Explainable AI: Lab 1

## Introduction:

The easiest way to achieve interpretability is to use only a subset of algorithms that create interpretable models. Linear regression, logistic regression and the decision tree are commonly used interpretable models. In this lab you will work with different datasets to see how these work.

## Learning outcomes:

* In this lab you will learn to apply inherently interpretable XAI models
* You will learn to analyze a dataset and information needs to identify which XAI model you need (e.g., linear versus logistic regression; which assumptions are violated)
* You will learn how to understand the outputs of explainable models including model fit and confidence intervals

## Instructions:

Links to tool kits and data are listed below.

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## Resources

### Data

[**Statlog (German Credit Data) Data Set**:](https://archive.ics.uci.edu/ml/datasets/Statlog+(German+Credit+Data))

Data from the Medical Expenditure Panel Survey ([2015](https://meps.ahrq.gov/mepsweb/data_stats/download_data_files_detail.jsp?cboPufNumber=HC-181) and [2016](https://meps.ahrq.gov/mepsweb/data_stats/download_data_files_detail.jsp?cboPufNumber=HC-192)) -- Data File, ASCII format

### Tool kits

Python

AIF 360

https://github.com/Trusted-AI/AIF360

### R

Run r snippets: <https://rdrr.io/snippets/>

Rstudio:

Lm – linear regression <https://stat.ethz.ch/R-manual/R-devel/library/stats/html/effects.html>

Coefficients <https://stat.ethz.ch/R-manual/R-devel/library/stats/html/coef.html>

Glm – logistic regression

Interpreting: https://feliperego.github.io/blog/2015/10/23/Interpreting-Model-Output-In-R

## Products

Keep notes when completing the tasks. **Make sure you save your notes in a safe place where all team members have access to them.**

These will not be submitted, but make sure that these are readable for the teaching assistants. This will be useful for getting feedback, as well as supporting you in future labs.

## Supervision and help

Teaching assistants (s) will be available to answer questions and supply feedback.

Outside of lab hours, teaching assistants are also available via Discord.