

## Sana Group

<u>Team Member Name</u>	<u>Year</u>	<u>Major</u>
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**Advisor(s):** Professor Michael Fricke

**Topic Title:** Ethical Banking: Overcoming Algorithmic Bias in Wells Fargo's Lending

**Audience:** Wells Fargo Bank Executive Leadership, AI, Fund Management, and R&D Teams.

### Sustainable Development Goal

SDG #10: Reduce inequality within and among countries.

### Executive Summary

Wells Fargo Bank is currently fighting two long-term company risks: a class-action lawsuit involving more than 100,000 claimants, and a reported \$168 million operating loss as of Q2 2025. Both risks trace back to failures in their automated mortgage underwriting infrastructure during the 2020-2021 refinancing boom. The accelerated deployment of the LIFE and CORE AI systems prioritized speed over model transparency and fairness, producing the widest racial approval gap among major lenders, with only 47% of black applicants approved compared to 72% of white applicants. At the technical level, the reliance on black-box modeling and proxy variables created conditions for digital redlining, where minority applicants with similar financial profiles to white applicants experienced different pricing outcomes or outright denials. With increased AI regulations from the Equal Credit Opportunity Act and Colorado AI Act, Wells Fargo could face additional backlash for years to come if it cannot fully explain the AI models' parameters and decision making. Beyond regulatory liability, the issue highlights the structural & racial barriers embedded into multiple automated underwriting processes, increasing overall inequality while raising ethical concerns regarding customer trust in Wells Fargo's transparency and fiduciary integrity.

To address these concerns, Sana Group proposes a three-part solution to remedy the systems' unintentional digital redlining, provide explainability to the algorithms' decisions, and ensure loan agents can audit and verify reports when discrepancies arise. Our proposition starts with a focused explainability layer built into the already functioning LIFE algorithm that lists the three highest weighted factors in the algorithm's decision process. Following this addition will be a new explainable AI driven preliminary reasoning model that reads the LIFE algorithms' report and assigns a confidence variable that can trigger a loan agent verification, known as the Human-In-The-Loop (HITL) system. Additionally, an AI focused bias and proxy variable detection system will be implemented to satisfy compliance and help audit Wells Fargo's decisions. Lastly, a "rejected applicants" database will be created for the AI team to test against semi-annually when verifying algorithm competence.