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Software/Tools needed:

- MS Visual Studio Code
- IBM Watson Studio
- IBM Cognos Analytics
- Terminal

Libraries needed:

- Pandas
- Matplotlib
- Folium
- Plotly express
- Dash (html, dcc)
- *Seaborn
- *NumPy
- *BeautifulSoup (for web scraping)

- Use GitHub to host the project

Potential Problem(s):

- hosting issue (if cannot host a website then try on Cognos Analytics to create dashboard)
- unable to access datasets

Possible Output Files:

- HTML file for the dashboard
- Excel worksheet for data tables, analysis, visuals
- Python notebook file for data wrangling, analysis, visuals
- Python coding file for dashboard

Topic Considered:

- Johor Population (total, male vs female, newborn by years, etc.)
- **OR**
- Malaysia Population/Crime Record/Immigrants etc.

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TOPIC 1: Newborn Trend in Malaysia (Overall)

Purpose: Display the newborn trend in Malaysia over the years and some key factors/correlated factors (not necessary causation)

Descriptive and diagnostic factors (from the perspective of social and economy)

Descriptive	**Diagnostic**
• Newborn and fertility rate by year (*line chart*) • Ratio of newborn to number of people in the age group suitable to give birth (20 – 40) compared by years (*area chart*) • Marriage percentage over population **OR** Marriage registered by year (*line chart*) • ~~Ratio of married to single (*area chart*)~~ • Marriage percentage for age 25 – 40/by race • ~~Number of people in the age group suitable to give birth compared by years (*line chart*)~~	• Income/annual salary by years (median/ mean, *line chart*) • GDP • Living cost by years (median/average, *line chart*) • Inflation • Unemployment rate • Tax • House price • Consumer goods price • Health indices like BMI by years (*line chart*) • Poverty by years (*line chart*) • Income inequality by years (*line chart*) • reasons of not getting marriage/birth (*wordcloud*)

Datasets required:

- Population by age group, ~~marital status~~ ✅
- Newborn/birth by year ✅
- Fertility rate by year ✅
- Marriage percentage OR Marriage registered by year ✅
- Income/annual salary by year ✅
- Living cost ✅
- Poverty ✅
- Income inequality ✅
- survey data of reasons of not getting married/pregnant
- health indices like BMI

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Datasets available on OpenDOSM:

Population	by year, state, age, sex, ethnicity
Fertility rate	by year, state
Marriage	by year, sex, marriage rate per 1000 unmarried population by sex
Birth	by year, state, sex, ethnicity
Income	mean and median by year, state
Expenditure	income (mean & median), expenditure and poverty by year, state
Poverty	by year, state
Income inequality	by year, state
GDP	
Consumer prices	

Dashboard layout concept draft:

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Newborn Trend in Malaysia

Total Newborn & Fertility Rate by Year
(Line Chart, 2 lines, 2 y-axis)

Number of Newborn & Fertile Adult by years
(Area Chart)

Marriage Registered by year
(Line Chart)

Income & Living Cost by years
(Line Chart, 2 lines)

Poverty & Income Inequality by year
(Line Chart, 2 lines, 2 y-axis)

Health Index by year
(Line Chart)

Reasons of not giving birth/marry
(wordcloud)

Data source: .....