

# Description of domain, who, what, why, how

## I. The domain, the why and The Who of the visualisation:

**Domain of this visualisation:** This visualisation focuses on the tourism sector in Malaysia, particularly analyzing trends and patterns in domestic and inbound tourism between 2019 and 2023.

It highlights how Malaysians and international visitors allocate their spending, choose accommodation types, and participate in different tourism-related activities.

### **Why:**

The purpose of this visualization is to provide an interactive, data-driven overview of Malaysia's tourism recovery and behavioral changes following the pandemic. It allows users to easily compare yearly patterns in expenditure, accommodation choices, and travel activities, helping identify which sectors of tourism are growing or declining.

**Who:** The target audience includes:

- Tourism industry stakeholders, including hotel operators, travel agencies, and airlines
- Researchers and students studying tourism, economics, or data analytics
- General public interested in understanding Malaysia's tourism trends

## II. What: the data:

The data for this visualization is sourced from the **Department of Statistics Malaysia (DOSM)**: <https://www.dosm.gov.my/portal-main/release-content/tourism-satellite-account-2023> and Tourism Malaysia:

[https://data.tourism.gov.my/frontend/pdf/New\\_Final\\_Malaysia%20Tourism%20Statistics%20in%20Brief%202024.pdf](https://data.tourism.gov.my/frontend/pdf/New_Final_Malaysia%20Tourism%20Statistics%20in%20Brief%202024.pdf)

The datasets include:

- Inbound and domestic tourism expenditure by product and service type (e.g., accommodation, transport, retail, food & beverage)
- Accommodation preferences of domestic visitors across years (e.g., hotels, homestays, chalets, relatives/friend houses)
- Breakdown of tourism-related spending such as cultural, recreational, and travel agency services

- Domestic visitors by state, showing regional tourism distribution across Malaysia
- Inbound visitors by country, highlighting key source markets for Malaysia's international tourism
- Visitor arrivals and transport modes, providing insight into how tourists enter and travel within Malaysia

These datasets together provide a comprehensive view of how tourists spend, stay, and move across Malaysia, enabling exploration of evolving tourism behaviors and regional trends over time.

Additionally, the Malaysia state shapefile used for mapping visualizations was obtained from: <https://www.igismap.com/download-malaysia-shapefile-area-map-free-country-boundary-state-polygon/>

### **iii. How: Visualisation rationale, idioms, channels, and marks**

#### **Visitor Arrivals (Line Chart)**

- Data Represented: Annual visitor arrivals to Malaysia from 2019 to 2024.
- Marks: Lines and points
- Channels:
- *x-axis* :Year
- *y-axis* :Number of visitor arrivals
- Rationale: Line charts are ideal for visualizing trends over time. This allows viewers to clearly observe the sharp decline during the pandemic (2020–2021) and the gradual recovery afterward.

#### **Inbound Visitors by Country (Horizontal Bar Chart)**

- Data Represented: Number of inbound visitors to Malaysia by country from 2019 to 2023.
- Marks: Rectangular bars
- Channels:
- *x-axis* :Number of inbound visitors
- *y-axis* : Country
- Rationale: Bar charts make it easy to compare categorical data such as visitor numbers across countries. It highlights Malaysia's major tourism markets and how their contributions changed across years.

#### **Transport Modes Used by Inbound Visitors (Donut Chart)**

- Data Represented: Proportion of inbound visitors by mode of transport (land, air, sea, rail) for each year.

- Marks: Arcs
- Channels:
- *Angle* : Proportion of total visitors per transport mode
- *Color* : Distinguishes different transport modes
- Rationale: The donut chart emphasizes proportions within a whole, clearly showing the dominance of land and air travel compared to other modes. The hollow center improves readability and provides a modern aesthetic.

### **Domestic Visitors by State (Proportional Symbol Map)**

- Data Represented: Number of domestic visitors in each Malaysian state from 2019 to 2023.
- Marks: Circles (placed over state centroids)
- Channels:
- *Size* : Represents the number of domestic visitors (larger circles indicate higher visitor counts)
- *Spatial position* : Corresponds to the geographical location of each state
- Rationale: The proportional symbol map provides an intuitive spatial comparison of tourism volume across states. Unlike a choropleth, it uses circle sizes to represent magnitude, allowing clear visual emphasis on states like Selangor with high visitor numbers and smaller circles for states like Labuan or Putrajaya, which receive fewer domestic visitors. This design minimizes issues with unequal state area sizes and improves perception of relative tourism intensity.

### **Accommodation Types Used by Domestic Visitors (Stacked Bar Chart)**

- Data Represented: Proportion of accommodation types (e.g., hotel, homestay, relatives/friends' house) from 2019–2023.
- Marks: Stacked rectangular bars
- Channels:
- *x-axis* : Year
- *y-axis* : Percentage or number of visitors
- *Color* : Accommodation type
- Rationale: The stacked bar chart allows direct comparison of multiple categories over time, showing shifts in preferences.

### **Tourism Expenditure Component (Pie Chart)**

- Data Represented: Composition of tourism expenditure (e.g., accommodation, transport, food & beverage, retail) across inbound and domestic categories.
- Marks: Arcs

- Channels:
- *Angle* : Proportion of expenditure category
- *Color* : Expenditure component type
- Rationale: A pie chart clearly shows relative contributions of each spending component to total tourism expenditure. It provides a quick overview of which sectors dominate Malaysia's tourism economy.