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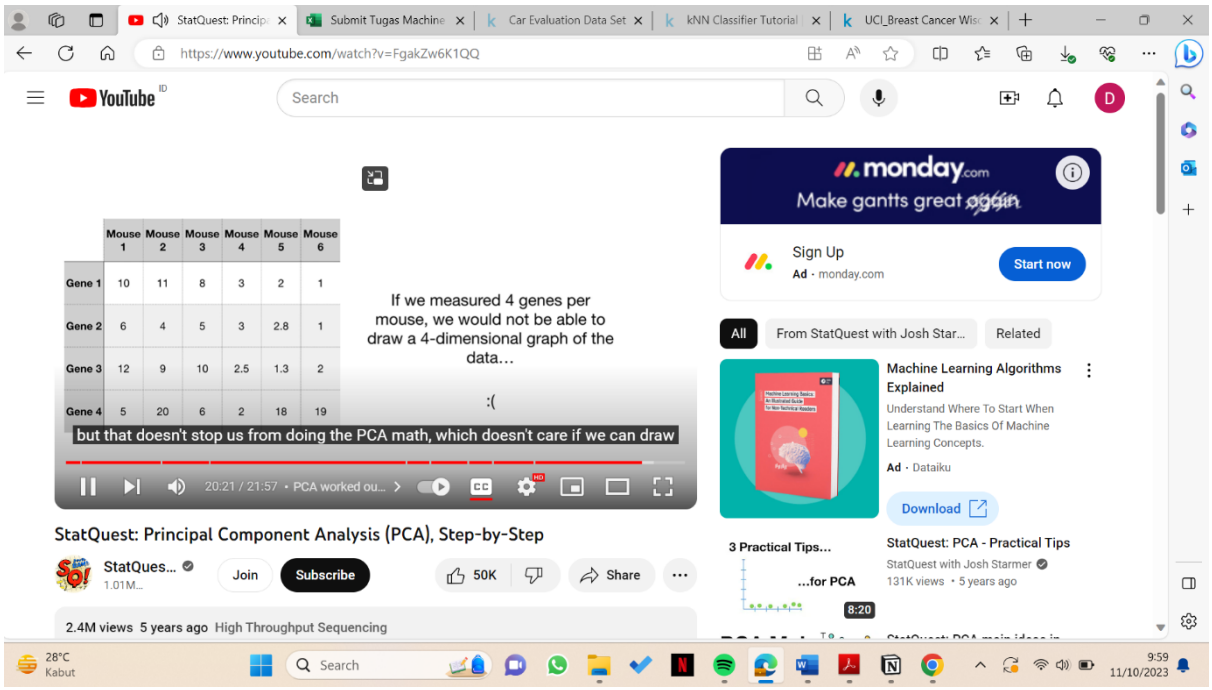
NIM: 1103204059
Kelas: Machine Learning TK44GAB4

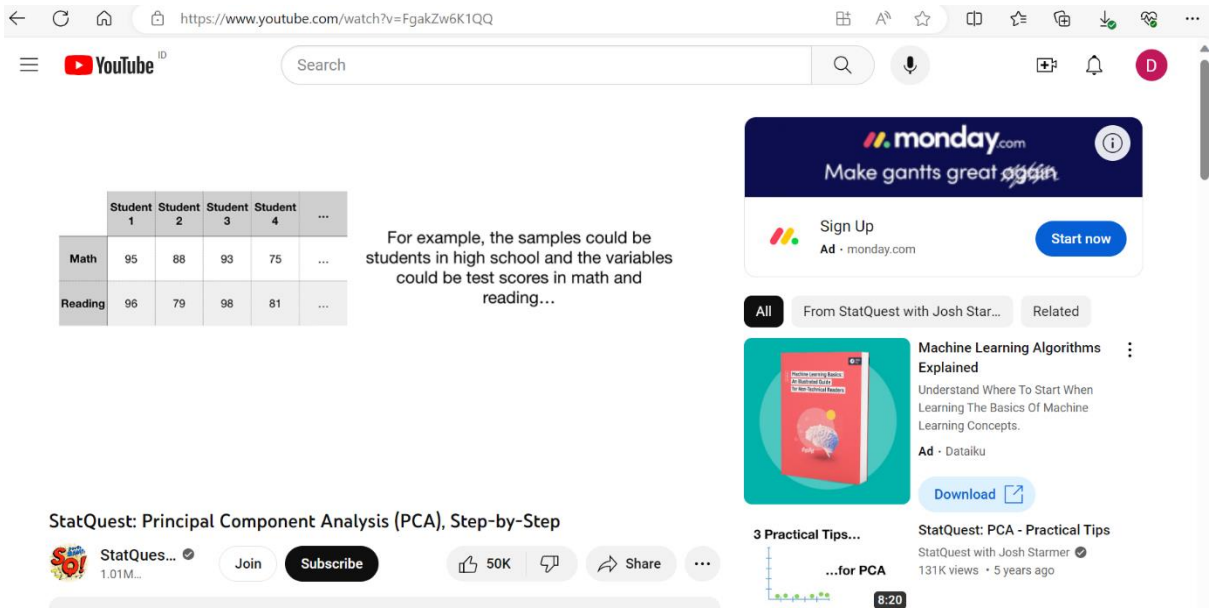
Understanding 3 Link StatQuest (Youtube: Josh Starmer)

1) Principal Component Analysis (PCA) Step-by-step

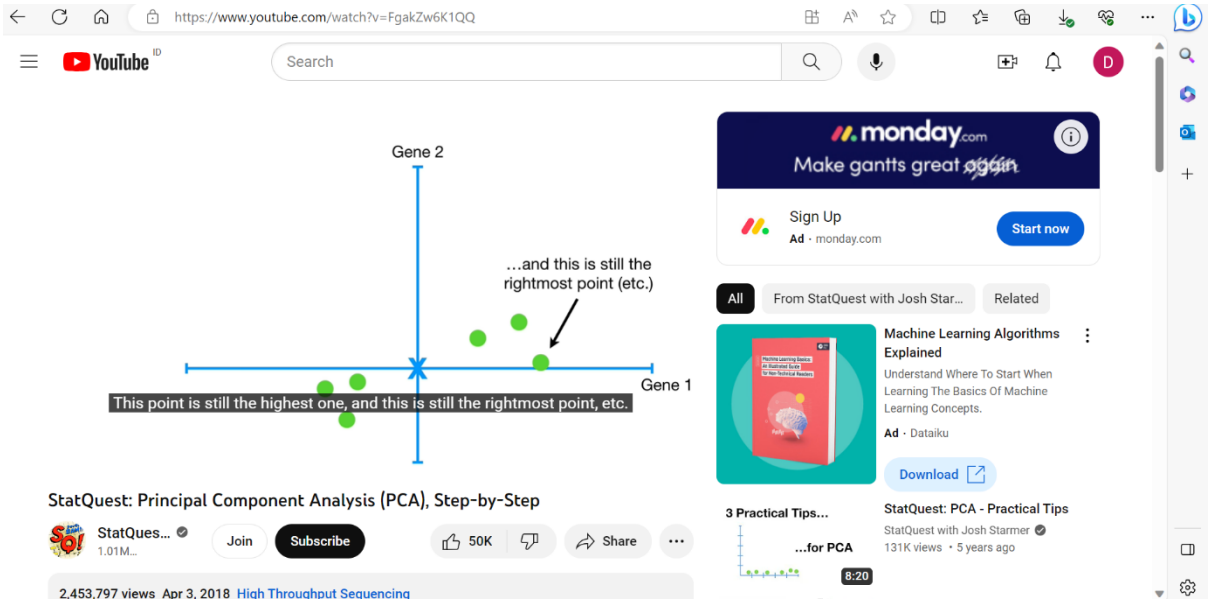


PCA used to reduce the dimensionality of data while preserving as much variance as possible. This is a step by step guide on how PCA works:

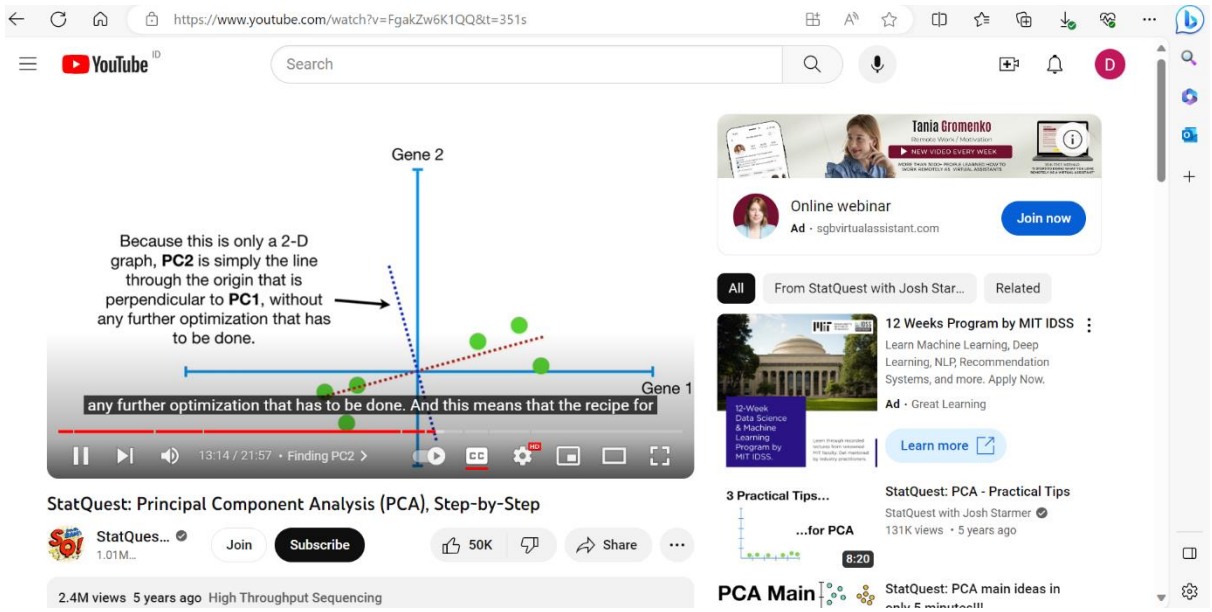
- Conceptual motivation for PCA



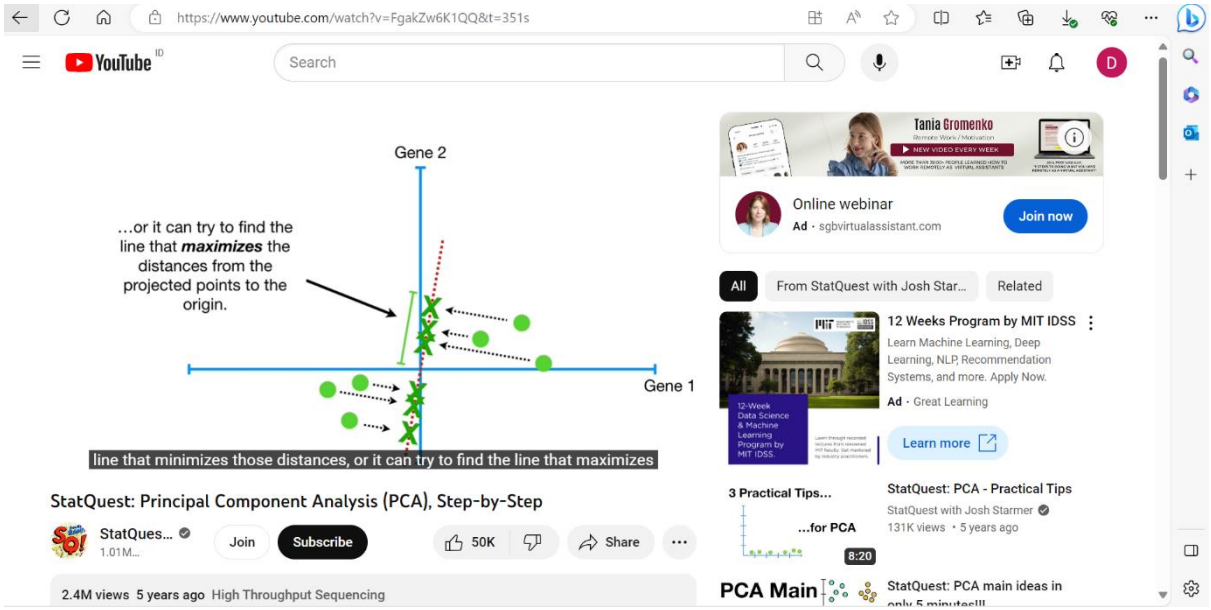
- Worked out for 2-dimensional data



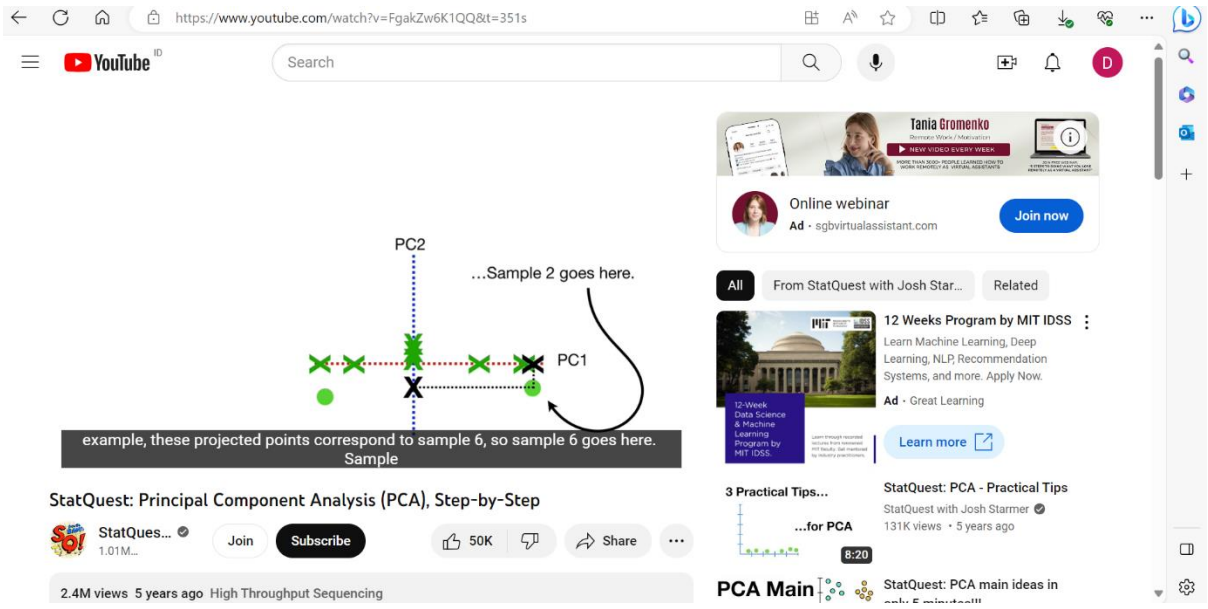
- Finding PC 1



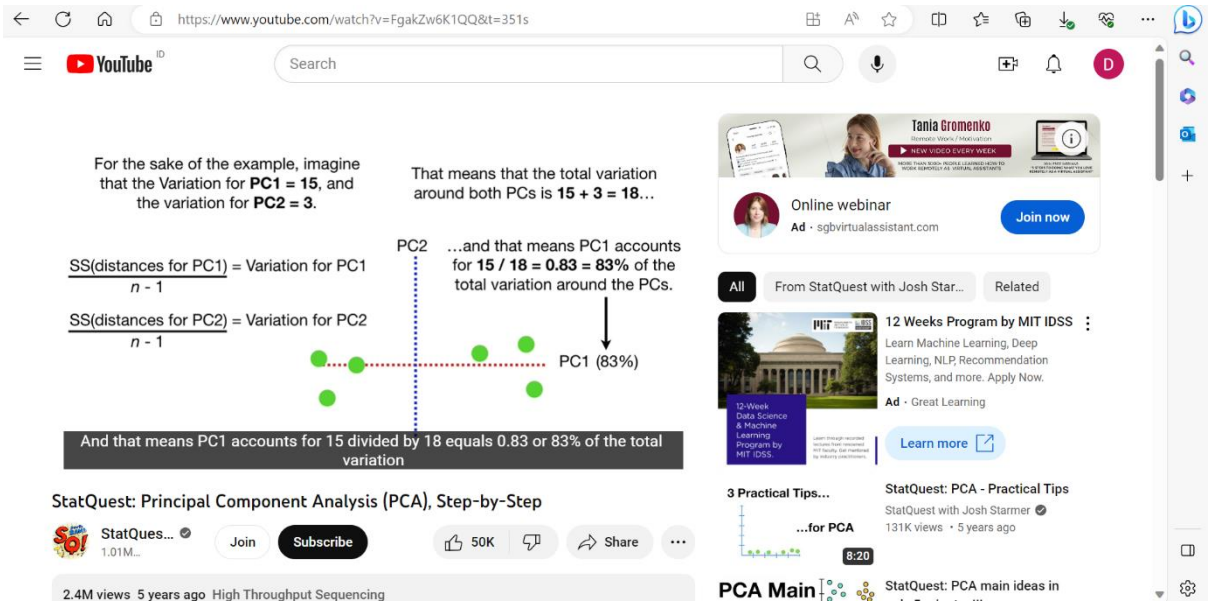
- Finding PC 2



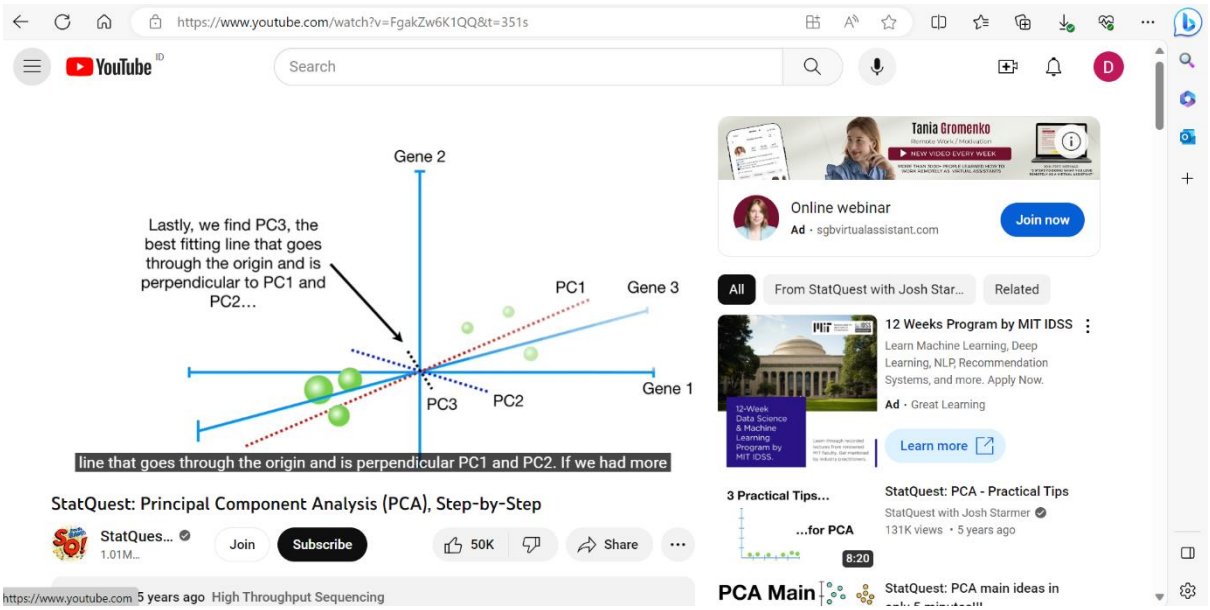
- Drawing the PCA graph



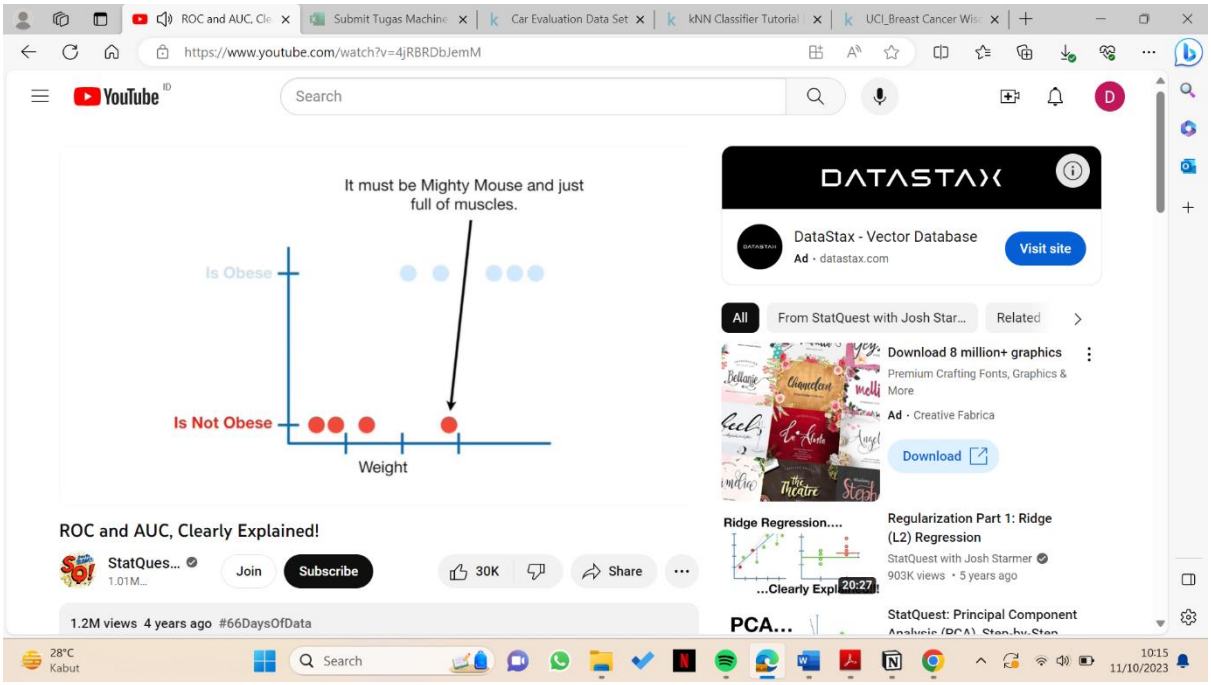
- calculate percentation for each PC and scree plot



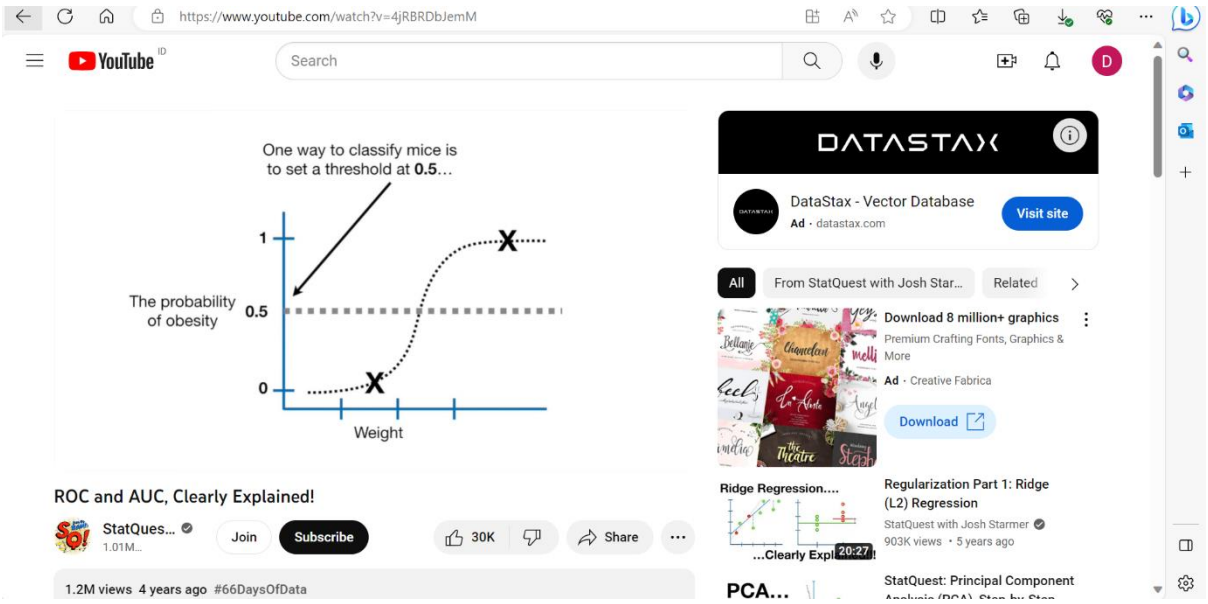
- PCA worked for 3 dimensional data



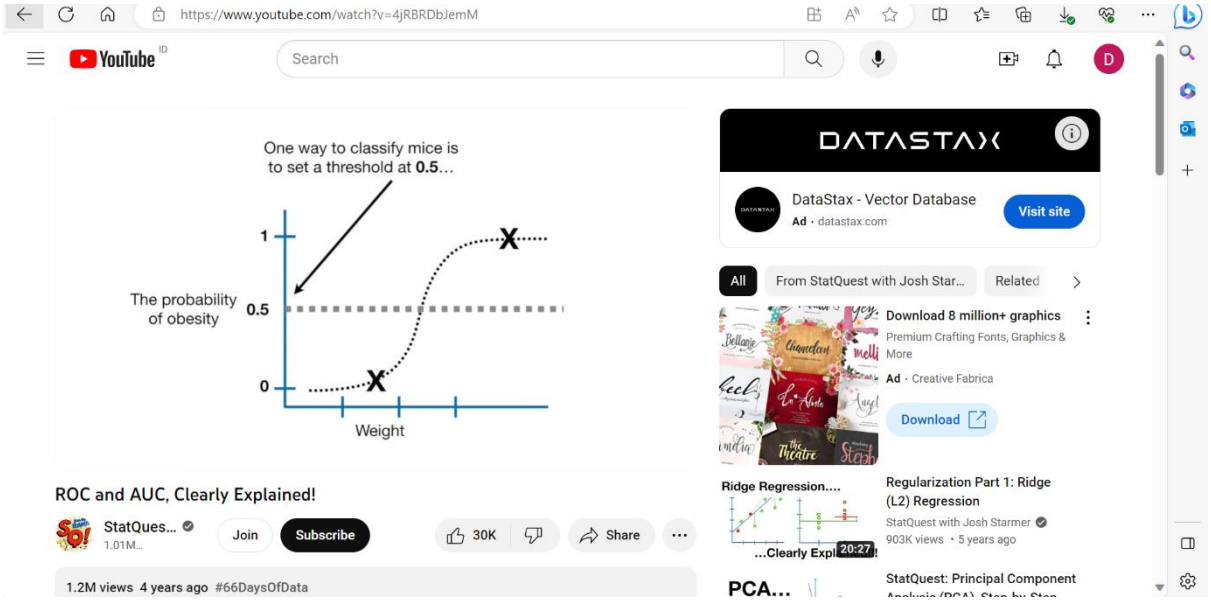
2) ROC and AUC explained



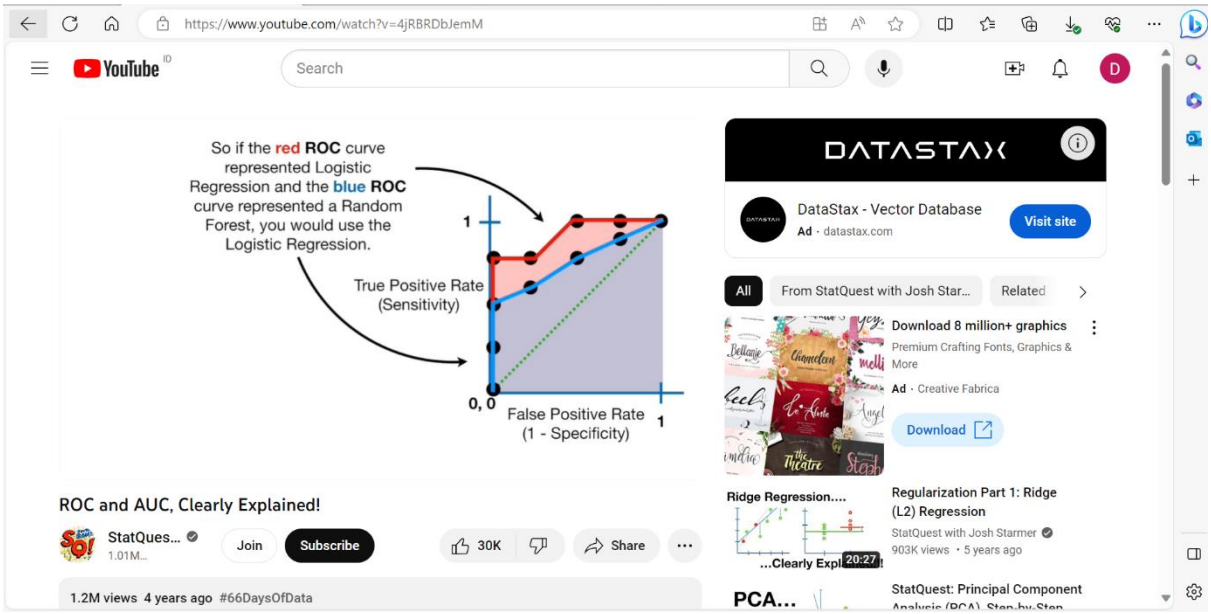
- Classifying samples with logistic regression



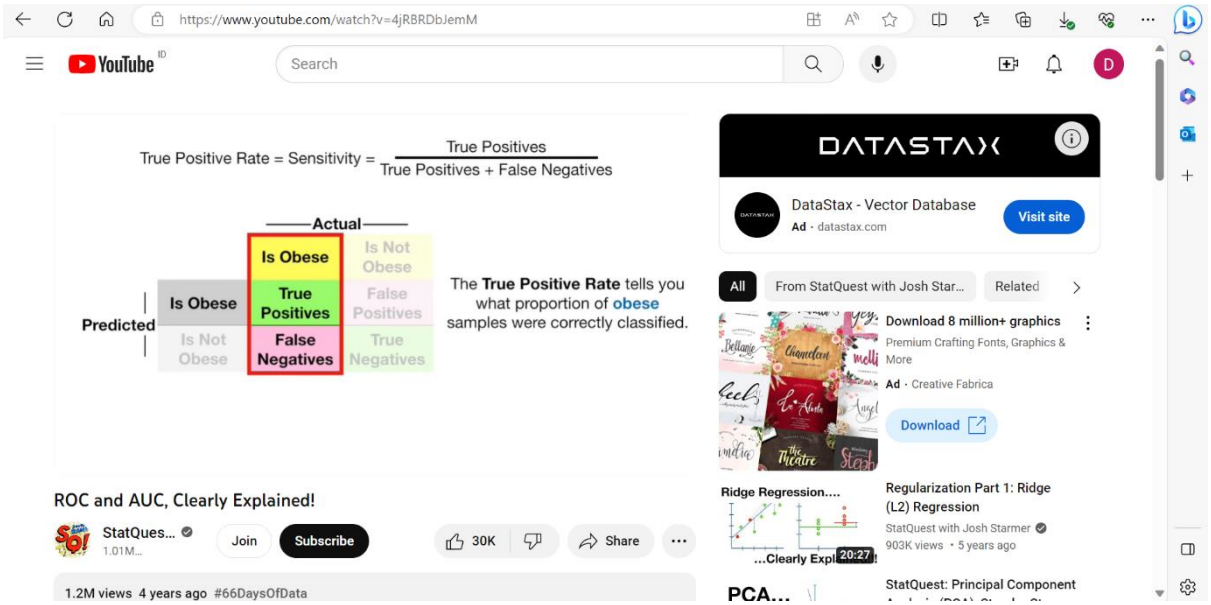
- Creating a confusion matrices for different thresholds



- ROC is an alternatived to tons of confusion matrices

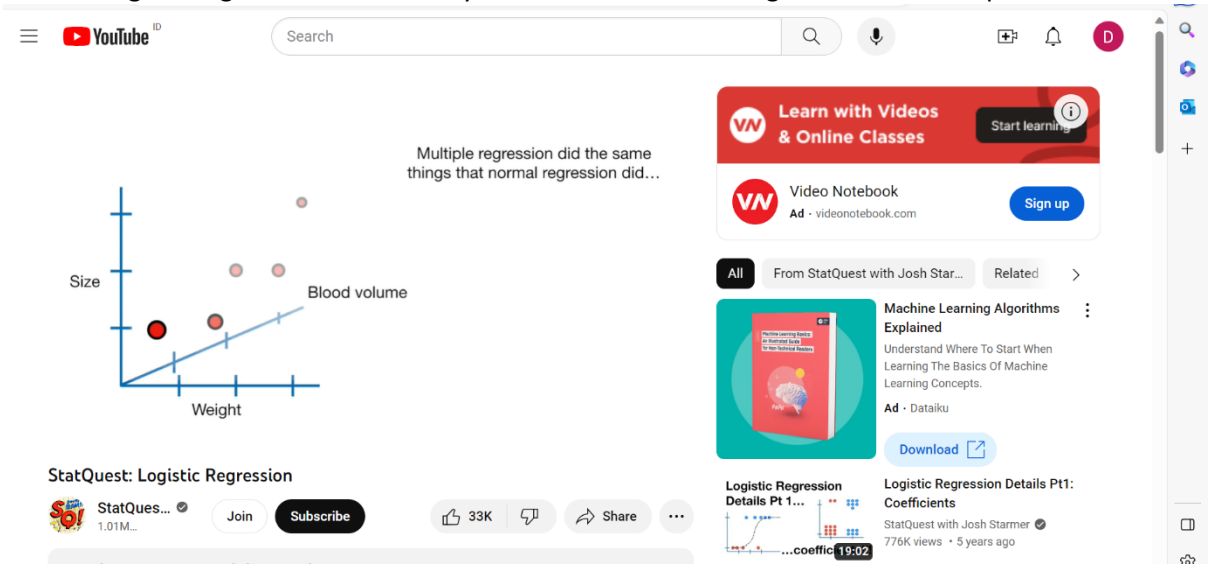


- AUC to compare different models

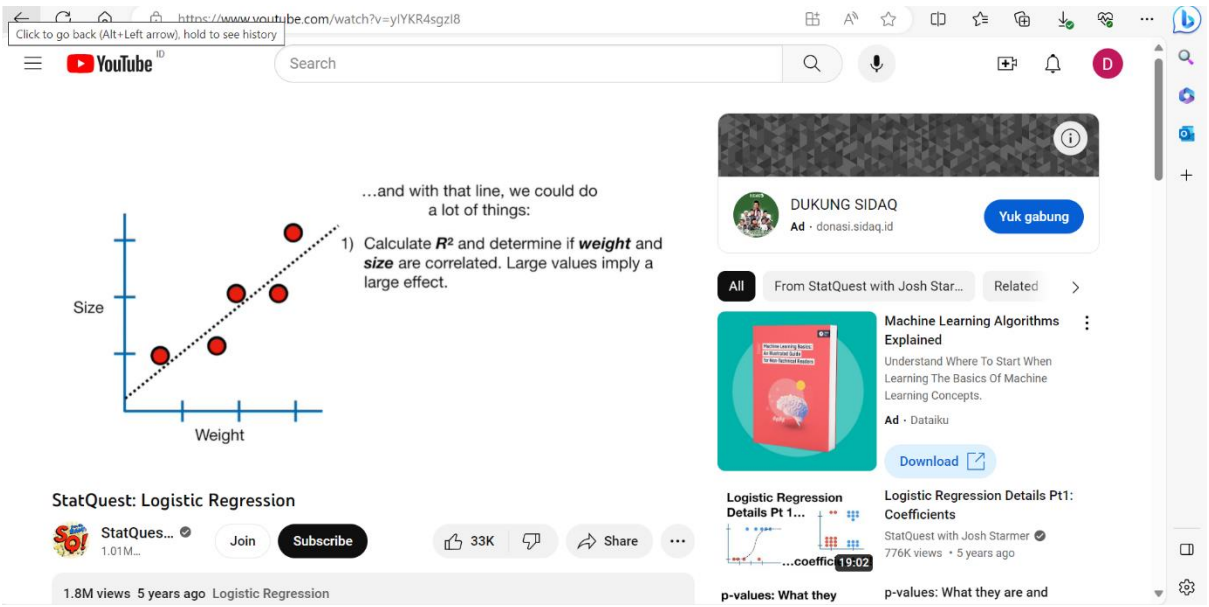


3) Logistic Regression

Logistic regression is commonly used in machine learning for classification problems.



- Review of linear regression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...and with that line, we could do a lot of things:
1) Calculate R^2 and determine if ***weight*** and ***size*** are correlated. Large values imply a large effect.
Size
Weight
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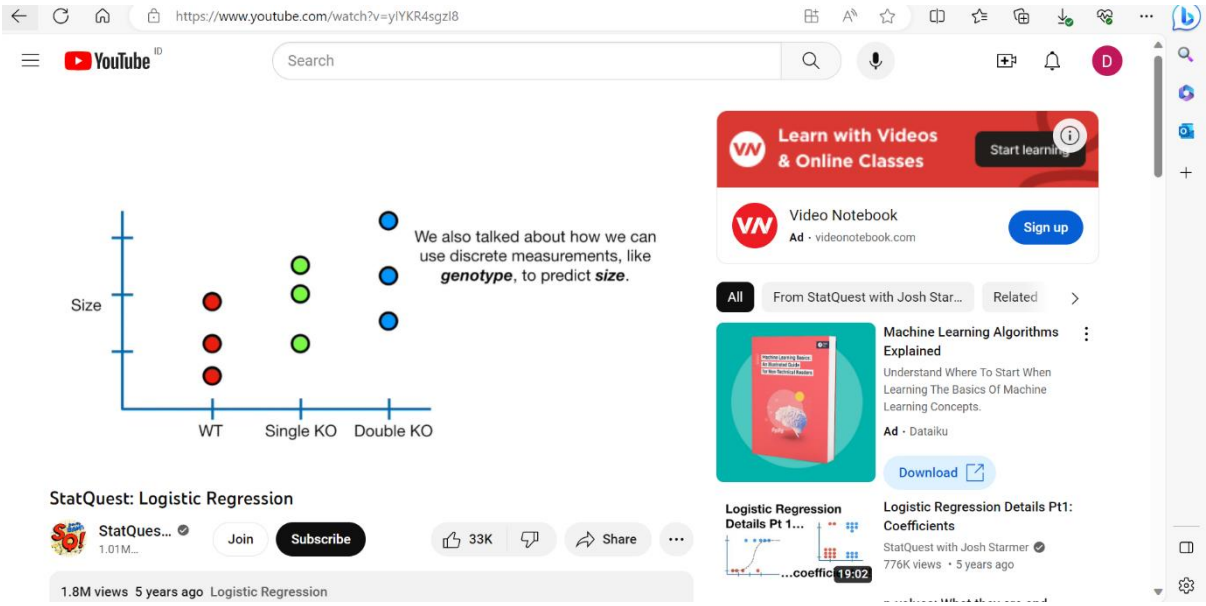
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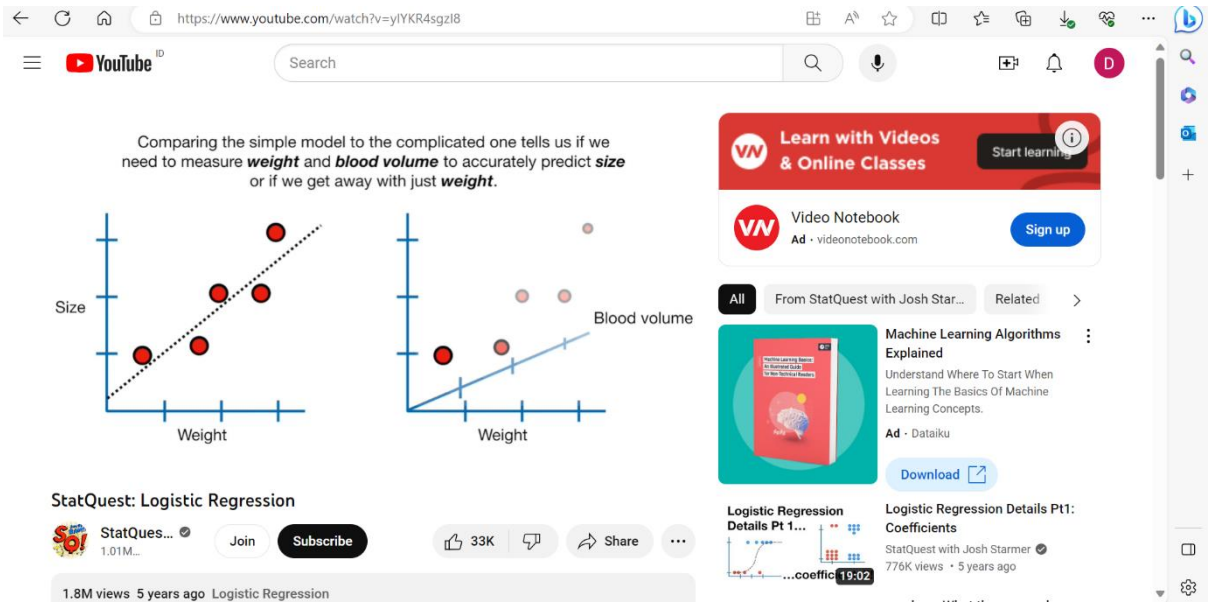
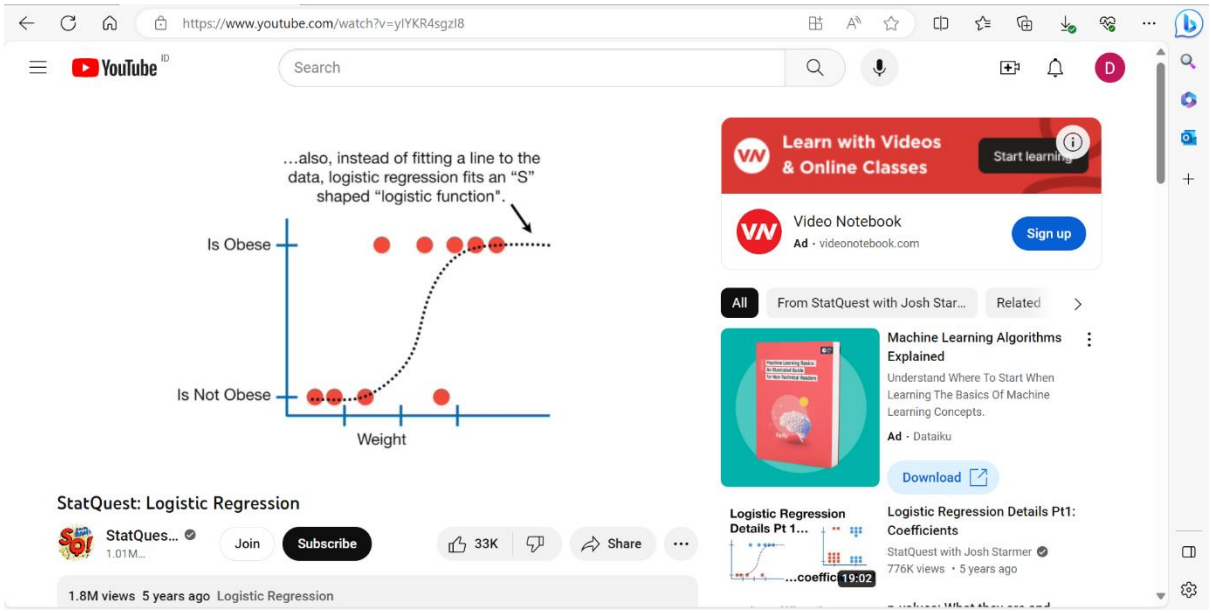


- Logistic regression review



Step a step how to perform logistic regression:

- Data collection: gather a dataset that contains predictor variables (independent variables and dependent variables)
- Data prepocessing
- Split the data: divide the dataset into two parts, a training set and a testing (or validation) set.
- Model building: fit a logistic regression model to the training data.
- Model training: use the training data to estimate the coefficients value using an optimization algorithm

- Model evaluation: assess the performance of logistic regression model using the testing or validation data
- Interpretation: examine the estimated coefficients to understand the impact of each independent variable
- Predicitions
- Deployment