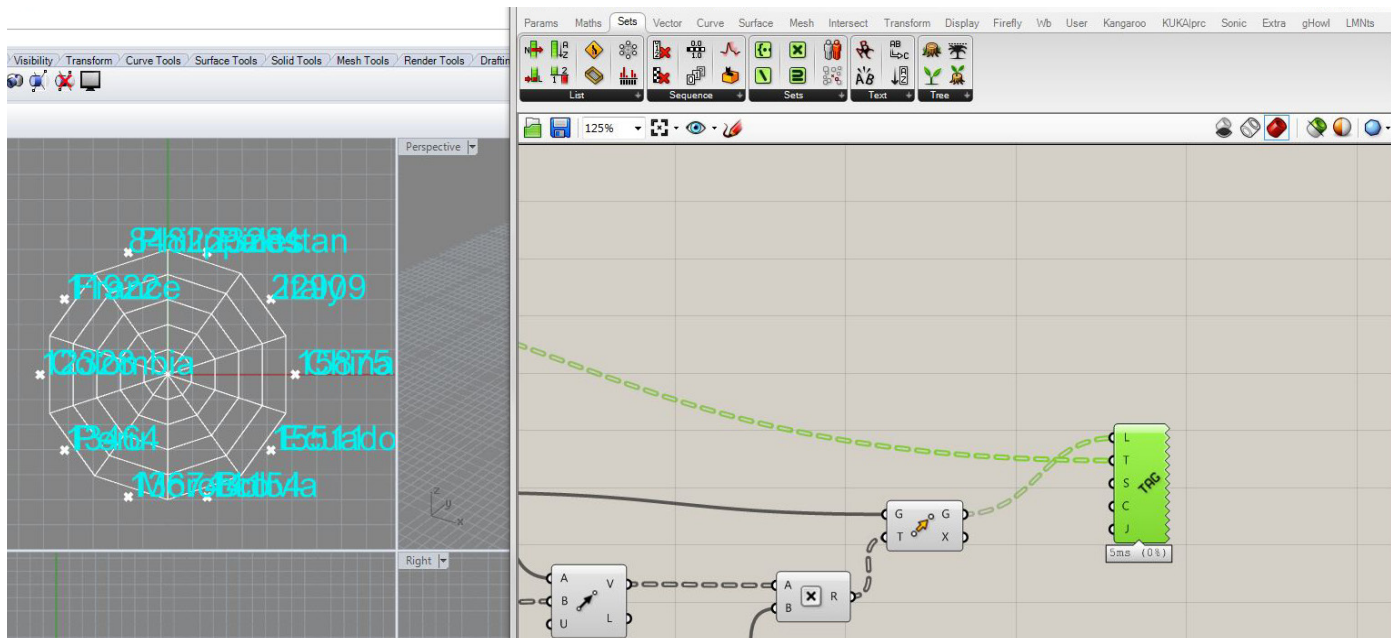
(14)

(15)

Step 16
Use **Text Tag 3d** for classification of
chose item

(16)

Step 17
Use **List Item** to chose the names of the countries and connect it to the panel connected to **Replace Text** in Step05

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Step 18
Use **Slider** and attach it to the S to
change text size

(18)

Step 19
Final image for the first parameter

Step 20
Use **List Item** for the second
parameter

⟨20⟩
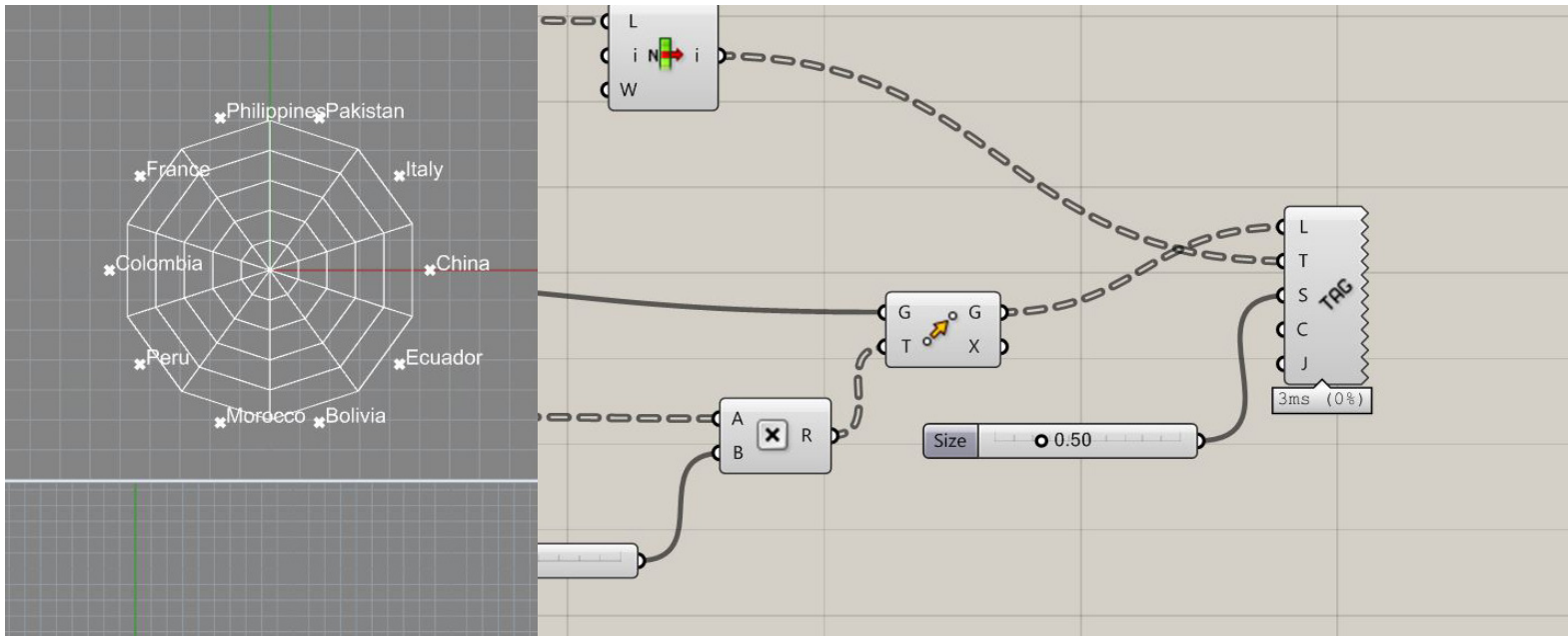
Step 21
Reverse **L in List Item** in order
to use the second parameter

21

clean numbers

{0;0;0}
0 Pakistan
1 23281

{0;0;1}
0 Italy
1 22909

{0;0;2}
0 China
1 15875

{0;0;3}
0 Ecuador
1 15511

{0;0;4}
0 Bolivia
1 14154

L
i N i
W

{0;0;0}
0 23281

{0;0;1}
0 22909

{0;0;2}
0 15875

{0;0;3}
0 15511

{0;0;4}

X
Y XYZ Pt
Z
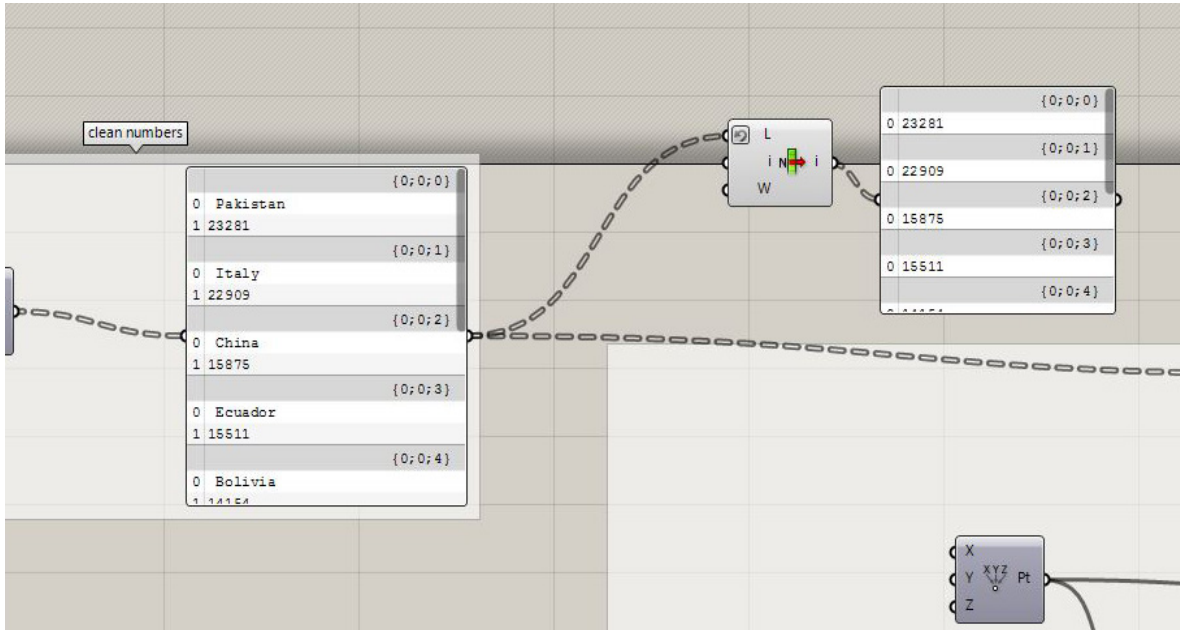
Step 22
Flatten the **I** in **List Item** to
create one list

(22)

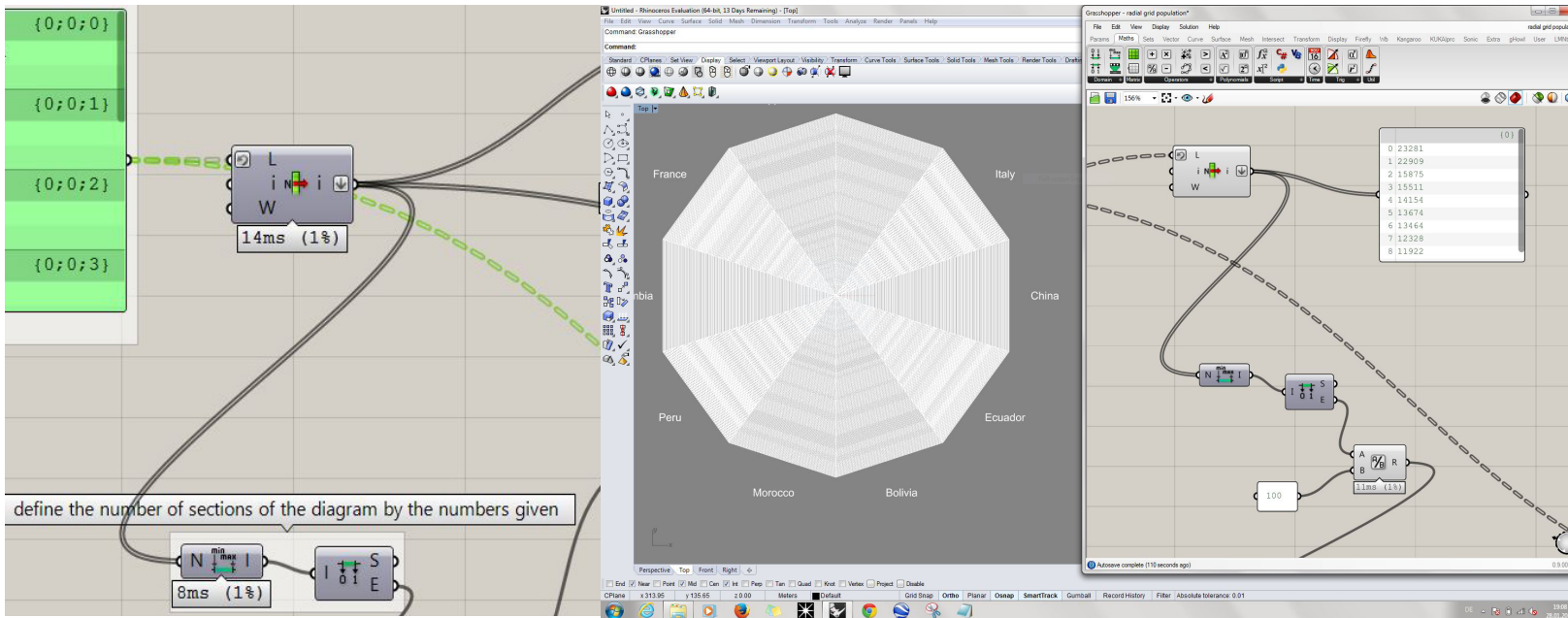|	{0}
0	23281
1	22909
2	15875
3	15511
4	14154
5	13674
6	13464
7	12328
8	11922
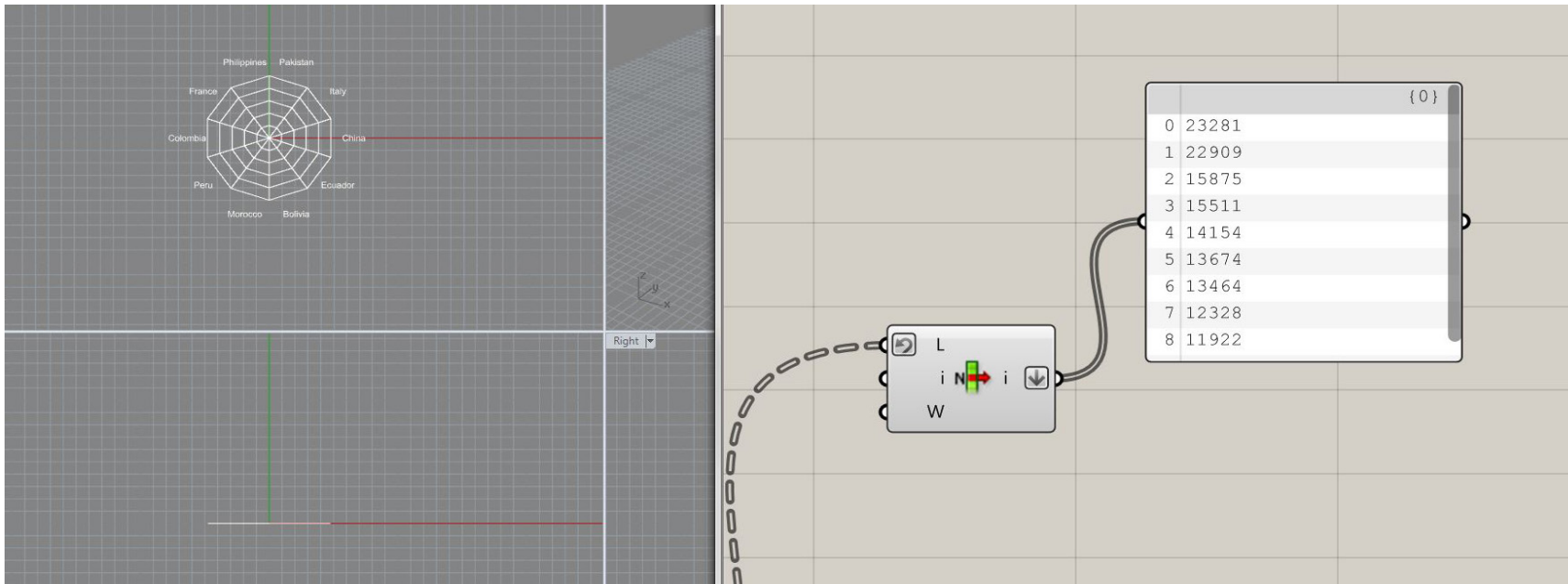
Step 23
Use **Bounds and Deconstruct domain** to define the number sections of the diagram by the number given

Step 24
due to to many lines and computes crashing the **Division** tool was used to devide by hundred giving us the percentage
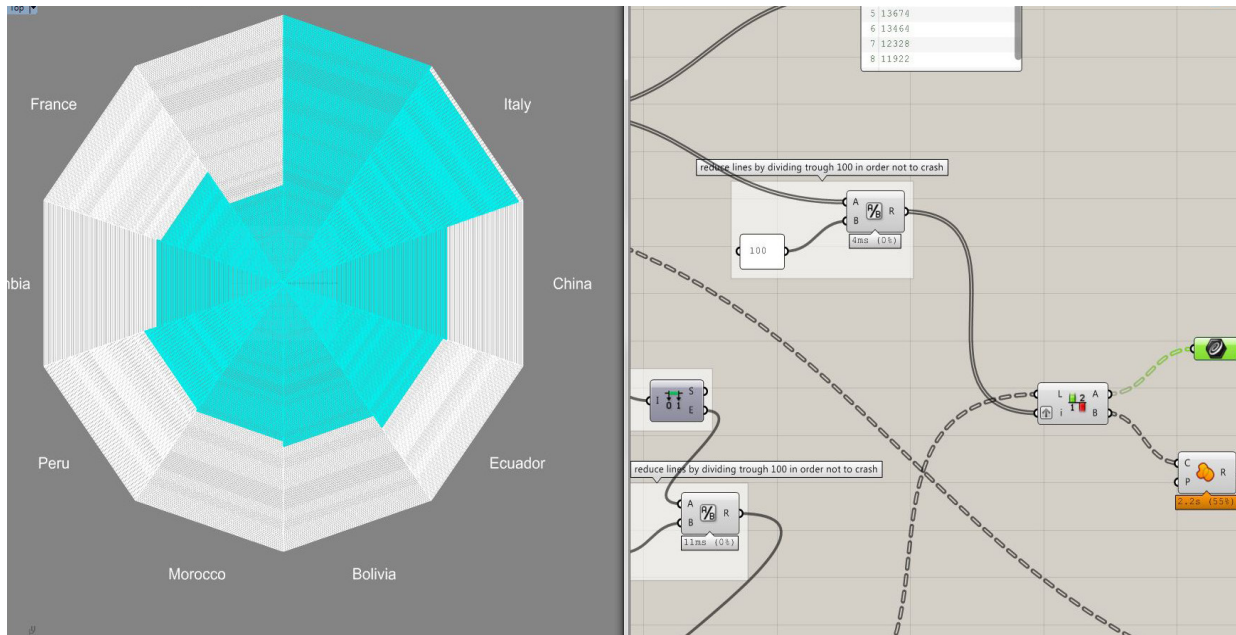
(23)

define the number of sections of the diagram by the numbers given

(24)

Step 25
Use **Split list** so you can have
seperate the data filled spaces
from the empty segments

Italy

China

Ecuador

8 11922

reduce lines by dividing trough 100 in order not to crash

100

4ms (0%)

reduce lines by dividing trough 100 in order not to crash

11ms (0%)

2.2s (55%)

Step 26
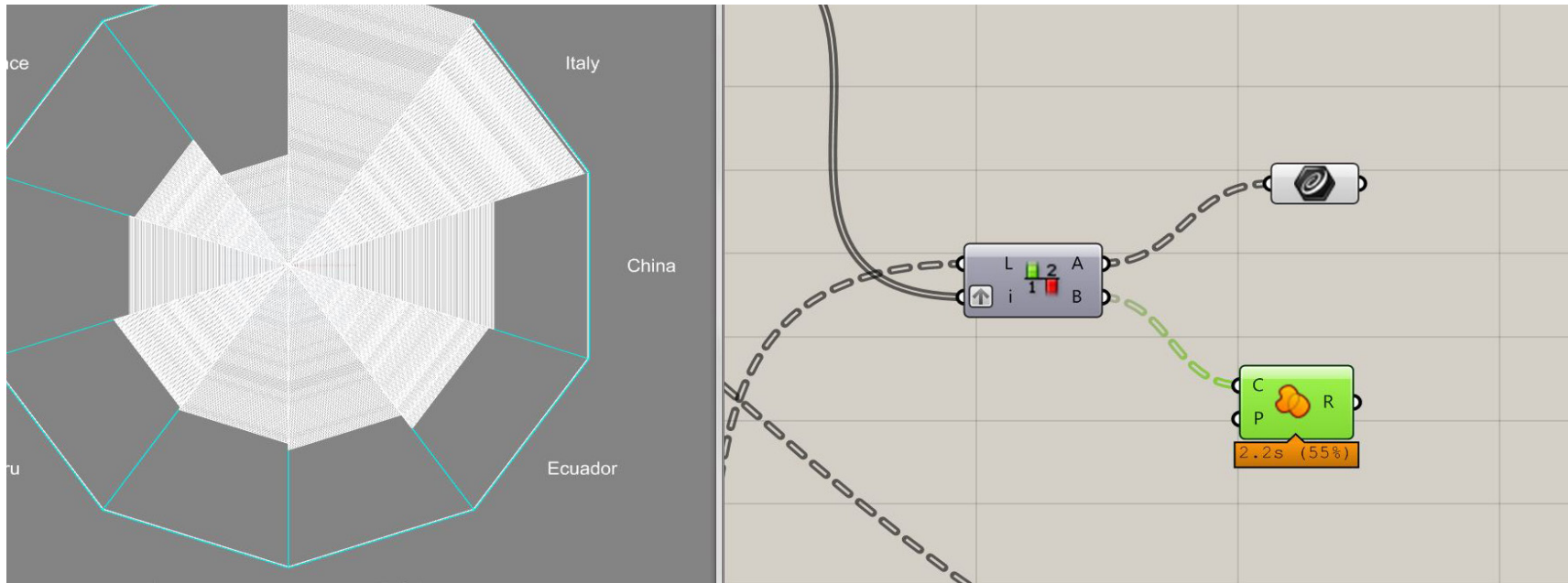Use **Curve icon** to show the numeric
data in the radial grid

26

Step 27
Use **Region Union** to define the
empty space

Step 28
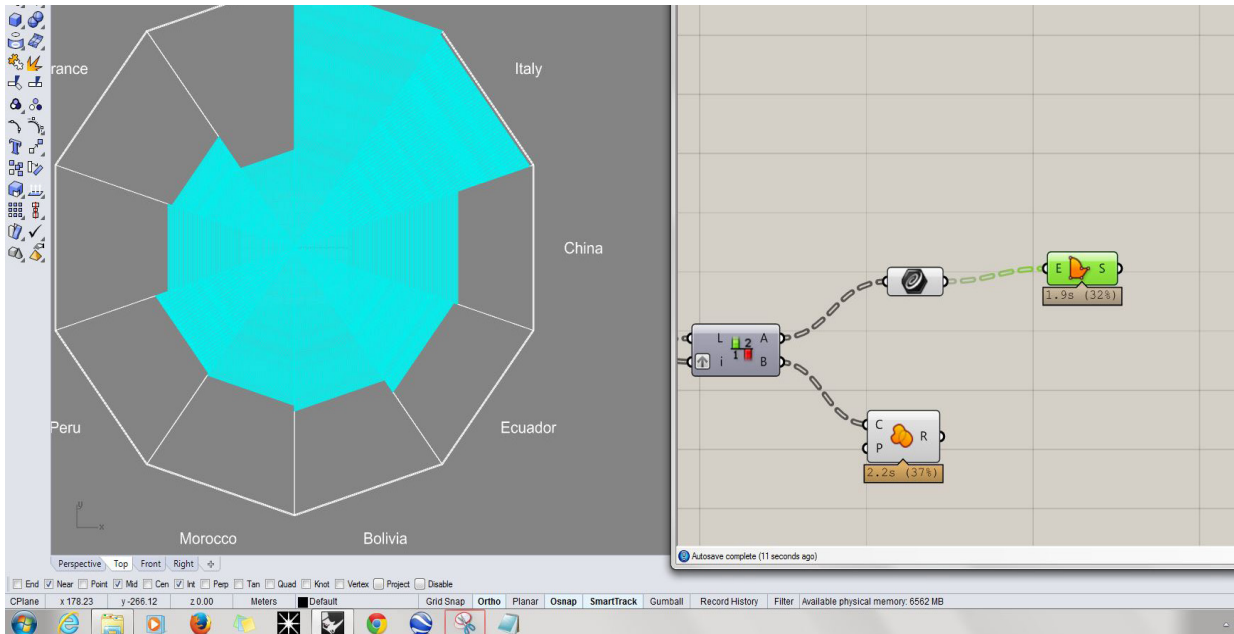Connect **Boundry Surface** to the
Curve Icon to show data

Step 29
Use **Gradient Color** then connect it to
Series to define the created numeric
segment

(29)

reduce lines by dividing trough 100 in order not

Step 30
Connect **Color Gradient** to **Split List**
to show data

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Step 31
Use **Custom preview** then connect it
to **Split List and Surface** to show the
gradient

(31)

Philippines
Pakistan
France
Italy
Colombia
China
Peru
Ecuador
Morocco
Bolivia

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