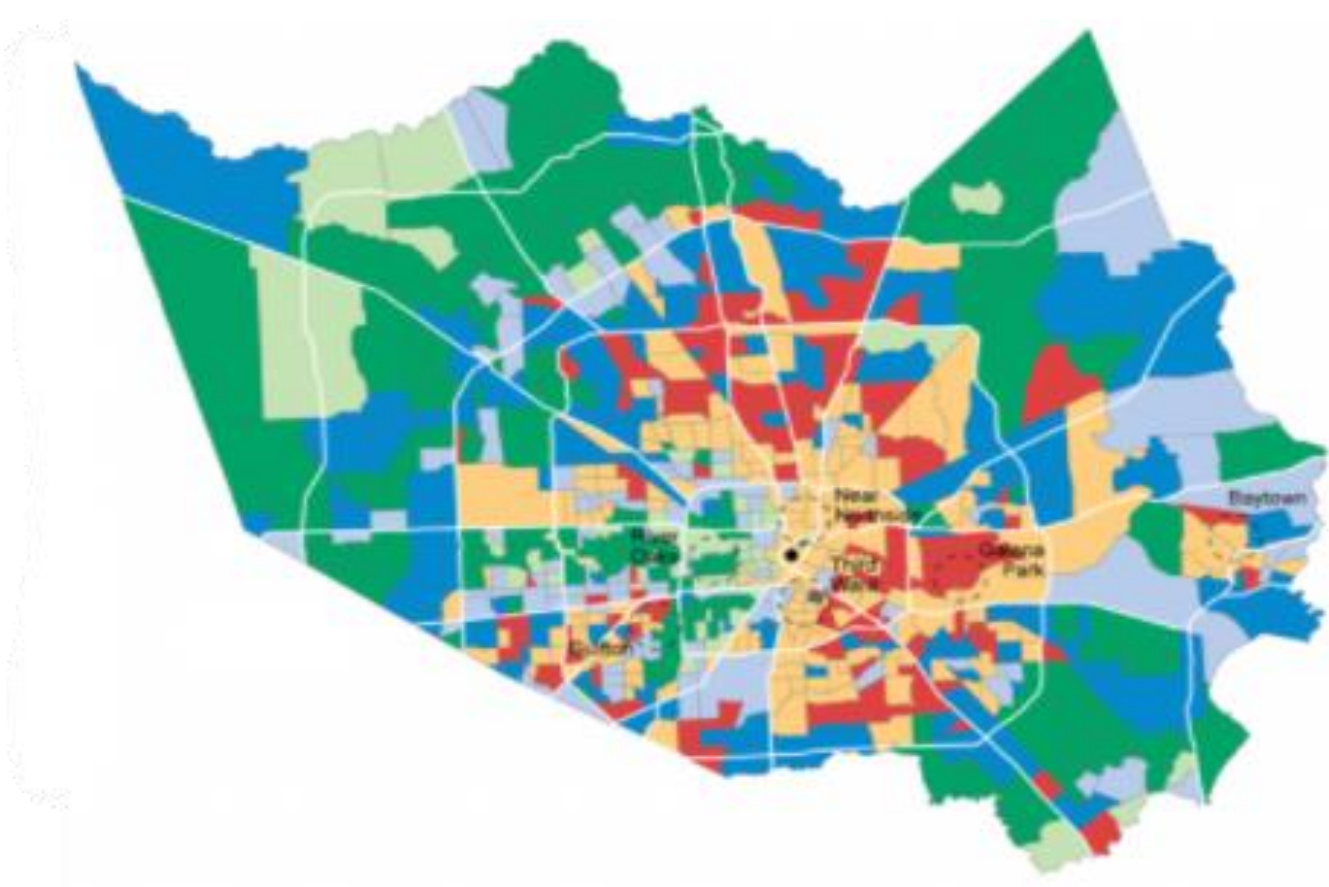
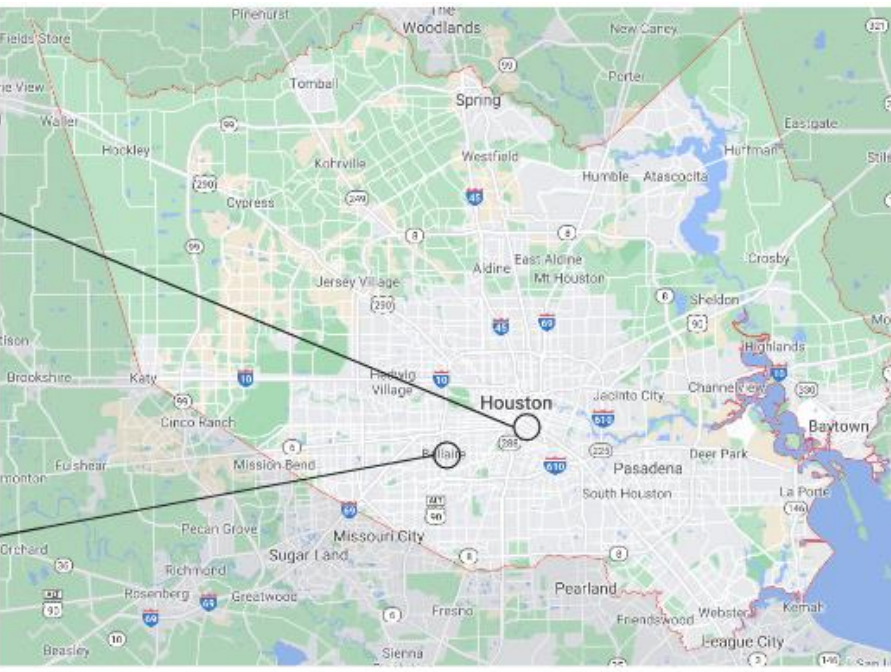


Introduction	
While Houston is considered one of the most diverse cities in the world, there are many disparities present. Multiple maps show that Houston is separated along racial lines, where one group holds the majority in those zipcodes. Similarly, income levels in certain zip codes are separated in accordance to the location of the racial communities. Due to this, there is a general trend of White communities having higher incomes than Hispanic and Black communities. Likewise, better healthcare access is also associated with zip codes of higher income and White communities. This provides proof that these socioeconomic factors greatly impact the inequities present in Houston.	
	
Abstract	
Houston, the 4th largest city in the U.S., is a frontrunner in health-related inequities in this country. When observing the better health outcomes in the outer zip codes of the city compared to the worse health outcomes in inner-city zip codes, the difference can be attributed to the socioeconomic factors of the individuals in these zip codes. During the COVID-19 pandemic, the effects of these disparities were put on center stage. As of 2/27/2022, there are a total of 869,964 cases, which is about double the amount in 8/31/2021 when there were a total 447,115 cases. In fact, this increase in the number of cases makes this topic more prevalent. We plan to take into account the following socioeconomic factors: race, income, and zip code to show the impact on the COVID-19 cases in Harris County from August 2021 to February 2022. The COVID-19 pandemic has made these inequities far more evident. Socioeconomic factors, that is, an individual’s social and economic standing, have a profound effect on their health. The highest COVID-19 infection rates were found to be those of low income, African Americans and Hispanics, and those who live in inner-city zip codes. Using this information, we will be able to come up with a map that would illustrate the most at-risk zip codes for infection based on socioeconomic factors, which would help us not only for COVID-19 but also for understanding future outbreaks.	
Findings	Proposed Methods
• There is 3.78x the household income in Bellaire than the Third Ward when both locations are just 8.5 miles apart • The Third Ward has a higher number of active cases and deaths resulting from COVID-19 when compared to Bellaire • In August 2021, Bellaire had a total of 965 COVID-19 cases reported in the population of 19283. Meanwhile, the third ward has a total of 2235 cases reported in a population of 36959. The ratio of COVID-19 cases to the total population is greater in the Third Ward. By February 2022, the Third Ward had a total of 5225 cases and Bellaire had 2304 cases. Even in February 2022, the Third Ward still had a higher total number of cases to total population ratio than Bellaire. • As of 2019, the majority of the population in the Third Ward is Black while the majority of the population in Bellaire • As of 9/1/2020, 54% of the deaths caused by COVID were among the Hispanic population, 23% of the deaths were among the Black population, 17% were among the white population, and 6% were among the Asian population. Meanwhile, Hispanics make up 45 % of the Houston population, Blacks make up 23 %, Whites make up 25 %, and Asians make up 7 % of the Houston population.	• We propose to utilize the Harris County Public Health Data and Houston State of Health Data on COVID-19 cases by income, race, and zip codes. • Our focus is mainly on the zipcodes 77004 (Third Ward) and 77401 (Bellaire) when it comes to the impact of race, income, and zipcode on the number of COVID-19 cases • Analyze trends in race and income by zip code to create a multicolor infection risk map
	Representative image of Third Ward residential area  Representative image of Bellaire residential area 
Future Implications	
• Facilitates future funding for the government • Informs people if they are at a higher risk for COVID-19 • Data would be viable for use with future pathogens/pandemics	
Acknowledgements	
We would like to thank the Office of Undergraduate Research and the 2021 HERE program faculty and speakers including: Dr. Rikki Bettinger, Dr. Stuart Long, Dr. Marc Hanke, and our fellow seminar group members • Download COVID Cases By Zip Codes. (2022, March 1). Harris County Public Health. https://covid-harriscounty.hub.arcgis.com/maps/081f346d4b9b43d88fcdc79e2e6c4517_0 • Download Weekly Case Count by Race/Ethnicity. (2022, March 1). Harris County Public Health. https://covid-harriscounty.hub.arcgis.com/datasets/b57a61798f854181adc9408e7fbb0354/explore • Total Case Counts. (2022, March 1). Harris County Public Health. https://covid-harriscounty.hub.arcgis.com/pages/cumulative-data • Bikovitz, K. (2016, December 28). Houston in 2016, As Told Through 5 Maps. The Kinder Institute for Urban Research. https://kinder.rice.edu/2016/12/28/houston-in-2016-as-told-through-5-maps • Photos derived from Google Maps	