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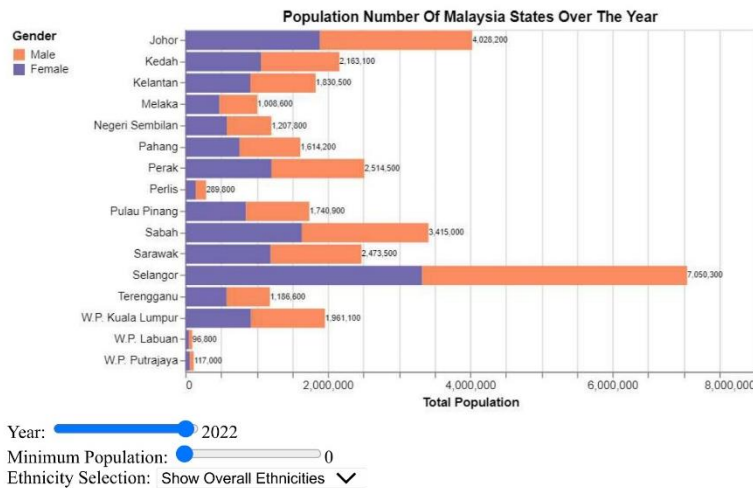
Tutor Name: Dr. Ting Chai Wen  
Lab: 01 (10am Wed)

## Task 1:

### POPULATION VISUALIZATION IN MALAYSIA

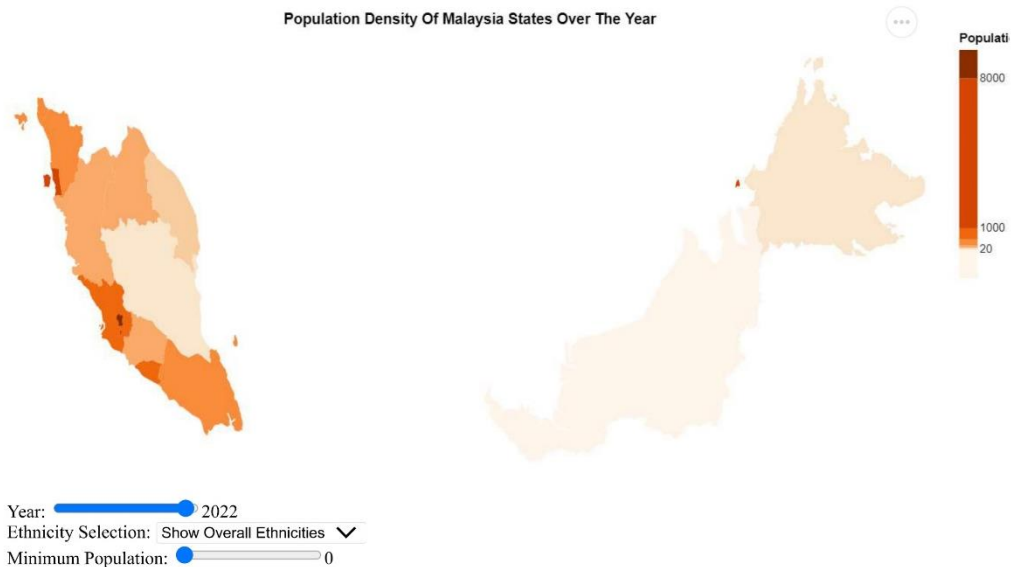
#### Population Number by States

This bar chart shows the total population in various states of Malaysia, filtered by year, population number, and ethnicity.



#### Population Density by States

The choropleth map visualizes the population density across Malaysia's states.



## Task 2:

Link: <https://lixuan-how.github.io/3179/Project%202/Week%2010%20Homework/>

### Domain:

The population of Malaysia's State over the years (1970-2024). It specifically visualizes data related to population numbers by states, genders and ethnicity over years.

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**Attribute types:**

Categorical Attribute: state, sex, ethnicity, land\_size\_sq\_km

Ordered Attribute: Year

Quantitative Attribute: population\_thousands, population\_density

**Source and author:**

Link for original population dataset: [https://data.gov.my/data-catalogue/population\\_state](https://data.gov.my/data-catalogue/population_state)

The datasets are provided by the Department of Statistics Malaysia (DOSM).

The population dataset includes population data from 1970 to 2024, with breakdowns by sex, age group, and ethnicity at the state level.

**Data Transformation:**

I normalized the population data and calculated population density by dividing population figures by land area. This transformed data was saved into a new CSV file to create a more meaningful visualization.

**Justification for Visualization Idioms:**

- I chose to create a **choropleth map** rather than a proportional symbol or dot map because it provides a clearer analysis of the population trends across Malaysia over the years. The choropleth map effectively shows regional population density through color gradients, making it easy to compare states.
- I also selected a **stacked bar chart** to visualize the population distribution by gender and ethnicity across different states. The stacked format enables a clear comparison of the breakdown between genders and ethnicities within each state.