AI bias has resulted in real-world consequences across multiple sectors. This document analyzes major case studies demonstrating the effects of bias in machine learning.

Hiring and employment: Amazon's hiring algorithm (2018) showed gender bias, downgrading female candidates due to past hiring patterns. This case demonstrated how ML models can reinforce historical inequalities if trained on biased datasets.

Law enforcement and criminal justice: The COMPAS algorithm used for criminal sentencing showed racial bias, falsely labeling Black defendants as high risk at twice the rate of white defendants. This sparked concerns over AI-driven legal discrimination.

Healthcare disparities: A healthcare risk-prediction algorithm exhibited racial bias, allocating fewer resources to Black patients with similar health conditions as white patients. This highlights the risk of biased AI in critical decision-making areas.

Financial sector: AI-driven credit scoring systems demonstrated bias against minority communities, leading to disproportionate loan denials. Such biases underscore the need for transparency in AI-based financial decisions.