Machine Learning and Fair Lending Project Content

HMDA_22_Sample.csv: A 10% randomized dataset consisting of approximately $1.6 million observations. This data is used to create the various dashboards and the machine preliminary machine learning models.

HMDA 2022 Schema: This document contains various sheets explaining the content of variables and observations in the HMDA 2022 dataset.

Approved & Denied Model (Data Cleaning and Model Selection): Python code for data cleaning, various model training, and model selection based on multiple performance metrics.

Approved & Denied Model (Bias Removal on XGB Model): The Python code for bias removal on the best-performing model.

High-Priced Model (**Data Cleaning and Model Selection**): The Python code for data cleaning, various model training, and model selection based on multiple performance metrics.

High-Priced Model (Bias Removal on XGB Model): The Python code for bias removal on the best-performing model.

Pre_Approval_Denial_Debias: The clean dataset used to perform all the de-biasing techniques in the Approval and Denial model.

Pre_High_Priced_Debias: The clean dataset used to perform all the de-biasing techniques in the High-Priced model.

Approved & Denied De-Biasing Techniques: The Python code for running all the de-biasing techniques on the Approved & Denied Model.

High-Priced De-Biasing Techniques: The Python code for running all the de-biasing techniques on the High Priced Model.

Machine Learning Explainability and Fair Lending - Dynamic Model: The PowerPoint presentation incorporated live dashboard graphs into the presentations.

Machine Learning Explainability and fair lending - Static Model: The PowerPoint Presentation with the static versions of the dashboard if the dashboard is unable to load on the dynamic model.

HMDA Dashboard: PowerBI dashboard for the 2022 HMDA dataset. Requires PowerBI to open.

Machine Learning Explainability and Fair Lending Report Draft: Detailed report on data exploratory analysis, model selection, and de-biasing techniques.