

Activity 5 – Practical Application of Visualized Data

Please print this paper and keep it for reference purposes. It will be signed by the professor in charge to mark its completion and record.

Group Name: Quadcore

Date: _____

Group Members:

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Case Study:

In 2017, a study was conducted to determine if the soil in a certain area is fit for constructing high rise buildings. To do this, certain engineers recorded the temperature of the soil and its moisture index. Soil temperature refers to the average temperature of the soil measured in Celsius; while the soil moisture refers to the amount of water a soil can absorb per cubic meter.

The record can be found using the link:

<https://drive.google.com/file/d/1j5wmh5WR-6lgcdUoUqo1ljZ7UucTAI77/view?usp=sharing>

The researcher plotted the soil temperature versus the soil moisture and created the scatterplot seen below.

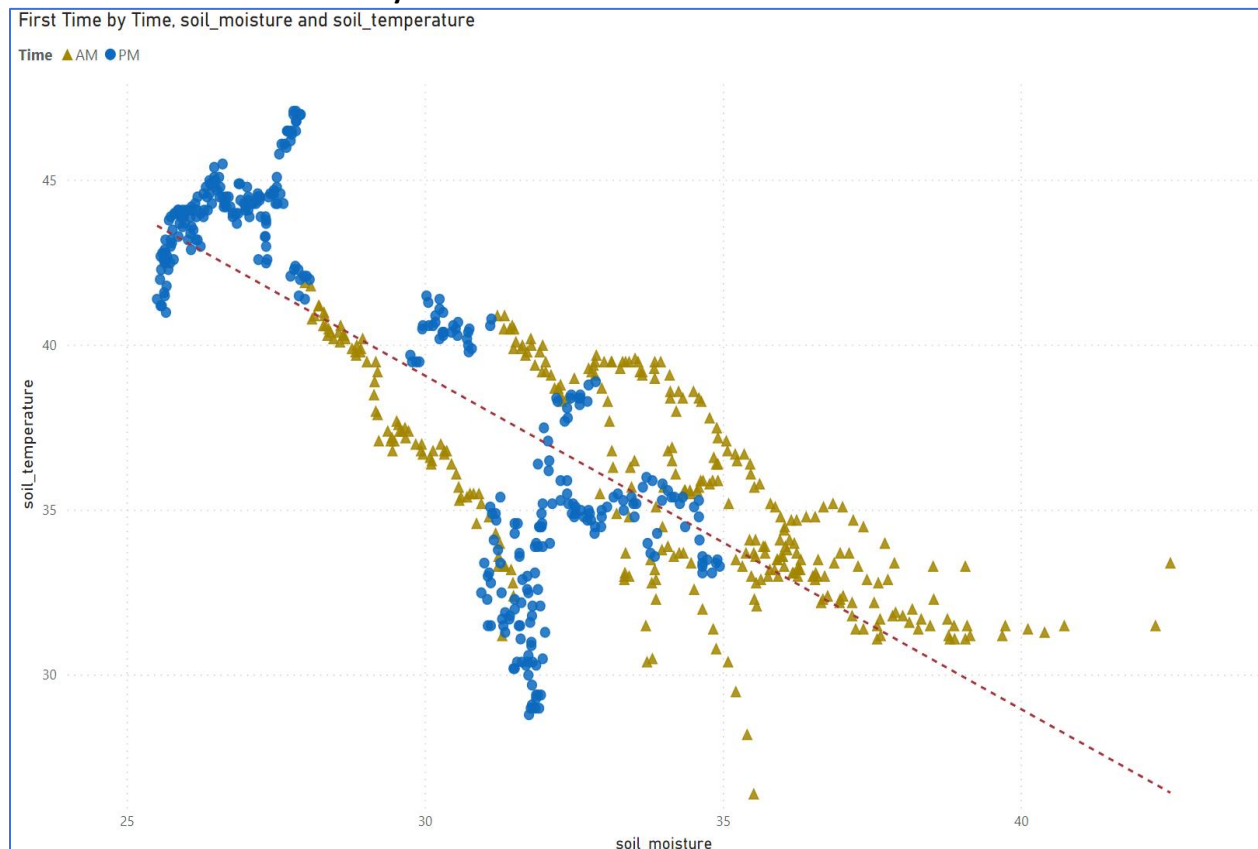
The yellow triangle plots refer to the records done before 12NN.

The blue dots refer to the records done after 12NN.

The red line refers to the Linear Regression with the following details:

$$y = -1.0132x + 69.482$$

$$R^2 = 0.628$$



1. From the details given, what are the observations that you can give regarding the information?

The records done after 12nn has 3 clusters, the first cluster is at the peak soil temperature, while the 2nd is near the half of the table, the last cluster is the biggest, scattered near the middle having a spike at estimated 32 soil moisture.

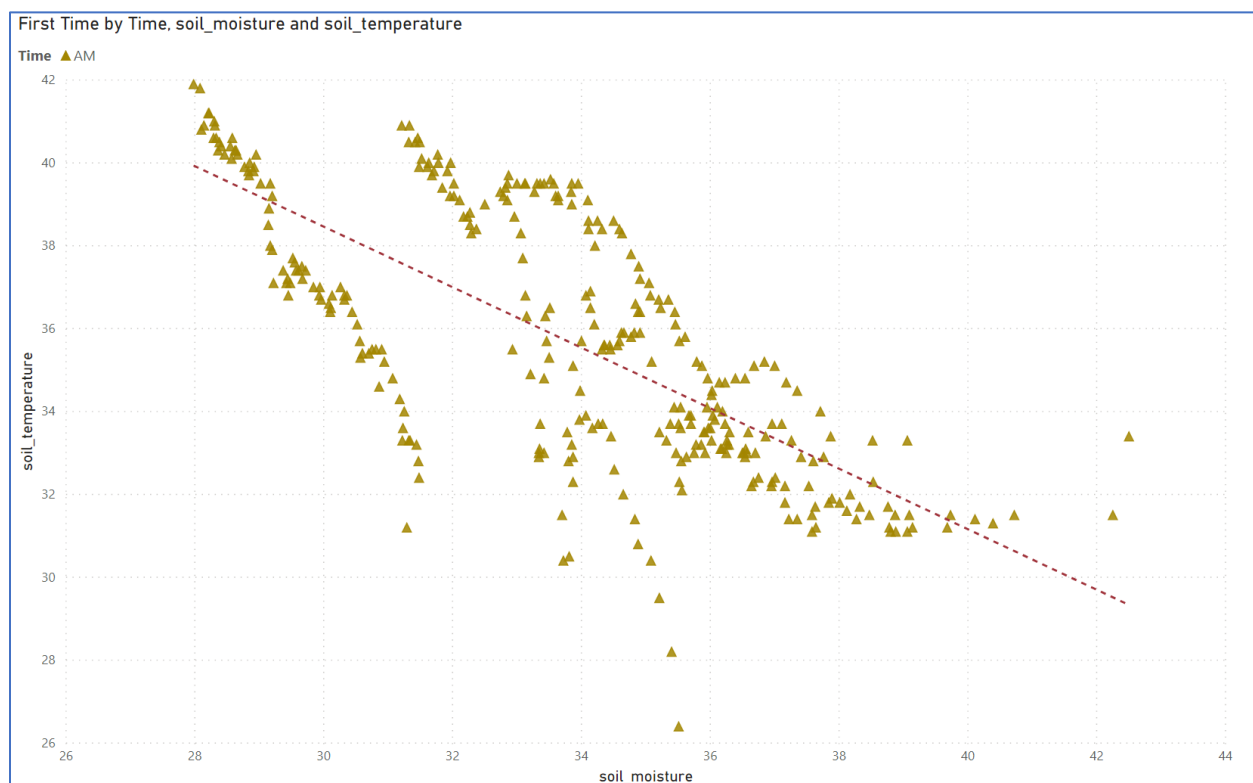
2. Using the R value, describe the strength of the correlation:

having 0.62 r value, it has a moderate positive relationship.

3. Describe the Linear Regression Equation:

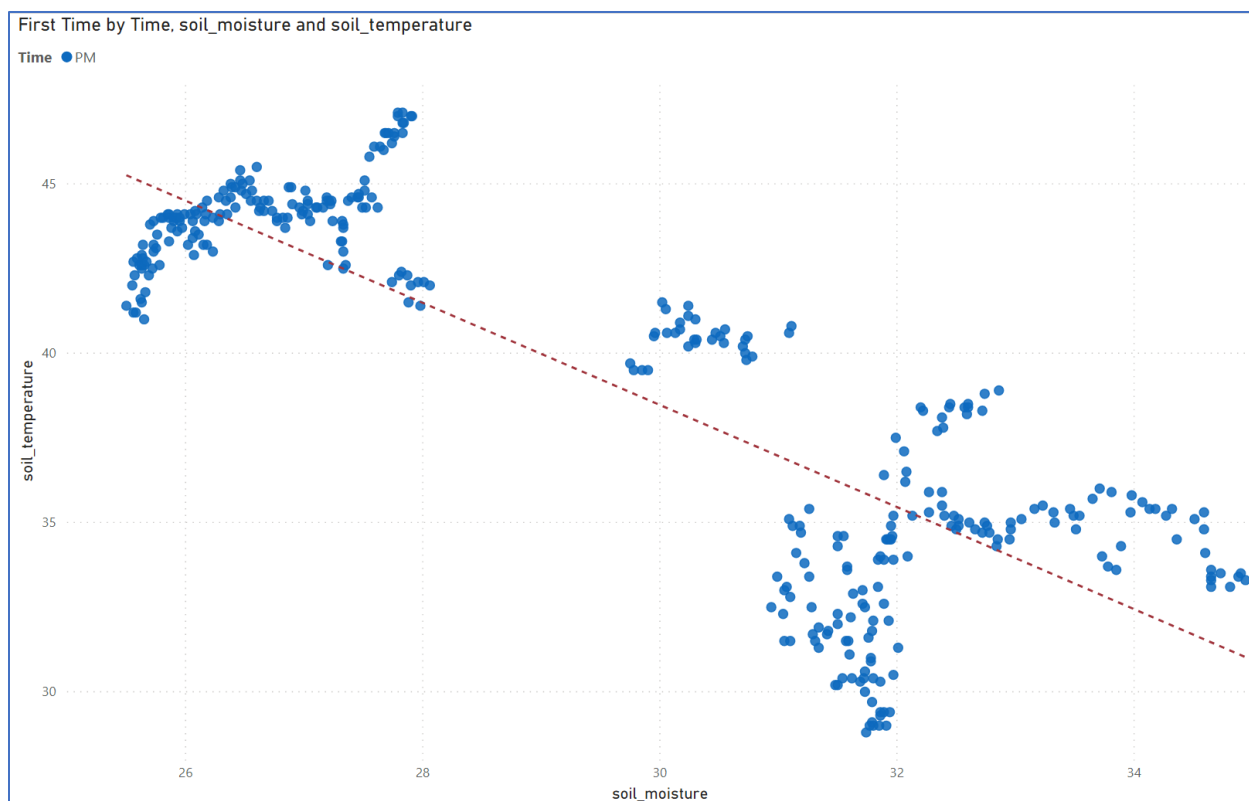
Having a moderate positive relationship, while havinf a negative direction.

The researchers drilled through by analyzing only the AM and PM readings separately:



$$y = -0.7278x + 60.278$$

$$R^2 = 0.5249$$



$$y = -1.5029x + 83.576$$

$$R^2 = 0.6964$$

4. From the details given, what are the observations that you can give regarding the information?

The time of the records make a huge impact on the relation of the soil temperature and soil moisture.

5. By comparing the regression lines of the two, describe the differences.

They have the same direction of the regression, though the scattering of the cluster makes the difference.

Analysis:

Having the data giving a moderate positive correlation, Its direction is always positive, as shown.
Meaning that it has a negative direction, as the soil temperature decreases, the soil moisture rises.
Though the graph shows inconsistent clusters, it is evident in the graph that the relation exist.