Fakulti Sains Komputer Dan Matematik

# PREDICTIVE ANALYSIS COST OF LIVING IN MALAYSIA

**CS259 BACHELOR OF INFORMATION SYSTEMS (HONS.) INTELLIGENT SYSTEMS ENGINEERING**
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## INTRODUCTION

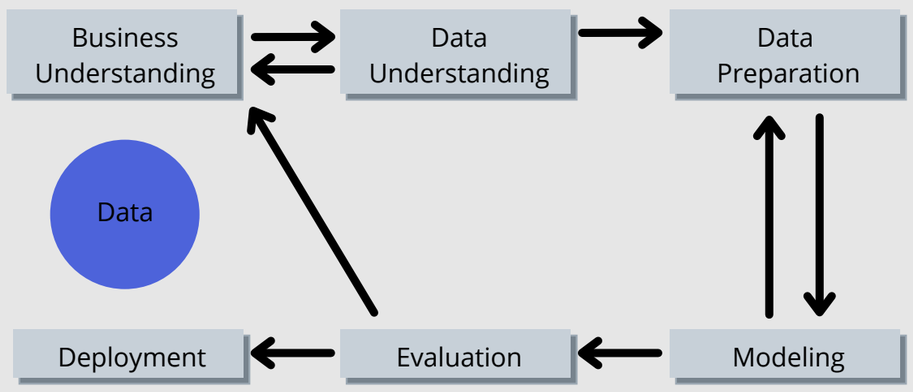
- The amount of money needed to cover basic expenses such as housing, food, taxes, and healthcare in a specific location and time is referred to as the cost of living (Banton, 2021)
- It is often used to identify the expenditure amount of living in one city compare to another city.
- Different area have different cost of goods, services and entertainment which depends on the economy and market (Lane, 2020).
- Cost of living is an index, therefore depending on where you reside, the specific spending may be greater or lower (Amadeo, 2021).

## PROBLEM STATEMENT

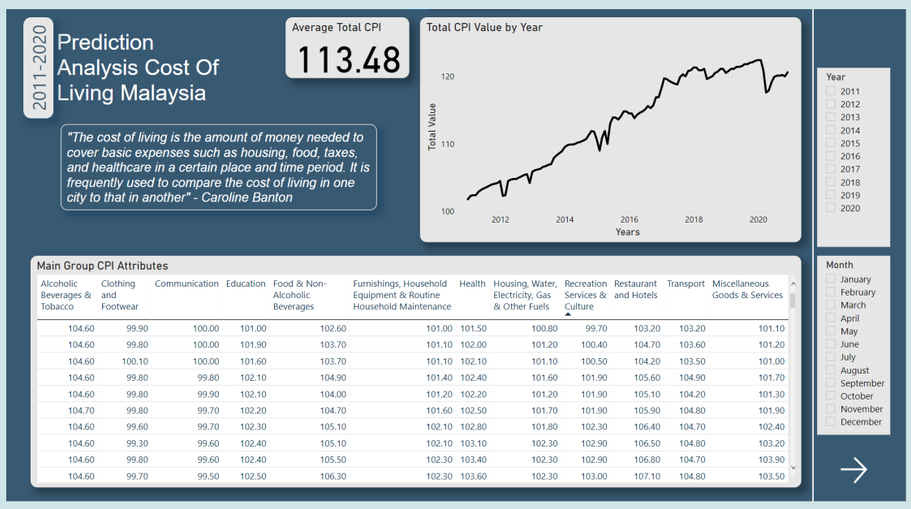
- Misleading information regarding cost of living issues confused the people who wants to gain information and knowledge of the issues
- Increasing price in food substances, and house pricing issues still being of the main issues in the community as both prices keep on rising over the past decades in Malaysia
- Essential items such as houses, food, and healthcare will get worse if there is no further action is being taking care

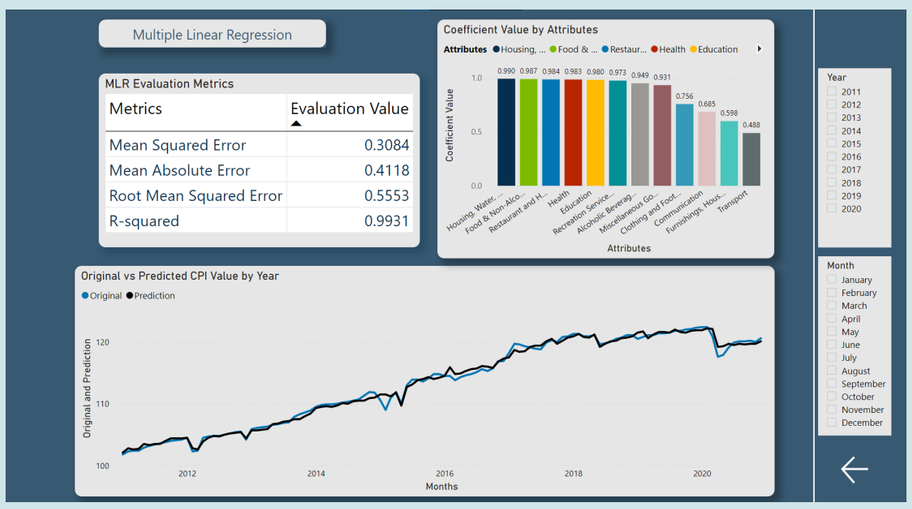
## METHODOLOGY

**CRISP-DM Architecture**




## DASHBOARD




## CONCLUSION

In brief, the project managed to accomplish all the research objectives stated earlier. The result of the predictive analysis is able to predict the consumer price index. Furthermore, the dashboard has displayed the prediction result and the data related to cost of living successfully. Overall, this project can be improved furthermore with better approach in future work.

## OBJECTIVES

- To identify the elements that are affecting the cost of living in Malaysia
- To construct the prediction analysis on the cost of living index in Malaysia using various Machine Learning methods
- To visualise the project results using dashboard

## SCOPE

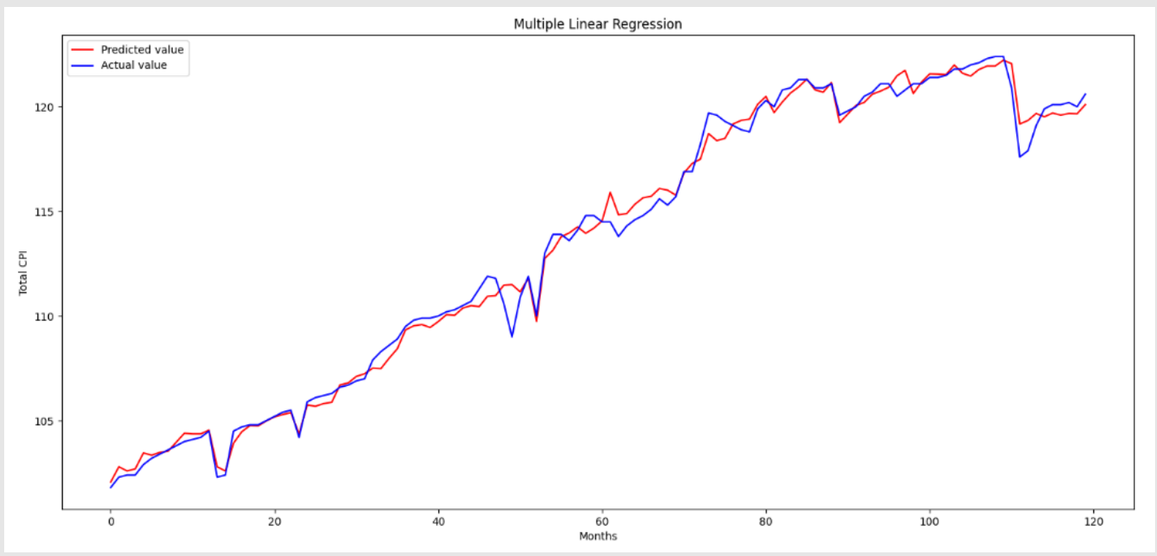
- Predictive analysis focuses on certain factor that will highly affect the cost of living in Malaysia
- The datasets are collected government portal page of Malaysia only
- Data to be obtained and analysed from 10-year span

## SIGNIFCANCE

- Users can identify and gain knowledge on what are the factor heavily affecting the cost of living in Malaysia
- The project can create awareness to the public to make a better choice on their financial status
- The project can increase the understanding of the user regarding the economy status of Malaysia

## RESULTS

| | Mean Absolute Error | Mean Squared Error | R-squared | Root Mean Squared Error |
|---|---|---|---|---|
| **Multiple Linear Regression** | 0.4118 | 0.3084 | 0.9931 | 0.5553 |
| **Simple Vector Regression Machine** | 0.9215 | 1.5068 | 0.9665 | 1.2275 |





- Multiple Linear Regression acquired the best evaluation metric result with the lowest value of mean absolute error, mean squared error, root mean squared error and the highest value of r-squared.
- Based on the graph of Multiple Linear Regression, the margin difference between the predicted line (red) and the actual line (blue) are smaller and the predicted line are closer to the actual line.
- This proved the first method of Multiple Linear Regression is the chosen model compared to the Simple Vector Regression Machine method.