**Problem Statement:** How can healthcare providers predict heart failure with > 85% accuracy among individuals when their medical records are available?

**Context:** Cardiovascular diseases (CVDs) led to nearly 17.9 million deaths in 2019, which account for 32% of all global deaths. Nearly 85% of them were because of heart attack and stroke. Several health issues may serve as precursors to CVDs and heart failure/stroke. A model that can predict heart failure in patients can lead to early management of the problem and help in reducing the mortality rate. More information is available here: <https://www.who.int/news-room/fact-sheets/detail/cardiovascular-diseases-(cvds)>

**Criteria for success:** Given the medical record of an individual, predict heart failure with > 85% accuracy.

**Scope of solution space:** The data used in the project was collected over a few locations in the US and Europe. Thus, its analysis will likely be relevant to the patients from the US and Europe.

**Constraints:** The data and its predictive analysis are not time-sensitive, i.e., this project cannot predict “when” a CVD will likely cause heart failure.

**Stakeholders:**

1. Dr. Patrick Amoth -  Chair, Executive Board, World Health Organization
2. Xavier Becerra - US Secretary of Health and Human Services
3. Pascal Strupler - Director, Federal Office of Public Health, Switzerland

Data Sources: The following data set contains 11 features collected for > 900 individuals across the US, Hungary, and Switzerland:  <https://www.kaggle.com/fedesoriano/heart-failure-prediction>

**Project strategy:**Use regression analysis to predict heart failure in a patient. Compare Linear and Random Forest regressors. Employ other options if the models developed using the said regressors do not exceed the minimum accuracy requirement. Maximize accuracy by tuning hyperparameters.

**Deliverables:**

1. A Github repository containing work performed during each step of the project
2. A detailed project report
3. A presentation summarizing the work done