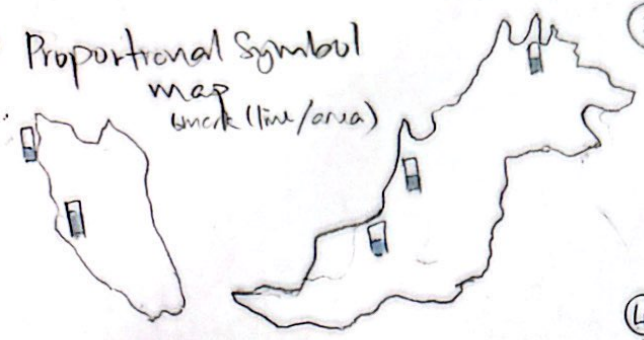
1. IDEAS

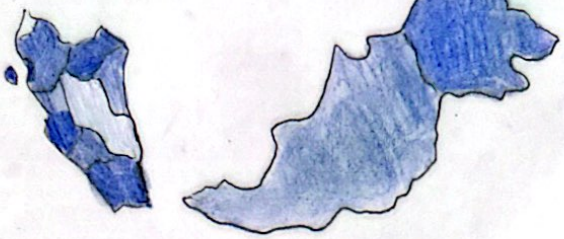
→ by months? by year?
↑ bar chart / area chart / line chart

→ by location?
↑ maps.

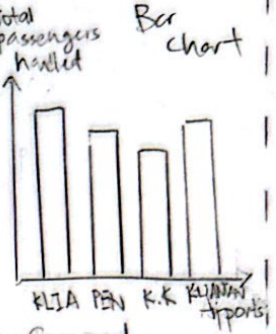
① Proportional Symbol map
thick (line/area)



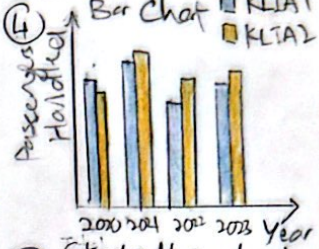
② Choropleth maps



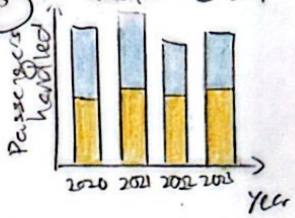
③ Bar chart



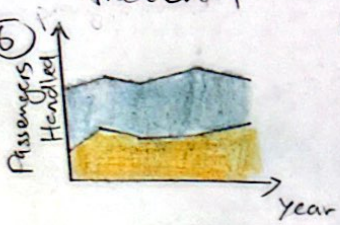
④ Grouped Bar Chart



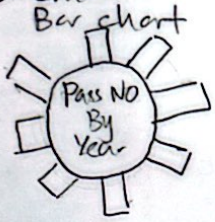
⑤ Stacked bar chart



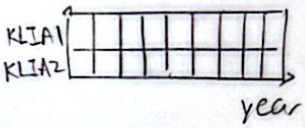
⑥ Area Chart



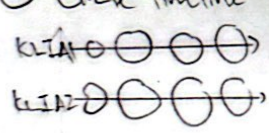
⑦ Circular Bar chart



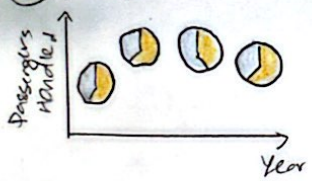
⑧ Heatmap



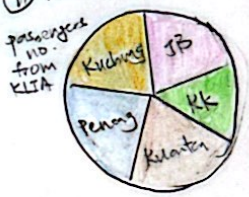
⑨ Circle Timeline



⑩ Bubble Chart (Pie)

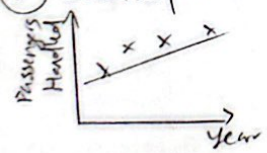


⑪ Pie Chart

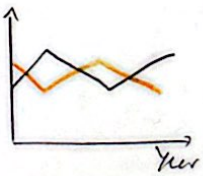


⑫ Radar Chart

⑬ Scatterplot



⑭



2. FILTER

Data Filter.
- Focusing on the 2023 part
- Since dataset obtained for coordinates (log/lat) is different from passengers dataset, inner join is required (combined KLIA 1 & 2
- another dataset for KLIA to other domestic airport
- another dataset for passengers handled by KLIA

IDEAS FILTER

② can be less effective to represent the airports even though most states have 1 airport at most (not for selangor & sarawak) compared to ①.

⑦, ⑧, ⑨, ⑩, ⑭ are less effective to compare the passengers handled between KLIA 1 & 2 over years compared to ⑭

① & ⑪ can be used to show the distribution of passengers from KLIA to other domestic airports

3. CATEGORIES

DS2 Geospatial Data Representation
① , ②

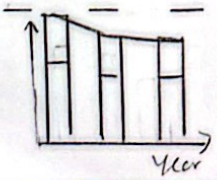
DS3: Time-Based Chart
③, ④, ⑤, ⑥, ⑦, ⑧, ⑨, ⑩, ⑬, ⑭

DS4. Distribution Chart
④, ⑤, ⑪, ⑫
to see domestic passengers travel.

4. COMBINE & REFINE

DS2:
① + ①
↑ Show all airports in Malaysia
↑ Show the direction and passengers from KLIA to other airports

DS3:



⑤ + ⑭ + ④
⑤ + ⑭: Show passengers over years
④: Show distribution of passengers in 2023

DS4: ① + ⑪ → Show the overall distribution of passengers in 2023
↑ Show direction of passengers travel

5. QUESTION

✓ Show spatial distribution of all airports
✓ See the part to whole relationship & compare the types of passengers handled
✓ Observe the passengers flow

Title: Airport Passengers Analysis in Malaysia 2023: Focusing on KLIA.

Author: Ho Khai Liang

Date: 15/9/2024

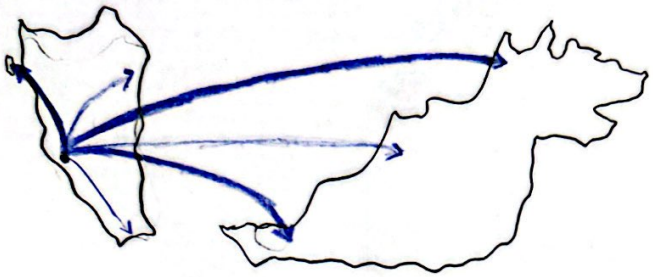
Sheet: 2

Task: show spatial distribution of all airports & the passenger flows.

Layout

Total Passengers & Flight handled by Airports in Malaysia 2023

Passengers flow from KLIA (1&2) to Other Domestic Airports



Operations

- Interact / Hover over each airport mark display airport informations.
- Zoom in and out options to observe airports that are close to each other

Focus

Both map use Proportional Symbol Map to showcase the spatial distribution of domestic airports and the passenger flows from KLIA.

map 1
- Color luminance (Depth) to represent the total commercial aircraft movements.
- latitude & longitude to plot the location of airports
- Circle size represents the total passengers handled

Map 2 → flight paths
- Use arrow strength (thickness) and color luminance to show the number of passengers from KLIA to other domestic airports.

can add airplane (size) to indicate the passenger number as well if possible

Discussion

+ easily locate the airports & compare among the airports by circle size and color

+ provides the overall and proportional symbol make it easy to grasp the relation of passengers volume quickly
+ Tooltips further provides the details of airports.

- The circle marks might overlap if airport are too close to each other geographically

- This map shows the overall passenger flow but does not show the international vs domestic passengers

Title: Airport Passengers Analysis in Malaysia 2023 : Focusing on KLIA

Author: Ho Khai Hang

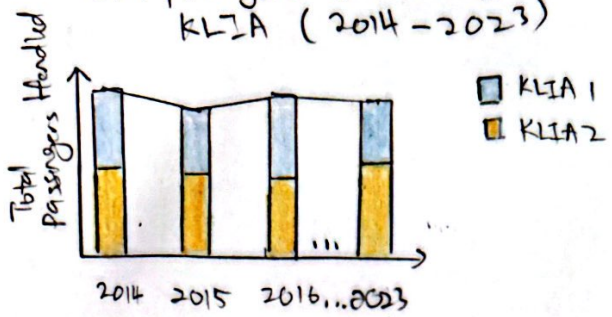
Date: 15/9/2024

Sheet : 3

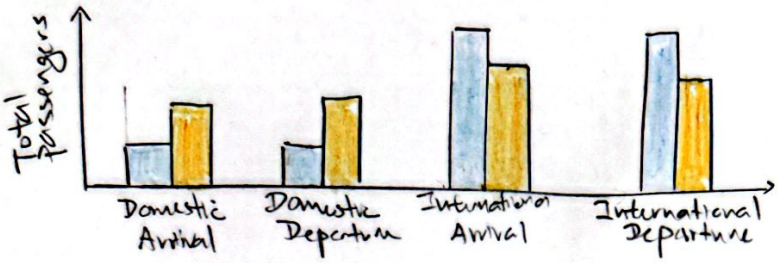
Task : See the KLIA terminal part-to-whole relationship & compare the types of passengers handled in 2023.

Layout.

Total passengers Handled by KLIA (2014-2023)



KLIA passengers breakdown in 2023



Focus

- Use Stacked Bar Chart + Line to show the part to whole relationships of each terminal to KLIA total passengers handled by year.
- Use Grouped Bar Chart to compare the terminal passengers by passengers types.

- Implement color hue to differentiate different KLIA terminal (1&2).
- Clicked on the (year) bars in the stacked bar chart will show simple bar chart of KLIA 1 and 2 passenger in that year.

Operations

- Option to select the bars of each year from the stacked bar chart and bar chart will be updated to show bar chart of that year.

Discussion

+ see trends and contribution of each terminals over years

+ provides details & side by side comparison of terminal 1 & 2 in each category.

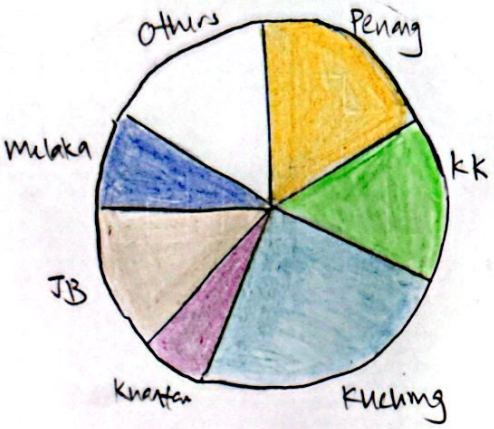
+ easily narrative narrowing down the scope from high level trends (2014-2023) to specific details in 2023 only.

- The shortage of dataset from 2014 to 2022 affected the limitation to showcase the passengers breakdown in those year.

Scanned with CamScanner

layout

Distribution of Domestic Passenger Flow 2023



Title: Airport Passengers Analysis in Malaysia 2023: Focusing on KLIA.

Author: Ho Khai Liang
Date: 15/7/2024
Sheet: 4

Task: Show the direction and distribution of passengers travel to other domestic airports in 2023.

Operations

- Hovering on an arrow show the tooltips of routes information and the number of passengers.
- Hovering over the circle will show tooltips like airport name and number of passengers.
- Zoom in option for the map.

Focus

- Use Proportional Symbol Map (lat, long) to show the passengers flows from KLIA to other domestic airports.
- Use Pie Chart to show the distribution of passenger flow in 2023.

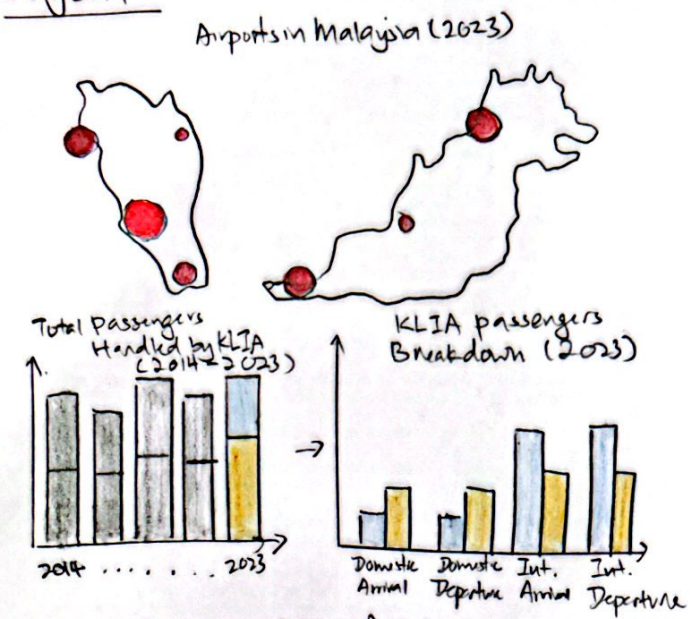
- Use arrow (flight path) strength (thickness) and color luminance to indicates the number of passengers from KLIA to other domestic airports.
- use colour hue and circle angle to represent the number of passengers from KLIA to the respective domestic airport.

Discussion.

+ Clearly shows the direction of the flight route and location of destination.
+ Shows the part-to-whole relationships for domestic passengers across Malaysia.
- Flight paths might overlap and become visually cluttered.
- Pie chart might be limited in its ability to show finer details or comparison.

Scanned with CamScanner

Layout



Title: Airport Passengers Analysis in Malaysia 2023 : Focusing on KLIA.

Author : Ho Khai Hang

Date : 15/9/2024

Sheet : 5

Task : Exploring the domestic passengers details from KLIA.

Operations

- Hover over each airport mark will display airport information.
- Zoom in / out to observe airport that are close to each other.

Focus

- Focus will change depending on the zoom in features.

- In the Stacked Bar chart, other bars are greyed to focus on 2023 information only.

- Tooltips will be used to states the details in every idioms

- Ideally in the second map (passengers flow), In addition to using arrow strength and colour luminance of the arrow, airplane logo can be added so its size determine the passenger numbers. (help to explain the luminance / thickness of path & further clarify the direction)

Details

- Dependencies
  - Vega-Lite Json File
  - Github
  - HTML
- Time to Build
  - 2 to 3 weeks
- Requirement
  - Browser that ensure that visualisations work across all modern browsers.

Scanned with CamScanner