

## Title

Flood Risk Areas and their Relation to Poverty in Houston

## Team

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## Abstract

This project assesses the levels of flood risk of urban areas in Houston, Texas and its relation to poverty levels in the same area. This project is important because it shows what demographics of people are disproportionately affected by flooding and natural disasters, an increasingly important subject in the face of climate change. The need for flood preventative measures can also be assessed from these maps for the areas that need it most.

The aim of this study is to see if there is a direct link between low-income neighborhoods and high-risk flood zones in Houston by utilizing FEMA's floodplain maps and CDC's socioeconomic vulnerability index of Houston for the benefit of highlighting these low-resource areas of high-risk and low affluence for crisis management to improve hazard mitigation. We used ArcGIS Pro to make a composite map that illustrates areas of vulnerability and flood zones, while a regression analysis developed a quantified chart that depicts vulnerability levels to flood exposure.

With both low- and high-income communities exhibiting significant overlap with flood-prone zones, the data reveal that floodplain exposure is dispersed quite evenly across socioeconomic groups, which is contrary to early expectations. These results point to the necessity of equitable resource distribution and sophisticated flood preparedness in order to successfully reduce risks, indicating a more complicated relationship between wealth and flood risk than first thought.