MONASH University

FIT3179 Assignment 2

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Studio: Tuesday 10a.m. - 12p.m.

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Visualisation Report - Mapping Malaysia's Economic Pulse

i. Domain, Why, and Who

This visualisation explores the **economic performance of Malaysia** between 2015 and 2023, focusing on **regional growth, sectoral composition, and labour trends**. The domain lies in **macroeconomic and regional development analysis**, aimed at uncovering disparities between states and highlighting the structural composition of the national economy.

The primary audience includes **students, policymakers, economists, and the general public** who wish to understand how Malaysia's economy evolves spatially and temporally. Policymakers can identify which states contribute most to GDP growth, while students and researchers can examine how sectoral shifts and unemployment patterns interact with national development.

The purpose is to transform raw statistical data into a **visually engaging, interactive dashboard** that encourages exploration rather than passive reading. By allowing users to filter, compare, and observe trends across multiple economic indicators, the dashboard promotes an intuitive understanding of Malaysia's economic landscape.

ii. What: The Data

The visualisation integrates three official datasets sourced from the **Department of Statistics Malaysia (DOSM)**.

1. **Real GDP by State and Sector (gdp_state_real_supply.csv)** – Contains 1,904 observations describing Malaysia's real GDP (in RM million at constant 2015 prices) by state, sector, and year.

2. **Nominal GDP by Sector (gdp_annual_nominal_supply.csv)** – Provides national GDP values at current prices, allowing comparison of growth trends between real and nominal measures.

3. **Labour Force Survey (lfs_month_duration.csv)** – Includes monthly unemployment statistics categorized by duration of job search, enabling analysis of short- and long-term unemployment.

All datasets are publicly accessible via DOSM's open-data portal, ensuring transparency, credibility, and relevance to current economic discussions. Data cleaning involved harmonizing state names across sources, extracting year values from date fields, and aggregating GDP across sectors for state-level totals. These preprocessing steps ensured consistent data integration across all charts.

iii. How: Design Rationale and Features

Visualisation: Mapping Malaysia's Economic Pulse

The dashboard employs four key visual idioms, each chosen to align with the user's analytical tasks:

- **Choropleth Map:** Displays real GDP distribution across Malaysian states using a blue color gradient. The map enables quick spatial comparison and includes an interactive **year slider** to reveal temporal shifts in regional output. Clicking a state dynamically updates the other charts, establishing a coordinated, exploratory workflow.

- **Line Chart:** Shows real GDP trends for the selected state over time. This temporal idiom supports the identification of growth trajectories, allowing users to detect acceleration or slowdown phases.

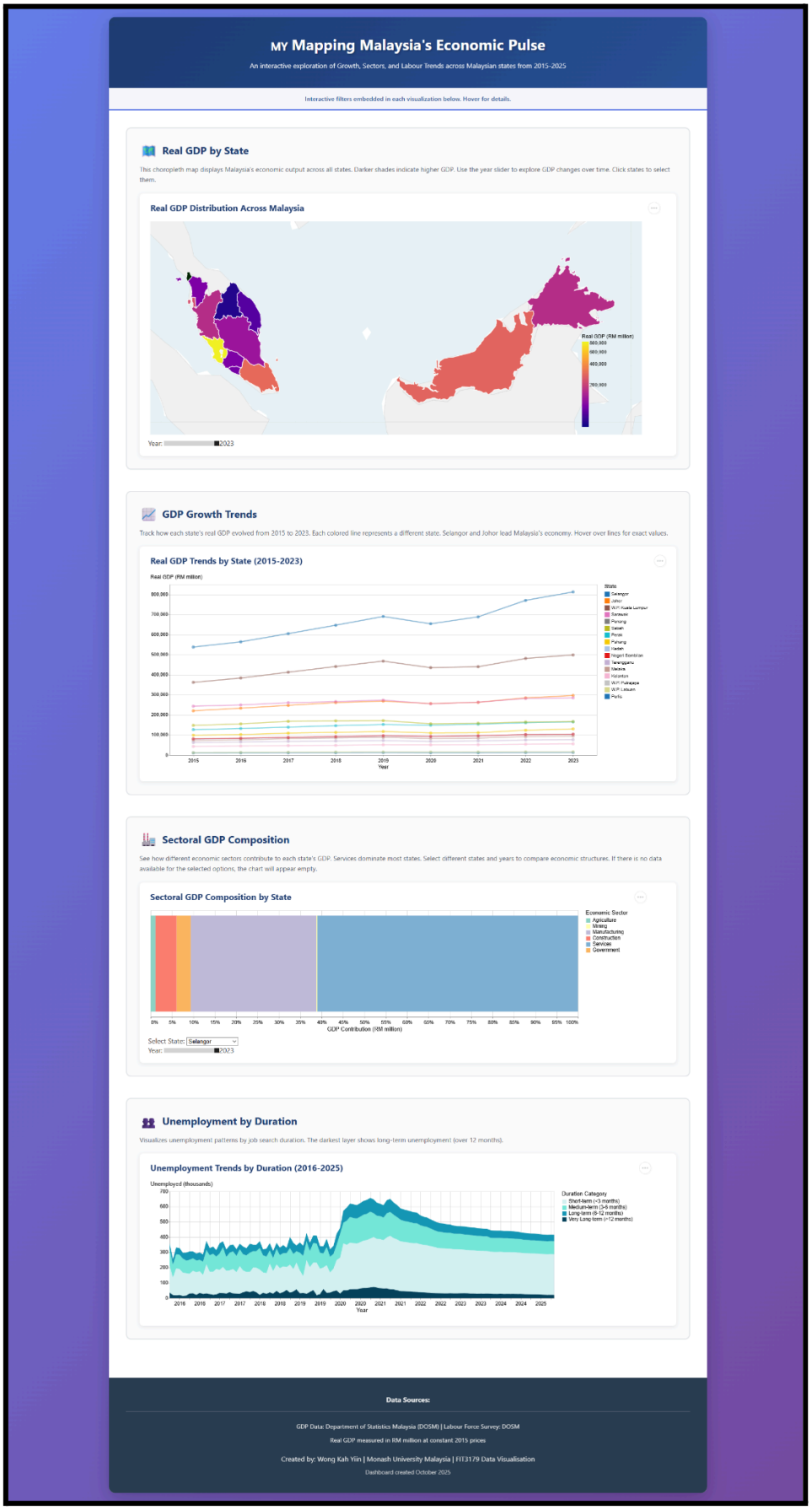
- **Stacked Bar Chart:** Illustrates the **sectoral composition** of each state's GDP, highlighting which industries (services, manufacturing, agriculture) dominate and how their contributions change over time.

- **Area Chart:** Depicts **unemployment by duration**, enabling users to compare short-term and long-term unemployment trends.

The interface was implemented using **Vega-Lite** and hosted via **GitHub Pages**, ensuring interactivity and accessibility without heavy computation. The dashboard includes custom elements such as an integrated **state selection filter**, **coordinated highlighting**, and a **responsive layout** with a modern color scheme and clear typographic hierarchy.

Overall, the chosen visual forms and design decisions transform statistical data into a coherent narrative, helping users visually grasp Malaysia's evolving economic pulse.

iv. Graph


MY Mapping Malaysia's Economic Pulse
An interactive exploration of Growth, Sectors, and Labour Trends across Malaysian states from 2015-2025
Interactive filters embedded in each visualization below. Hover for details.
Real GDP by State
This choropleth map displays Malaysia's economic output across all states. Darker shades indicate higher GDP. Use the year slider to explore GDP changes over time. Click states to select them.
Real GDP Distribution Across Malaysia
Real GDP (RM million)
Year: 2023
GDP Growth Trends
Track how each state's real GDP evolved from 2015 to 2023. Each colored line represents a different state. Selangor and Johor lead Malaysia's economy. Hover over lines for exact values.
Real GDP Trends by State (2015-2023)
Real GDP (RM million)
Year
Sectoral GDP Composition
See how different economic sectors contribute to each state's GDP. Services dominate most states. Select different states and years to compare economic structures. If there is no data available for the selected options, the chart will appear empty.
Sectoral GDP Composition by State
Economic Sector
Agriculture
Mining
Manufacturing
Construction
Services
Government
GDP Contribution (RM million)
Select State: Selangor
Year: 2023
Unemployment by Duration
Visualizes unemployment patterns by job search duration. The darkest layer shows long-term unemployment (over 12 months).
Unemployment Trends by Duration (2016-2025)
Unemployed (thousands)
Duration Category
Short-term (<3 months)
Medium-term (3-6 months)
Long-term (6-12 months)
Very Long-term (>12 months)
Year
Data Sources:
GDP Data: Department of Statistics Malaysia (DOSM) | Labour Force Survey: DOSM
Real GDP measured in RM million at constant 2015 prices
Created by: Wong Kah Yiin | Monash University Malaysia | FIT3179 Data Visualisation
Dashboard created October 2025