Background

The National Fair Housing Alliance (NFHA) will host a hackathon under its Tech Equity Initiative to engage participants in creating solutions that remove bias from technologies in the housing and lending sectors. Based on three problem statements, NFHA hopes the hackathon will result in solutions that can be adopted to remove bias from our housing and lending sectors and create a fairer marketplace. We anticipate having up to 30 individuals from throughout the United States participating in this hackathon.

The Scope

The Tech Equity team will pose three problem statements related to appraisal bias, disparities in mortgage underwriting, and the use of protected data in machine learning models.

Problem Statements

**Appraisals**
The current home appraisal system creates disparities that disadvantage Black, Latino, Native, and other homeowners of color and help widen the racial wealth and homeownership gaps in the United States.

**Goal:** Promote the fair valuation of homes across all neighborhoods regardless of the racial composition of the area.

**Mortgage Underwriting**
2019 Home Mortgage Disclosure Data Act (HMDA) data shows Black, Latino, Native, Hawaiian, and Pacific Islander loan applicants are 40–80% more likely to be denied than their White counterparts nationally, and the disparity can be greater than 250% in certain metro areas.

**Goal:** Determine if similar patterns of disparities in mortgage underwriting exist in the 2020 and 2021 HMDA data.

**Algorithmic Fairness**
The Fair Housing Act (FHA) prohibits discrimination in the sale, rental, insuring, and financing of housing based on race, color, national origin, religion, sex, familial status, and disability.

**Goal:** Develop pairs of underwriting models — one in which race, gender, and age are used directly in the models and one in which they are not used — and compare the fairness of the paired models before and after using machine learning techniques like distribution matching or adversarial debiasing to mitigate potential bias in the models.