



**MATH AND
DATA
SCIENCE
FOR
DECISION
MAKING**

UNDERSTANDING OF THE BUSINESS

STUDENTS:

Celeste Mora |A01424681

Yareli Cedeño |A01424659

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Climate indicators on solid waste, forest coverage, water coverage, state of aquifers and deforestation in the state of Jalisco.



THE GLOBAL GOALS

ODS: CLIMATE ACTION



- Adopt urgent measures to combat climate change and its effects”
- Aims to introduce climate change as a primary issue in the policies, strategies and plans of countries, companies and civil society, improving the response to the problems it generates, and promoting education and awareness of the entire population in relation to the phenomenon.

Climate indicators on solid waste, forest coverage, water coverage, state of aquifers and deforestation in the state of Jalisco.

RESEARCH



CLIENT

municipalities of the state of Jalisco, are the ones who are affected by all the problems.



PROBLEMS

If the state takes actions to care for the environment, can it have changes in the reduction of the indices?



SOLUTION

Carry out a Regression Analysis to predict if there will be changes or reduction in the impact of solid waste and deforestation in the state of Jalisco.

We carry out an analysis on the database selected for our project, in order to know and identify the variables that are presented and from this to be able to make a decision on which topic we are going to focus on in the project.

RESEARCH



SOLUTION DEVELOPMENT

Record data, learn statistics, regression analysis, data analysis, programming, use of tools such as excel, learn about data IKU.



GROWTH

If the state takes actions to care for the environment, can it have changes in the reduction of the indices?



SOLUTION

Record data, clean data, filter data, analyze data, obtain data, obtain and implement the results to make decisions.

ANALYSIS



COLUMNS OF INTEREST

Solid waste, deforestation, municipality, region, aquifers, level and water.



IRRELEVANT VARIABLES

Drainage, NOM (official Mexican standards), UGAs_conservation, Retc, state place, response subindex and source.



VARIABLES TO MAKE A MODEL

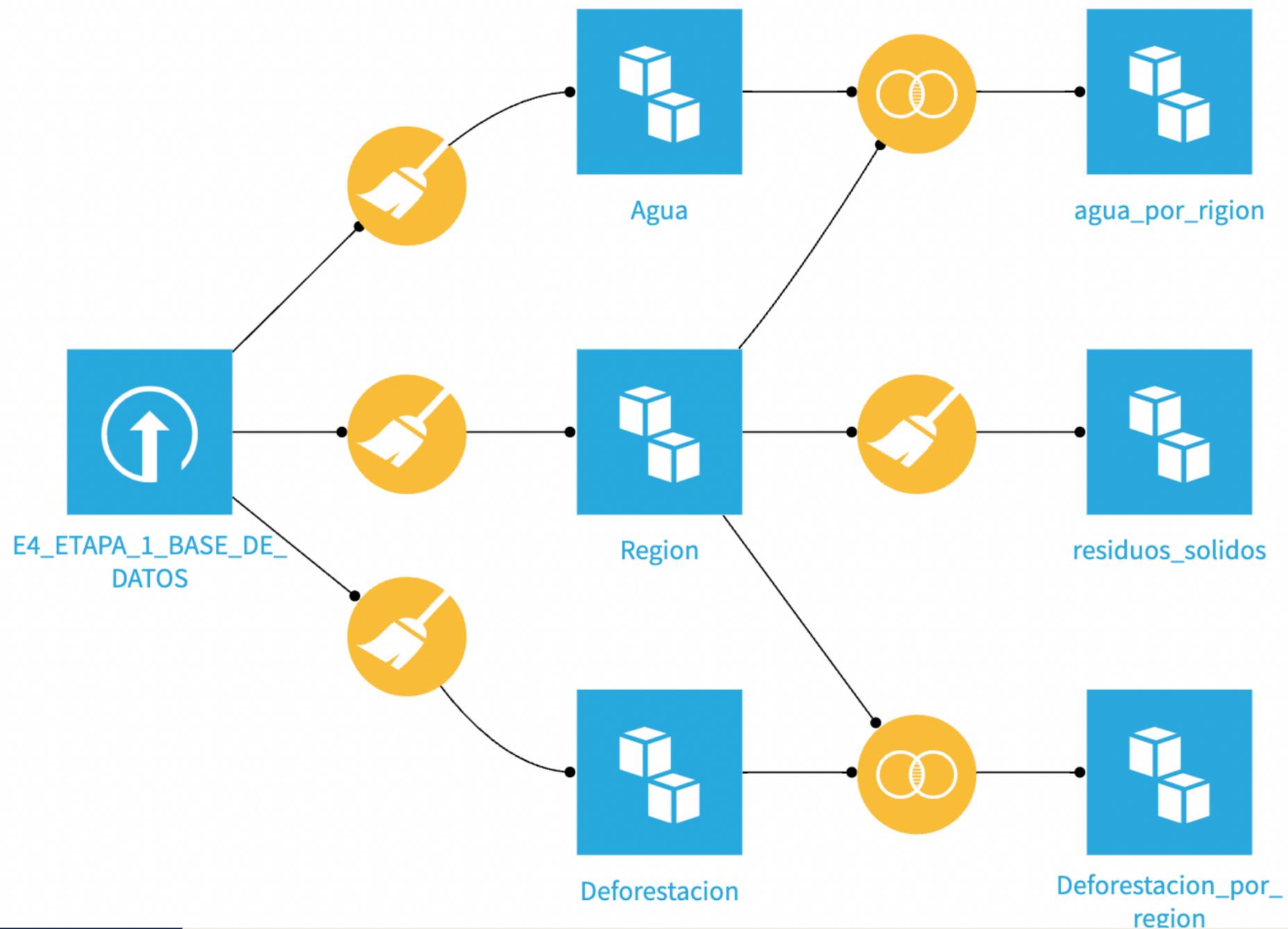
there are promising data attributes that will be useful and relevant to making an interpretable model.

For example, data such as the amount of solid waste, aquifers, deforestation, level and water are found to later provide solutions based on what is observed in the model.



*Math and
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DATAIKU

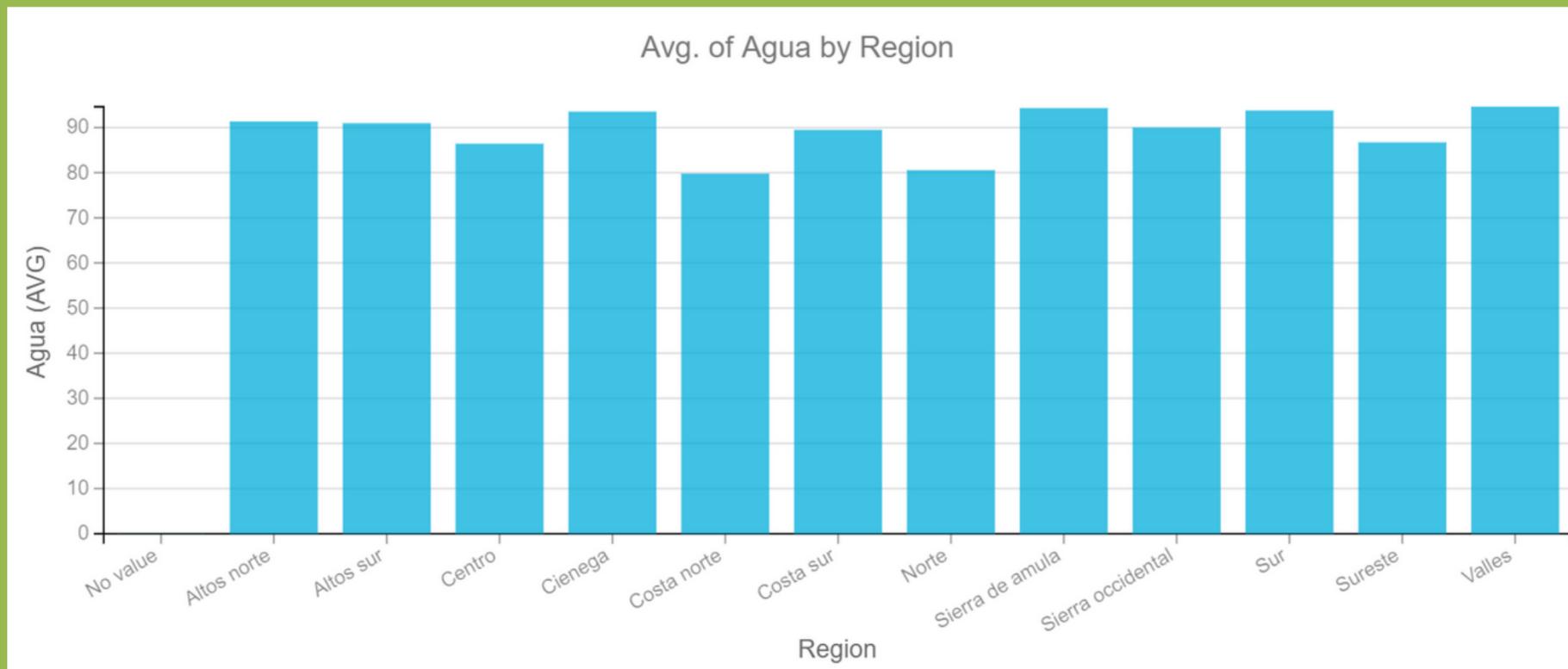
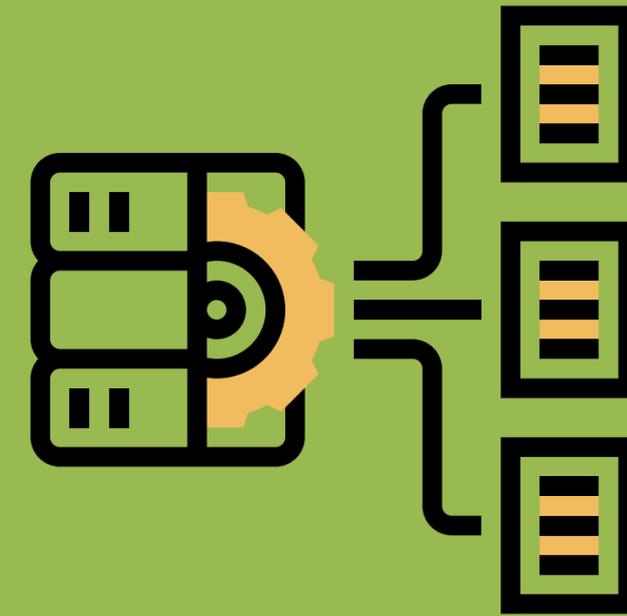


DATABASE INVENTORY IN DATAIKU

The variables that we use from our database for this are:

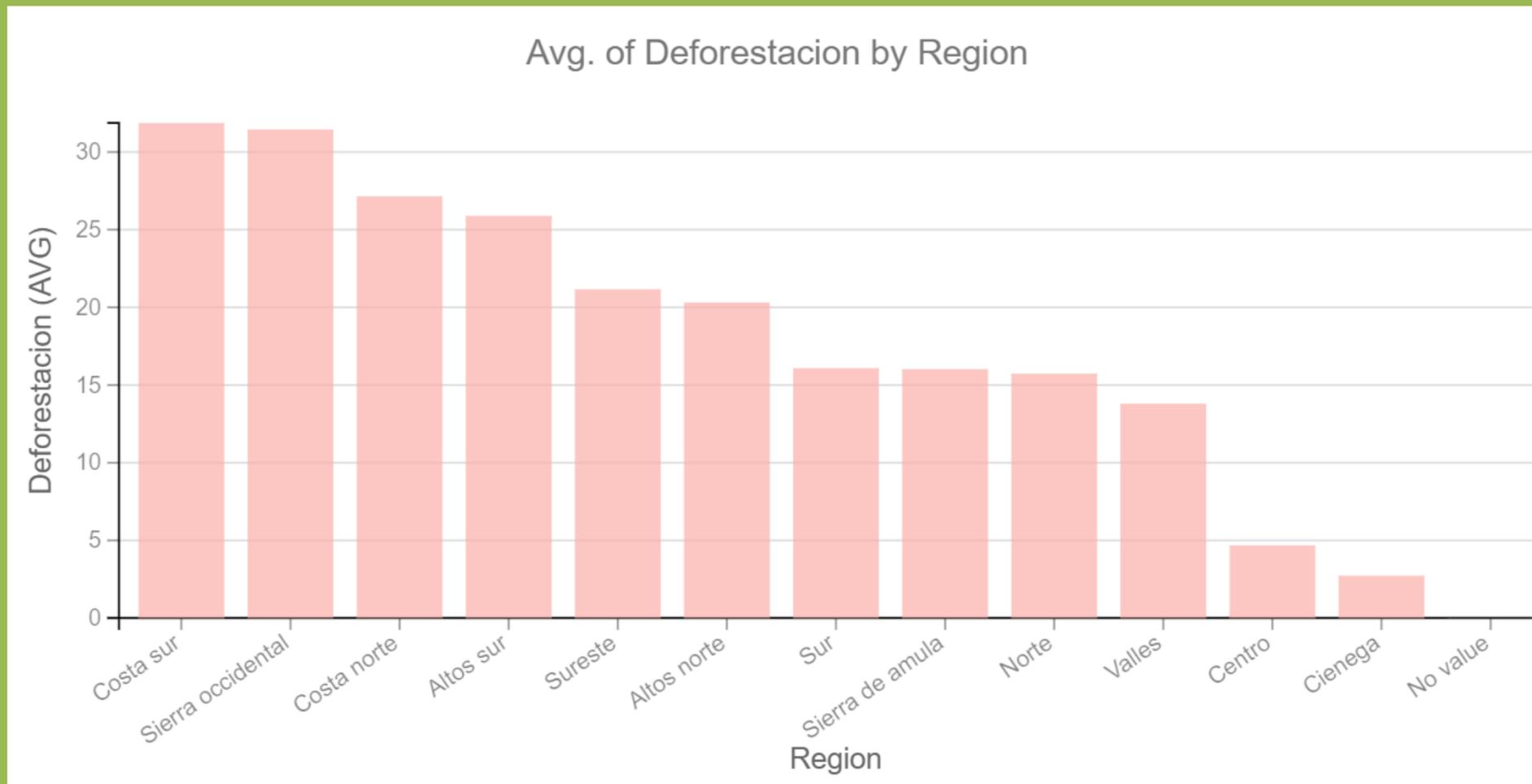
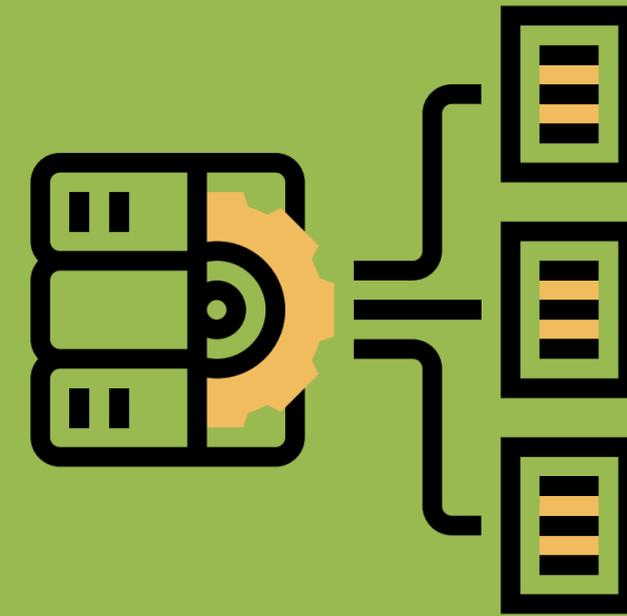
- WATER
- REGION
- DEFORESTATION

GRAPHICS MADE WITH DATAIKU



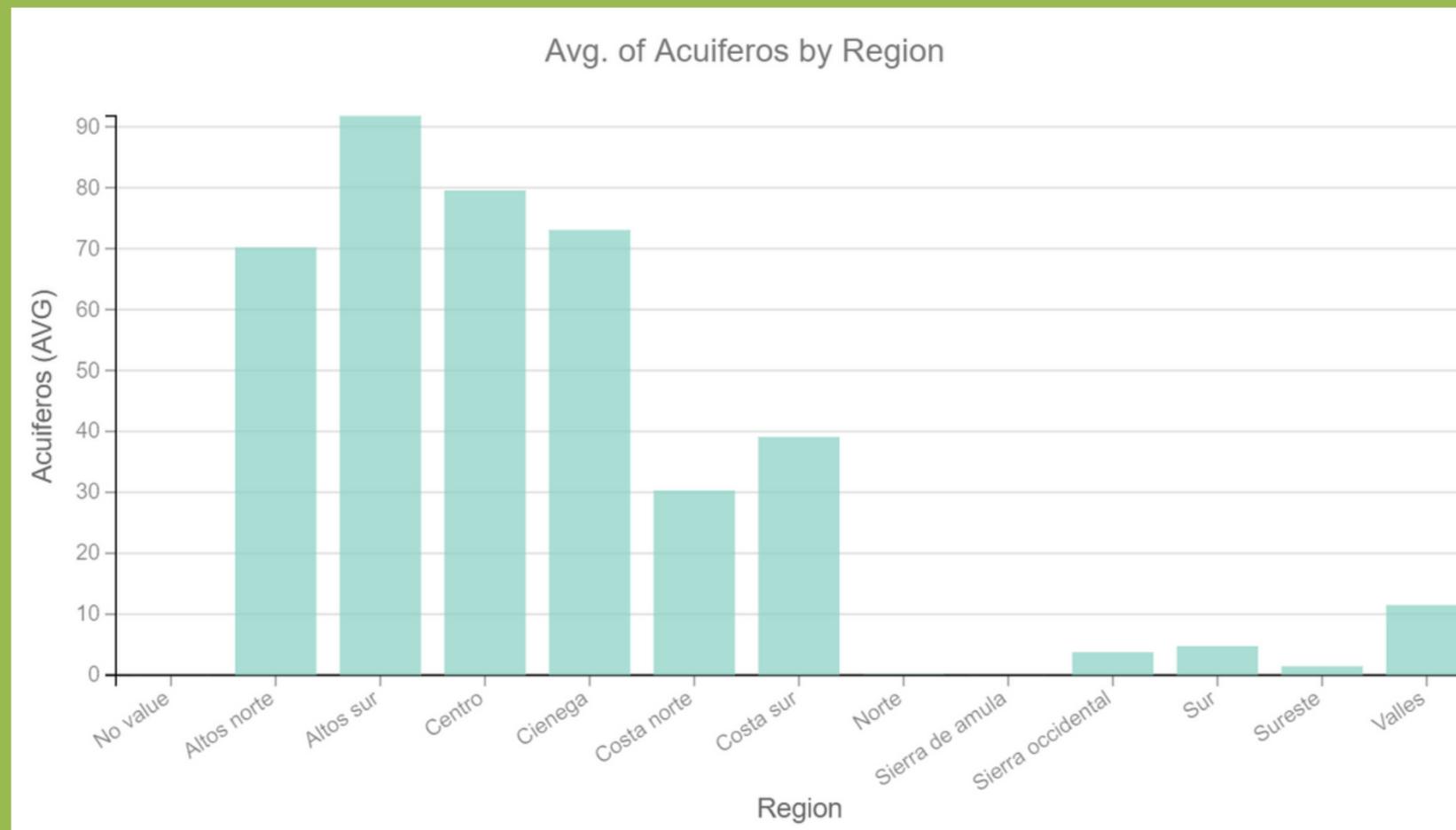
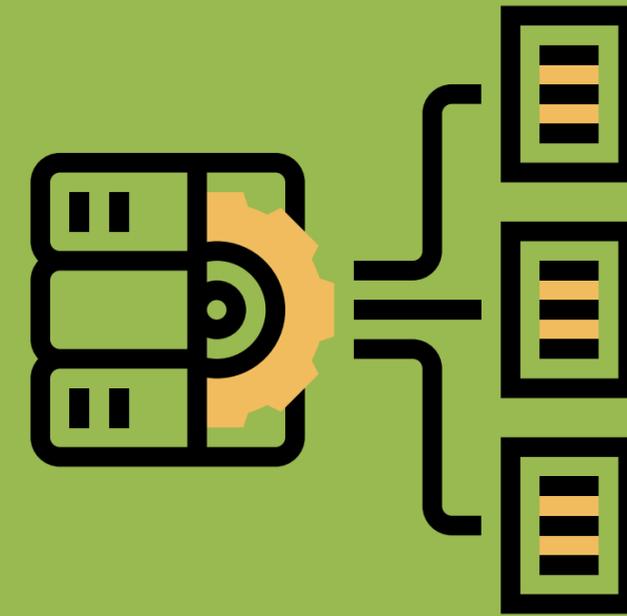
According to the graph, it can be seen that in the state of Jalisco in the Cienega region, Sierra de Amula, the south and the valleys have more water, while the north and the north coast are the regions with less water.

GRAPHICS MADE WITH DATAIKU



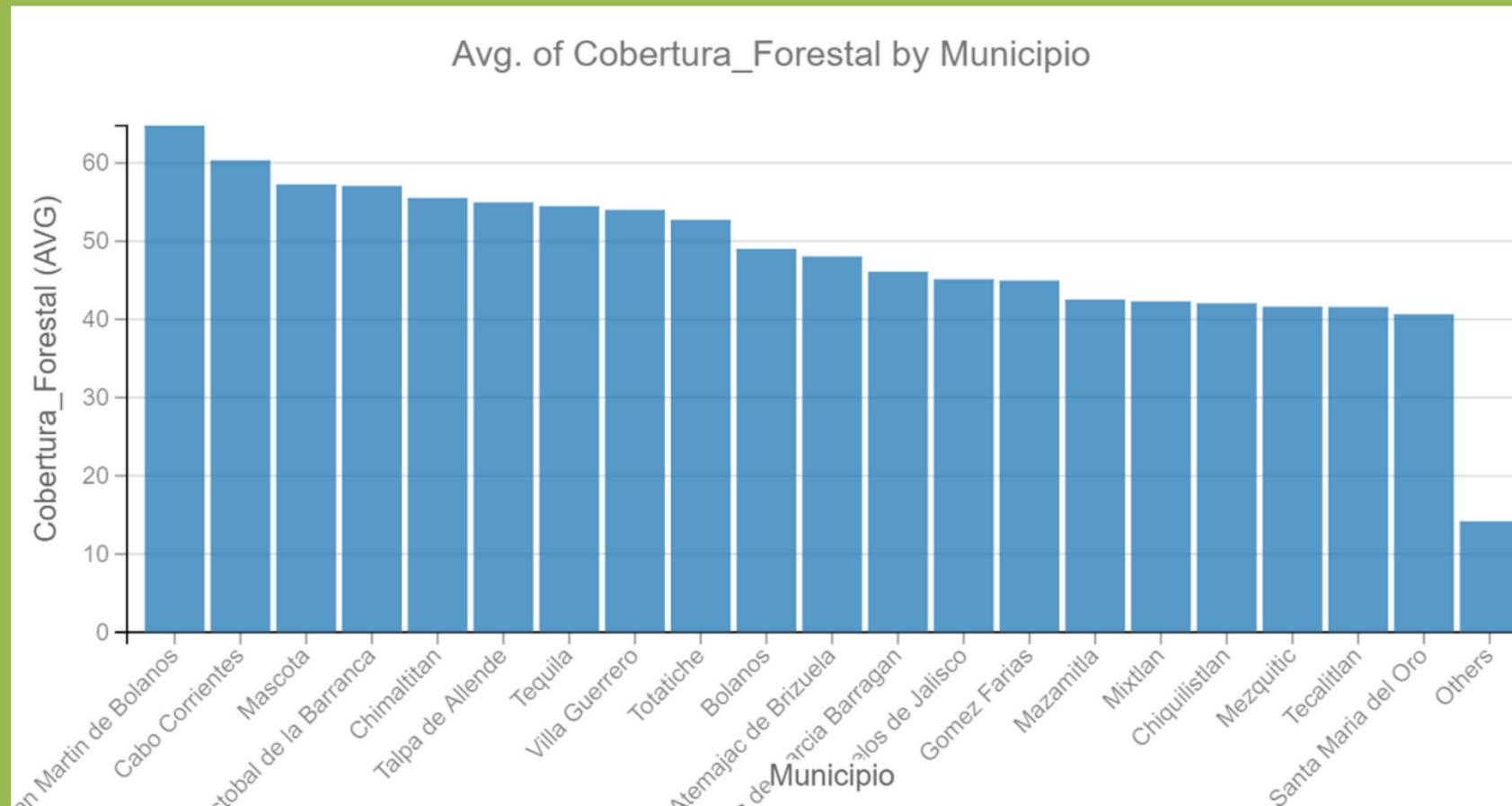
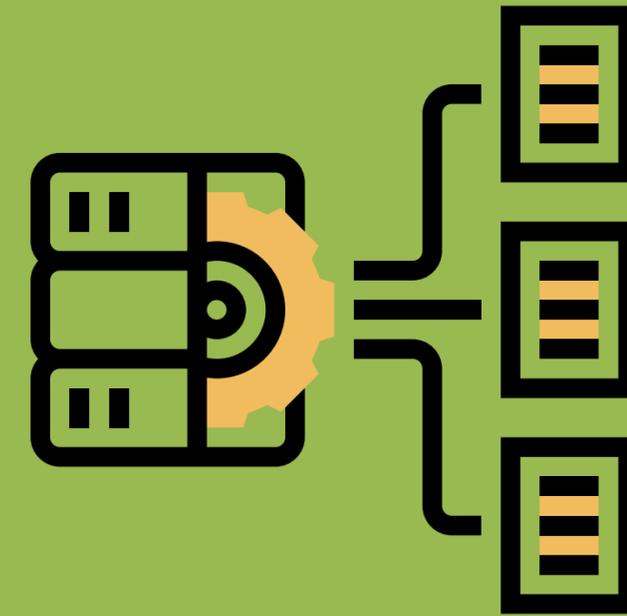
The region with the highest deforestation is the south coast and the western coast, so this is where the greatest measures must be taken.

GRAPHICS MADE WITH DATAIKU



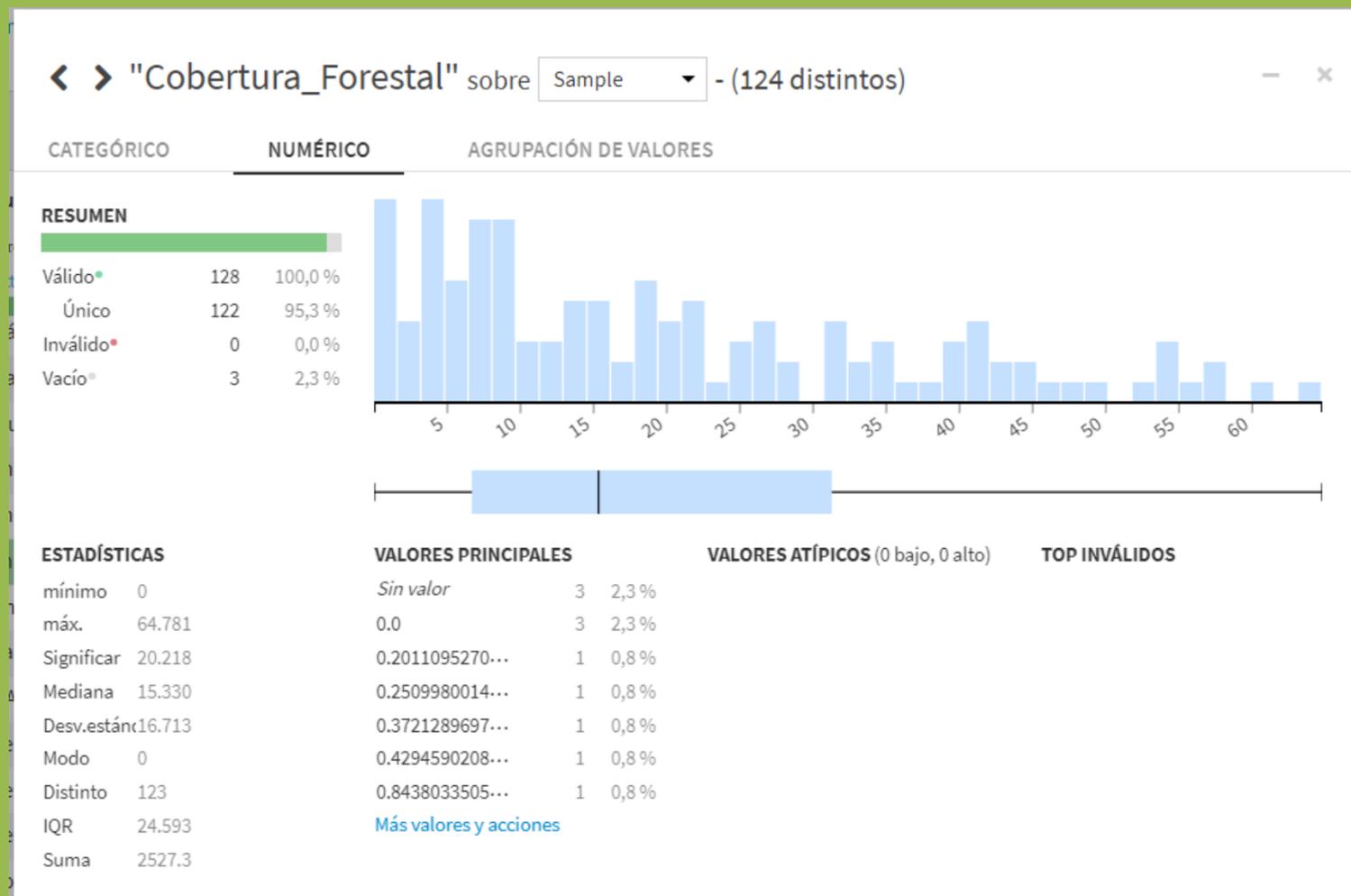
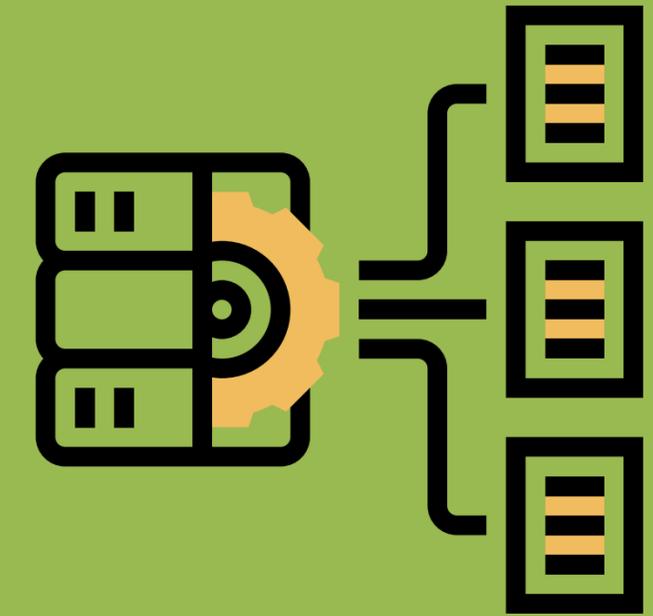
Los Altos Sur is the region of Jalisco with the most aquifers, while the regions without aquifers are the North and Sierra Amula.

GRAPHICS MADE WITH DATAIKU



It is observed that the municipality with the most forest cover is Martin de Bolanos while Santa Marta del Oro has less forest cover.

GRAPHICS MADE WITH DATAIKU



According to the observed data, it is shown that the municipality with the lowest coverage is 0 while the municipality with the highest coverage is 64,781 Mts². In the state of Jalisco, the sum of the square meters of forest cover in the municipality is 2527.3, therefore this is an area of opportunity for the state.

HYPOTHESIS

✓ **Accept or reject hypothesis:** According to the data, if the state takes actions to care for the environment, can it have changes in the reduction of the indices?
The hypothesis is accepted because, according to the model, the standard deviation of the forest cover with respect to its mean is 16.7 km^2 , which is why this area is relevant, taking measures and taking advantage of the area.
With visual data made easy by region, steps can be taken to take action and lower rates.

✓ **Accept or reject hypothesis:** According to the data, if new regulations are implemented to restore areas affected by deforestation, can a significant change be generated in at least 5 years?
By region, according to the graphs, if it is important to take actions to restore these areas, the coverage is lower and the regions with aquifers are less than the regions with deforestation.

✗ **Accept or reject hypothesis:** In Jalisco there is little forest cover, with no more than 14 km^2
We reject the hypothesis Jalisco has forest cover because it is a state that does have aquifers in different regions of the state and that according to the analysis the average forest cover was: 15.33 km^2 , which exceeds what is established in the hypothesis and the area with the greatest coverage was 64.81 km^2



Cobertura forestal

ESTADÍSTICAS

mínimo	0
máx.	64.781
Significar	20.218
Mediana	15.330
Desv.estánc	16.713
Modo	0
Distinto	123
IQR	24.593
Suma	2527.3



PROPOSAL

According to the data, there are aquifers and there is water in the state of Jalisco, but deforestation is notable for what is greater than forest cover, implementing regulations to prevent an increase in deforestation rates is necessary, in addition to taking care of water and take advantage of it to regenerate and replant deforested areas in the regions. Where year after year the results are decreasing and with the aim of caring for natural resources and their preservation.
