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GEOG 28602: Final Project Proposal

Background of the Work

The 2015 General Election in Singapore was a landslide victory for the ruling People's Action Party (PAP), which consolidated its political power by winning 83 out of 89 seats contested. This was a stark contrast to the 2011 General Elections, where it only attained 60% of all the votes — marking it the party's worst ever performance since the country's independence. It is in this project's interest to be able to understand and visualize how key socio-economic factors such as level of education attained, as well as gross monthly income, can affect voting patterns, particularly within electoral boundaries in an election year.

However, what makes this visualization incrementally difficult is that Singapore does not publicize or share data categorized by electoral boundaries. Unlike American census data where one can aggregate tract level data to state level and visualize on a map election patterns across the country, Singapore does not have a similar data synthesis process. By virtue of being a city-state, the country is split into 'planning areas' by the Urban Redevelopment Authority (URA). Census information is collected at the planning area level, but these planning areas are not congruent with the electoral boundaries set in place by the Elections Department (ELD). This leads to our inability to map out differences in indicators across electoral boundaries.

Goals and Objectives

I am interested in examining the spatial distribution of income and education within Singapore's electoral boundaries, specifically in the 2015 General Elections. The final product will be an R Shiny App (a GIS dashboard, if you will) that allows the users to:

- View data tables about their electoral boundaries
- Interact with a map that shows the distribution of income and education level across electoral boundaries
- Statistically show correlation between income levels against voting percentage patterns

Underlying the above goals and objectives, fundamental to the project is to develop a framework to transpose the electoral boundaries to the boundaries of the Singapore Planning Areas. Developing such a framework will allow us to examine changes of electoral boundaries, the associated indicators across more dimensions such as time.

Data Plan and Definitions

Data will be sourced mostly from data.gov.sg, which is a data portal by the Government of Singapore's technological division (GovTech). Data.gov.sg is updated on a very regular basis, and has an open data license which allows for analysis and free downloading of the datasets required.

Preliminarily, we will obtain the following datasets from the portal:

Dataset Name	File Type	Direct Link

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Electoral Boundary 2015	GEOJSON	https://data.gov.sg/dataset/electoral-boundary-2015
Resident Population Aged 15 Years and Over by Planning Area and Highest Qualification Attained, 2015	CSV	https://data.gov.sg/dataset/resident-population-aged-15-years-and-over-by-planning-area-and-highest-qualification-attained-2015
Resident Working Persons Aged 15 Years and Over by Planning Area and Gross Monthly Income from Work, 2015	CSV	https://data.gov.sg/dataset/resident-working-persons-aged-15-years-over-by-planning-area-gross-monthly-income-from-work-2015
Master Plan 2014 Planning Area Boundary	SHP	https://data.gov.sg/dataset/master-plan-2014-planning-area-boundary-web?resource_id=2ab23cb2-b1a4-4b1a-a9e1-b9cad0ac159b

Timeline of Work (Week-by-week)

Week Number	**Tasks**	**Deliverable**
6	● Brainstorm ways to transpose data from planning area to boundary level ● Obtain feedback on project and scope (office hours)	A step-by-step **document** that clearly outlines the methodology and steps involved to transpose boundaries
7	● Conduct transposing of data through outlined method ● Troubleshooting	A cleaned dataset that can be used for visualization immediately (next week)
8	● Begin constructing R Shiny App Framework (Choose what elements to feature in the R Shiny App)	An initial draft of the R Shiny app
9	● Troubleshooting ● Finishing touches on R Shiny App ● Include a “storytelling element”	Completed R Shiny App and associated R Notebook