

# Spatial Data and Mapping Exam

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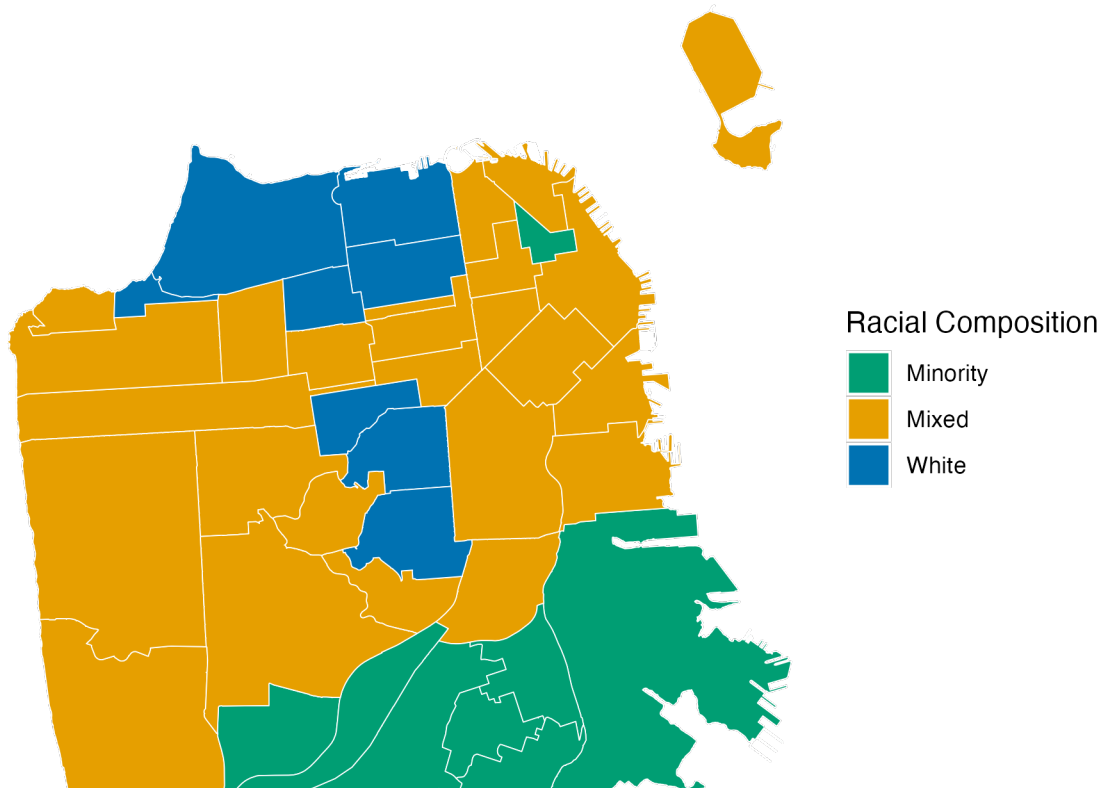


Figure 1: Neighborhood Racial Typology in San Francisco

## 5. [text] Discuss neighborhood racial typology in San Francisco in your text document.

Figure 1 illustrates the racial composition of San Francisco neighborhoods. The localization of these neighborhoods are not random, the concentration of population in certain areas are often explained by a combination of historical, economic, cultural, and social factors.

The eight neighborhoods highlighted in green are categorized as minority-dominated and are primarily concentrated in the southeastern area of San Francisco. These areas include Bayview-Hunters Point and Visitacion Valley, which are historically known for their high-proportion of non-white populations, including Asian, African-american, and Latino communities. However, Chinatown located in the northeastern of San Francisco, stands out as a minority neighborhood surrounded by a mixed neighborhoods.

The twenty-five neighborhoods highlighted in orange have a relatively balanced composition and are con-

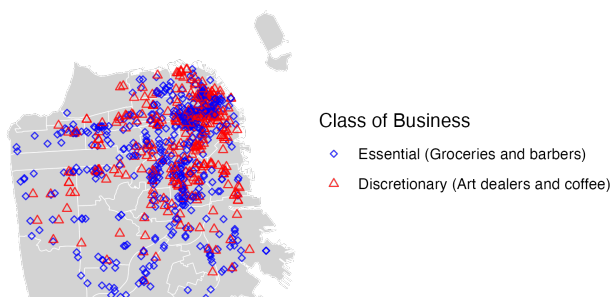
centrated mainly in the central areas of San Francisco. Some of the neighborhoods in this area are Mission District, Bernal Heights, and Potrero Hill.

Lastly, the remaining eight neighborhoods, are mainly inhabited by white population and are concentrated at central and northern parts of San Francisco. Some examples are Pacific Heights, Seacliff, and Castro/Upper Market.

**6. [text] Insert your map into the text document. Discuss the pros and cons of each map. Combining information from both maps, describe the patterns of local businesses in San Francisco.**

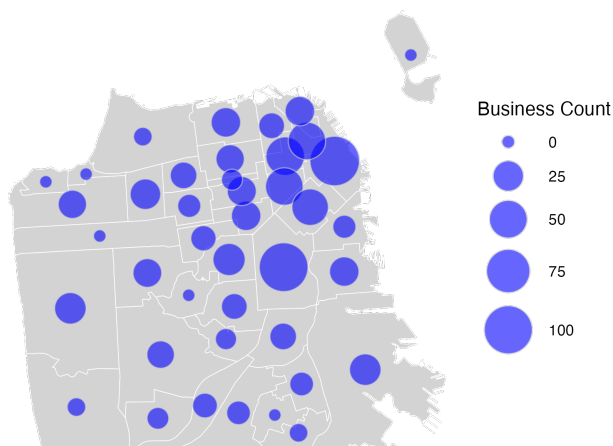
**Symbol Map**

Business in San Francisco



**PropSymbol Map**

Proportional Symbol Map of Business in San Francisco



Even though both maps are denoting a quantitative measure of businesses in San Francisco, the granularity of information we can extract from each one differs. The Proportional Symbol Map makes it easy to identify neighborhoods with the highest concentration of businesses and provides a clear understanding of the total number of businesses. For example, it is evident that most businesses are concentrated in the northeastern part of San Francisco, with neighborhoods containing between 50 to 100 businesses. However, having a number for a geographical place do not give enough information of where in the neighborhood these businesses are located. In contrast, the Symbol Map serves the purpose of identifying where businesses are distributed but does not provide specific information on their total counts in each neighborhood. If a more detailed look at the exact locations of businesses within a neighborhood is needed, the Symbol Map is useful as it provides localized information.

From these maps, it is clear that most businesses are concentrated in mixed and predominantly white areas. In the more affluent neighborhoods, there is a higher proportion of discretionary businesses compared to minority-dominated neighborhoods. This may indicate that business owners strategically locate discretionary businesses, such as art dealers and coffee shops, in areas where they expect higher willingness to pay for such goods and services. On the other hand, businesses located in minority neighborhoods predominantly consist of essential businesses, such as grocery stores and barbers. This concentration of essential businesses in minority neighborhoods could present challenges for residents. First, the limited variety of goods and services available might restrict consumer choices, potentially leading to higher prices due to reduced competition. Second, it may place additional pressure on residents' mobility patterns, forcing them to travel to other areas to access a broader range of products and services.

hinatown is an exception among minority neighborhoods, exhibiting a high density of businesses. However, it remains unclear whether these businesses are predominantly essential or discretionary. A decomposition of business counts by type is needed to answer this more granular question. In general, minority neighborhoods show significantly fewer discretionary businesses, which raises questions about economic opportunities and

urban planning strategies.

**3. [text] Insert the table of four San Francisco neighborhoods created above into the text document. Discuss their nearest cultural districts and their racial compositions.**

Table 1: Nearest Cultural Districts and Racial Compositions of Selected Neighborhoods in San Francisco

Neighb.	Cultural District	Distance to Cultural District (m)	White Population Proportion	Black Population Proportion	Asian Population Proportion	Hispanic Population Proportion
Bayview Hunters Point	African American Arts & Cultural District	136.9810	5.657989	45.322281	26.272493	16.296813
Castro/Upper Market	Castro LGBTQ Cultural District	287.8164	77.062002	2.860599	7.258980	9.031316
Potrero Hill	Calle 24 Latino Cultural District	1807.7362	59.447923	15.983681	7.730981	11.240751
Outer Richmond	Sunset Chinese Cultural District	3150.6398	45.024005	1.462736	45.358281	4.394939

The four neighborhoods presented in Table 1 represent a diverse mix of demographic profiles, including predominantly Black, predominantly White, and racially mixed neighborhoods.

Bayview Hunters Point: This neighborhood is predominantly Black (45.3%) and has the shortest distance to its closest cultural district, the African American Arts & Cultural District. The proximity suggests a strong geographical and cultural connection, potentially indicating the district’s role in preserving and celebrating the history, traditions, and community functions of the Black population in the area.

Castro/Upper Market: Predominantly White (77.1%), this neighborhood’s nearest cultural district is the Castro LGBTQ Cultural District. Due to the dataset’s lack of information on gender identities or sexual orientations, it is unclear whether the residents of Castro/Upper Market could be closely tied to the district. This raises questions about whether the district effectively serves its purpose of fostering and uniting the LGBTQ+ community or if it primarily acts as a historical or symbolic space.

Potrero Hill: While this neighborhood has a majority White population (59.4%), its closest cultural district is the Calle 24 Latino Cultural District, with the Hispanic population in the neighborhood accounting for only 11.2%. Further analysis is needed to determine whether this cultural district was established before or after a gentrification process. Understanding these dynamics could shed light on whether the Latino or Hispanic community has been displaced from this area over time or if they still engage with the cultural district.

Outer Richmond: This is a racially mixed neighborhood, with nearly equal proportions of Asian (45.3%) and White populations (45.0%), and its closest cultural district is the Sunset Chinese Cultural District. While the significant Asian population likely contributes to the maintenance and preservation of this district, it would be interesting to explore whether the White population has been increasing in recent years. Investigating these dynamics could provide insights into phenomena such as demographic shifts, cultural assimilation or preservation, or gentrification.