



SCHOOL OF INFORMATICS & IT

Storytelling Dashboard - Data Storytelling

Student Name (Matric Number) : Javen Lai Le Yu (2202934B)

Tutorial Group : P03

Tutor : Nami Imanishi

Submission Date : 6/12/2023

Declaration of Originality

I am the originator of this work and I have appropriately acknowledged all other original sources used as my references for this work.

I understand that Plagiarism is the act of taking and using the whole or any part of another person's work, including work generated by AI, and presenting it as my own.

I understand that Plagiarism is an academic offence and if I am found to have committed or abetted the offence of plagiarism in relation to this submitted work, disciplinary action will be enforced.

Declaration on the use of Generative AI tools for assignments

Describe how you have used Generative AI tools such as ChatGPT or Dall.E-2 in your assignment.

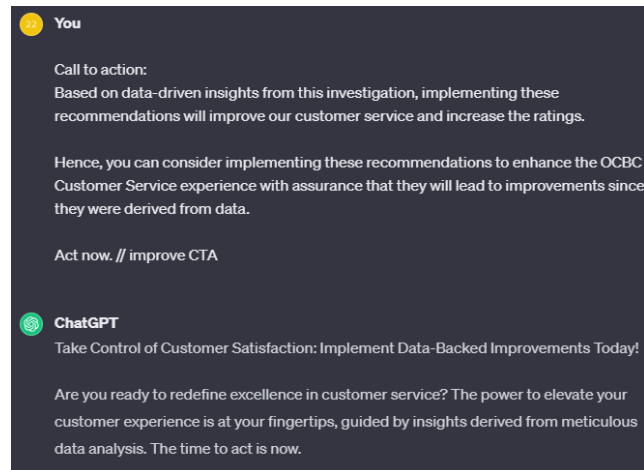
Show snapshots of the conversations with the AI tool (i.e., the prompts you used and the response you get from the AI tool).

ChatGPT Conversation:

<https://chat.openai.com/share/13170724-6507-4967-84b0-e70626f56f4c>

<https://chat.openai.com/share/1c247586-b164-4caa-9e41-73b346a6cbb6>

For this project, I used ChatGPT to phrase my statements and explanations to be clear and succinct:



I also clarified the project specifications to ensure I am not missing out anything:



How do you indicate the reference?

The content generated by AI tools are not retrievable except by the user who generated them, so they are considered non-recoverable sources. Although non-recoverable data or quotations in APA Style papers are usually cited as personal communications, with ChatGPT-generated text there is no person communicating. Quoting text from ChatGPT chat is therefore more like sharing the output of an algorithm, with a reference list entry and the corresponding in-text citation.

According to the official APA Style site, ChatGPT references should be cited as:

E.g. OpenAI. (2023). *ChatGPT* (Sep 25 version) [Large language model].
<https://chat.openai.com/chat>

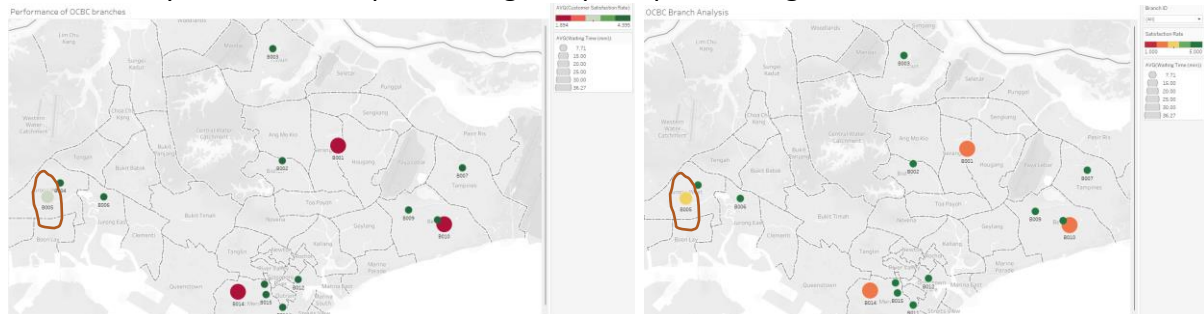
Important Note:

- Do not copy answers produced by the AI tool in totality as it is considered as plagiarism.
- Do not rely on any information produced by the AI tool blindly. You should always verify the answer with other sources. Do not assume that these answers provided by the AI tool are correct.
- To achieve quality outputs from the AI tool, you should provide good prompt that is clear and specific. Be precise and provide context. Avoid asking open-ended questions.

Task 1 : Visual Cues

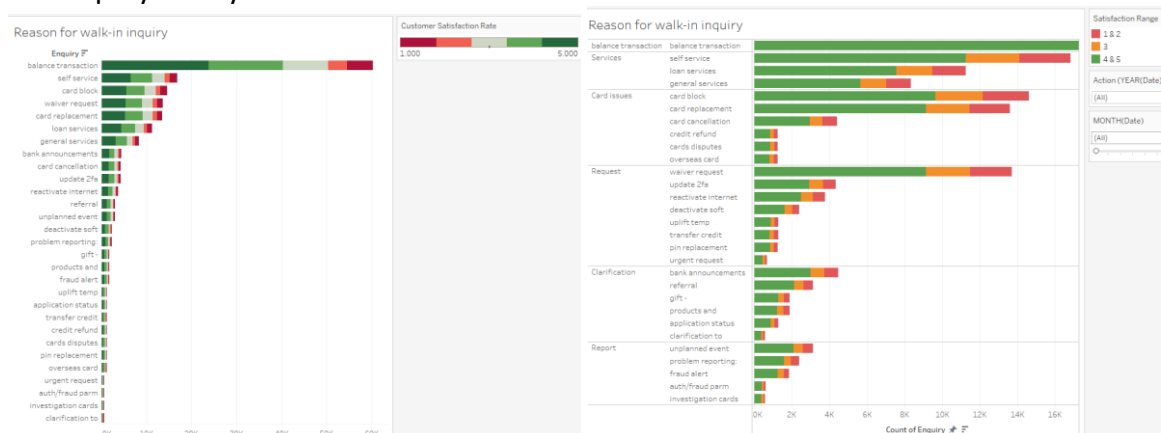
1. Colour and Contrast and Visual Hierarchy

Changed colour of the middle value from grey to yellow, making it more noticeable from the grey background of the map. Employed ordinal colour gradient to show a clear visual hierarchy between well-performing and poor-performing branches.

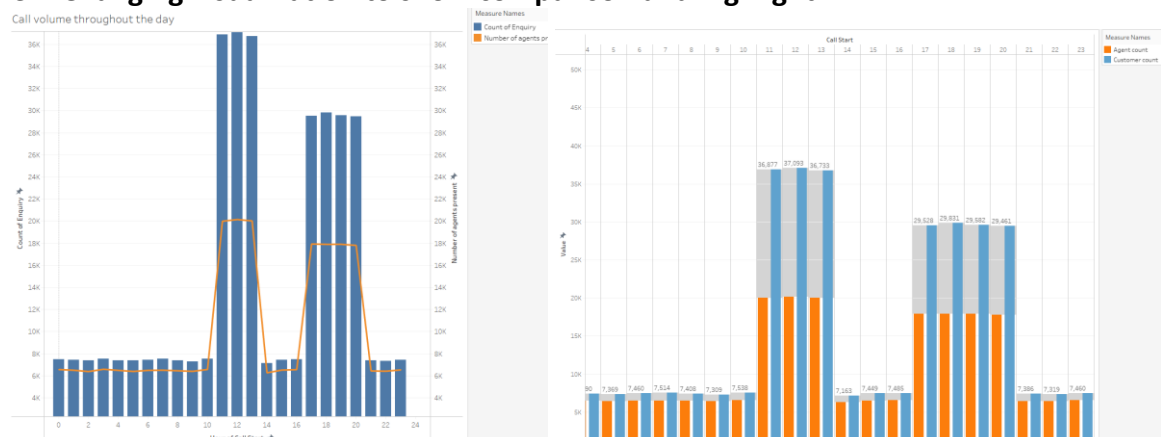


2. De-cluttering

- Having too many ratings clutters the bar chart, making it overwhelming. To enhance clarity, the ratings are grouped into Ideal (5), Moderate (3-4), and Poor (1-2) clusters.
- Enquiry is too specific for non-technical viewers to interpret. Hence, I will group them into a broad and generic category so that business users can instantly identify common inquiry types from a glance and only investigate deeper into a particular inquiry if they want.



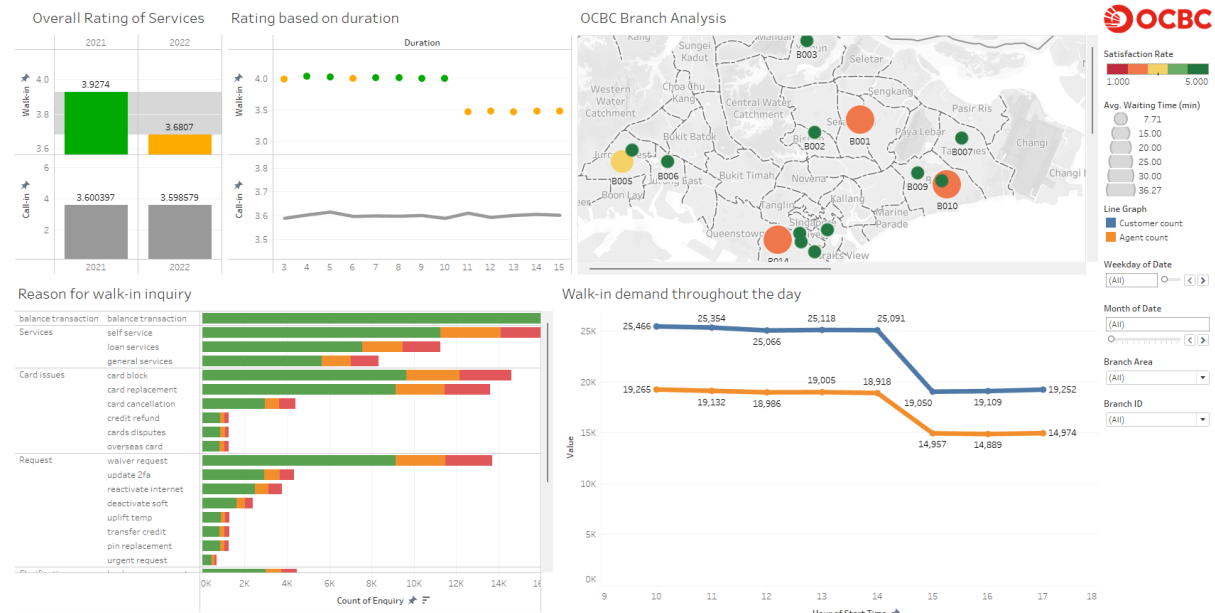
3. Changing visualization to show comparison and highlight



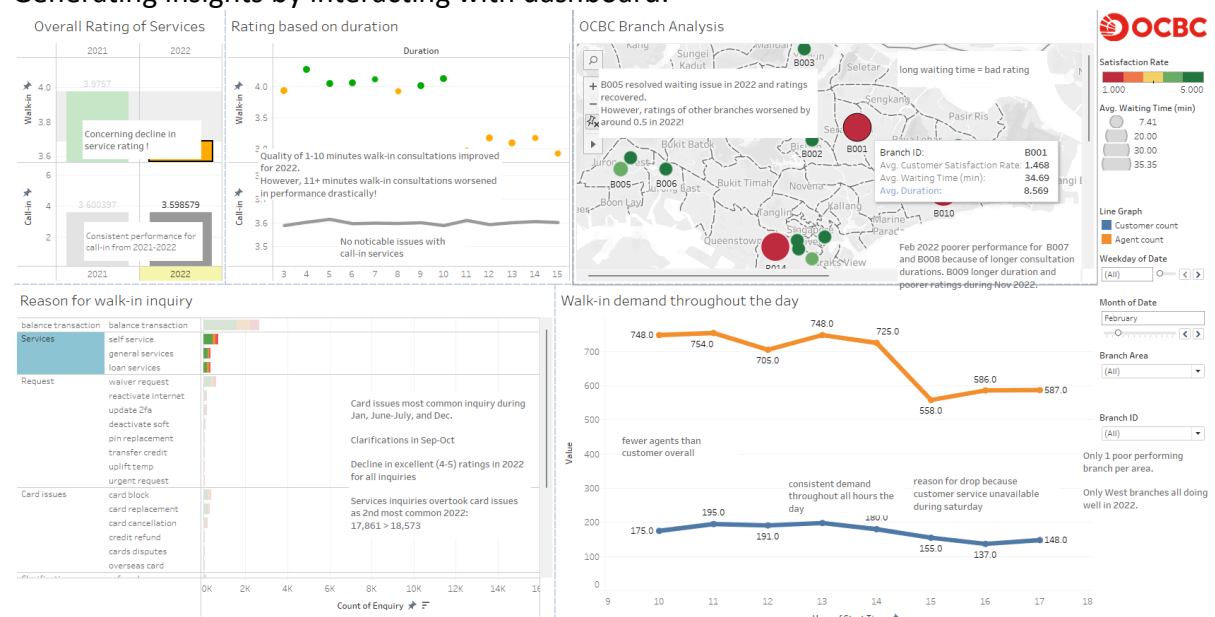
- Changed visualization to clearly display a comparison between the availability of agents and customers.
- Repicked colours that contrast well to represent agents and customers, to allow colourblind readers to easily differentiate the bars without straining eyes.

- Highlighted difference between agents and customers to enable a direct comparison in how wide the differences between the agent and customer bar is, enabling the reader to intuitively tell that there is a shortage of agents in peak hours.

Task 2: Dashboard



Generating insights by interacting with dashboard:



Considerations

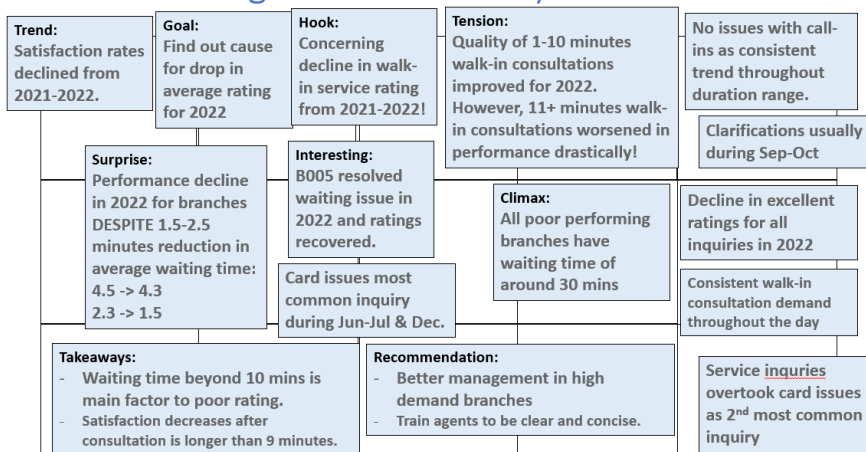
1. The dashboard is strategically designed for top-down, left-right reading, which is why the hook placed in the top-left so that it's the first thing to read. The hook induces urgency by highlighting the drastic performance drop to instill sense of purpose for reader to uncover what caused the drop using the dashboard.
2. The interactive map is placed top-right, considering that most readers will be right-handed. This strategic placement enables ease of interacting with map since the User must hover over a branch to get insights from the tooltip.
3. Visual hierarchy: Every colour has a meaning to facilitate intuitive interpretation.
 - Graphs lacking important patterns (not main focus) are in grey to avoid attention.
 - Employed ordinal green-red colour gradient to enable intuitive interpretation of performance. Green represents good, yellow-orange represents average, red represents bad.
 - Orange and Blue in Line Graph (bottom right) indicate the measure they represent. Orange and Blue are chosen as they contrast well and are user-friendly and easily distinguishable by colourblind readers too.
4. Every graph has clear titles, axes, and labels for user comprehension, to ensure the purpose and message of each graph can be communicated clearly to the user.
5. Stretched (to make the scale drastic) the y-axis of the 2 top-left charts to highlight the significant drop in performance from 2021-2022. Amplifying the difference makes it easier to instantly derive the insight that there is a performance drop.
6. Top-middle chart reveals clear insight into how duration affects satisfaction rate.
7. Top-right is an interactive map chart to allow users to investigate performance for each branch and derive insights on what leads to changes in performance based on features of a branch.
8. The bottom-left chart can be used to study the volume of inquiries that OCBC receives. This allows insights like identify most common inquiry types and if there is any issues (such as prevalent poor ratings) for any inquiries.
9. Bottom-right chart to analyze the demand for walk-in inquiry throughout the day, to identify peak hours for service and potential manpower shortage issues.
10. To enhance usefulness, I added filters that apply to all the charts, to make the Dashboard interactive for users to delve deeper and explore how the trend of inquiries, demand of consultations, etc. change over the years/months. Also able to filter using charts. E.g. click on a bar in a graph to focus on particular inquiry. This added interactive allows for in-depth insights to be discovered. E.g. how trend changes over time, is there an issue in a particular month.

Task 4 : Big Idea, Linear Storyboard, Narrative Framework

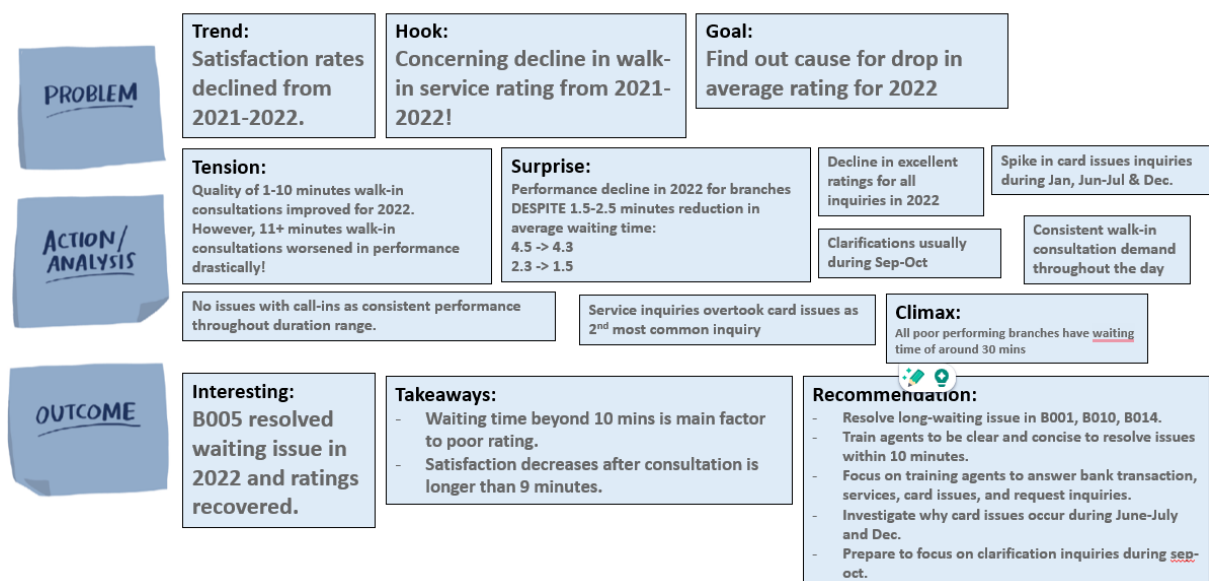
Big Idea: Improve Customer Service experience

Who's the Audience?	List primary group or individuals	OCBC Customer Service Executives, Managers, Agents
	If narrow down to one, who?	Executives
	What do they care about?	Poor customer service causes customers to lose trust in OCBC
	What action do they need to take?	Rectify issues that cause dissatisfaction in customer service
What's at stake?	What are the benefits?	Superior customer service that satisfies customers
		Customer become trusting and loyal towards OCBC
	What's the risks?	If nothing done, customer service rating will worsen... Resulting in potential loss of customers as they are unsatisfied with OCBC and prefer seeking services from other financial institutes.
Form Big Idea	Must articulate unique point of view; Must convey what's at stake; and Must be a complete sentence.	Identify causes of poor customer service and provide data-driven solutions that OCBC can act on to resolve these issues and improve their customer service experience so that customers are satisfied with OCBC and will not consider seeking services at other financial institutes.

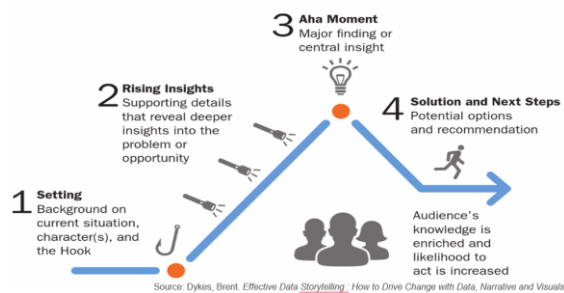
Brainstorming content for storyboard



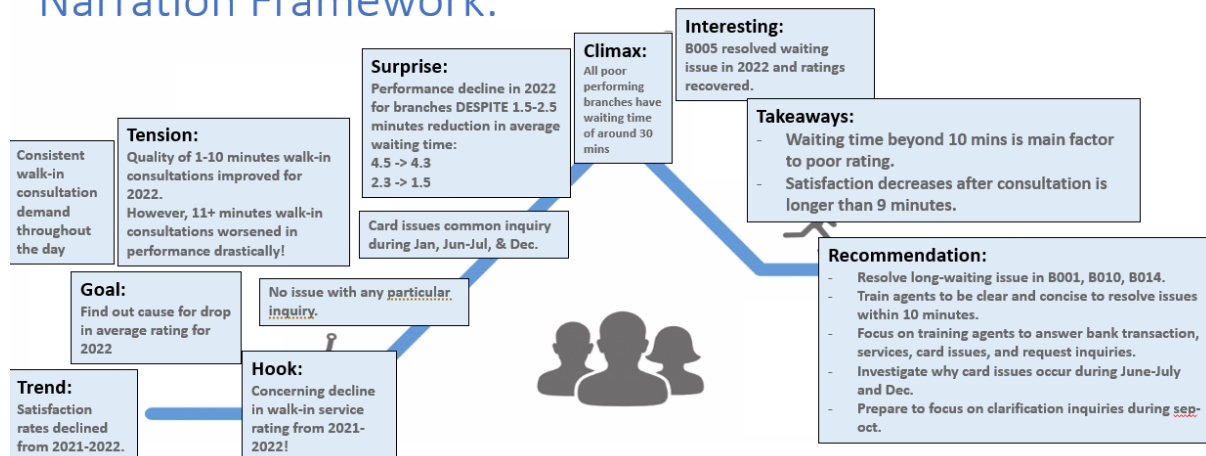
Storyboard



Freytag's Pyramid for Narration Framework:



Narration Framework:



Narration Framework (In Detail):

- Trend:** Satisfaction rates declined from 2021-2022.
- Hook:** This is a concerning issue as there is a drastic drop in performance from walk-in. Add sense of urgency by scaring reader with what will happen if trend continues.
- Goal:** State the purpose of investigation to let reader know what the story is about and what they can expect to get out of it.
- Inciting Event (Tension):** Show the significant disparity in walk-in performance across consultation duration, to highlight that analyzing walk-in should be the main focus of investigation as there is an issue, whereas there is no noticeable issue with call-ins.
- Rising Action:**
 - No issue with any particular inquiry.
 - Card issues common in Jan, Jun, July, & Dec.
 - Clarification during Sep-Oct.
- Climax (Surprising and Interesting):**
 - All poor performing branch have long waiting time above 30 mins
 - Performance drop in all branches (except B005) in 2022 despite slight reduction in average waiting time for branches.
 - B005 resolved long waiting time issue and ratings improved during 2022.
- Falling Action:**
 - Summarise findings and setup for resolution (Takeaways).
 - Analyse demand for customer service throughout the day to answer business requirements where peak hours should be identified.
- Recommendation + Call To Action (CTA):**
 - Construct relevant recommendations to address problem statement of improving OCBC customer service satisfaction.
 - CTA urging reader to act on the recommendation to protect what's at stake.

Task 5 : Tableau Story

Exposition:

Give context, to get readers interested and know what they can gain from the story. Follows Freystag's pyramid: contains the current trend, a **hook** (with a visual aid of an exaggerated graph that amplifies the drop) to express the severity of the issue, to add a **sense of urgency** by telling what could happen if nothing is done to address the issue. Finally, I list the **purpose of this investigation** to let readers be clear on what this story is about and how it benefits.

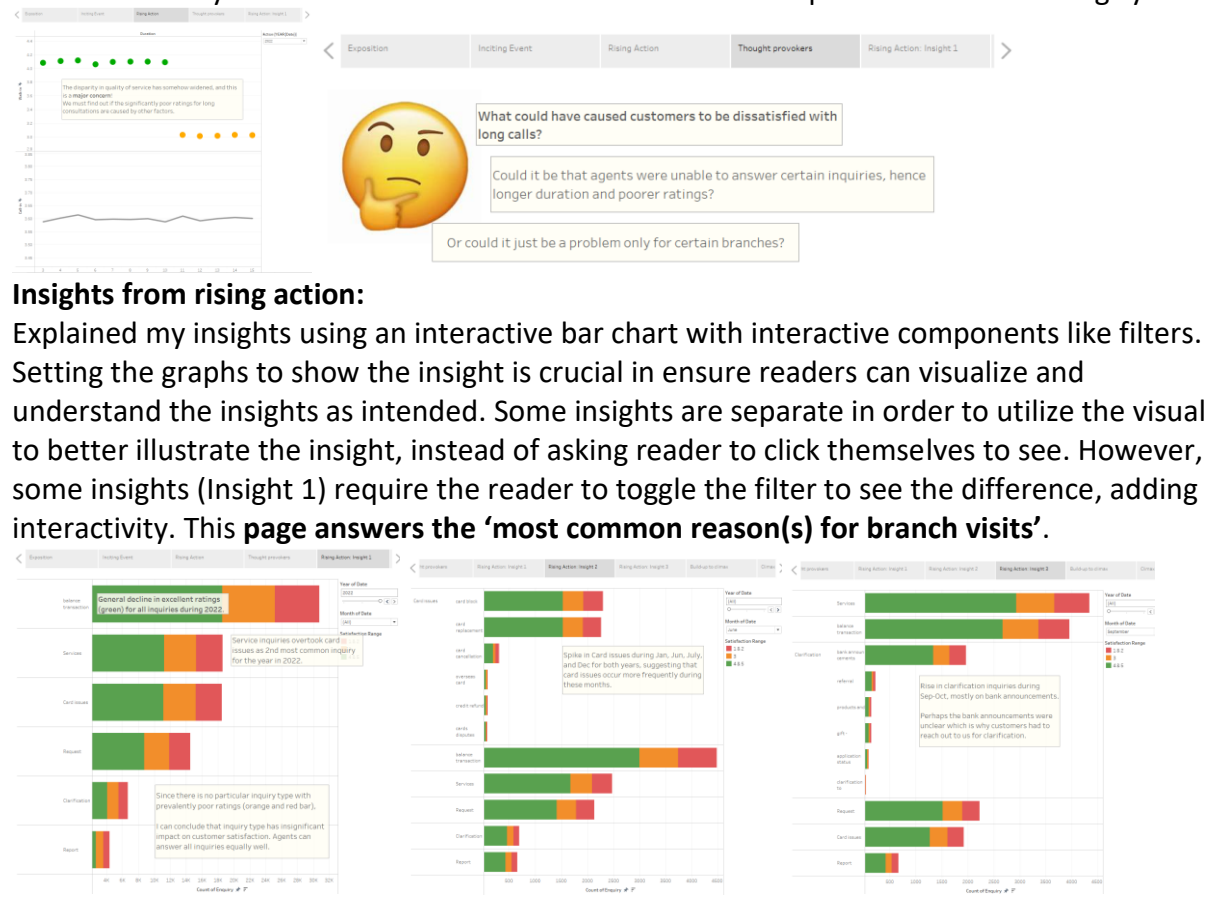
Inciting event:

Added an **exciting insight that drives reader's curiosity further**, to hype them up on wanting to discover the drivers of poor satisfaction. First 2 page answers 'if OCBC customers are currently satisfied with our service'.

Additionally, I also justified why the story focuses on walk-in because there is no reason to investigate call-ins since the performance is consistent with no concerns.

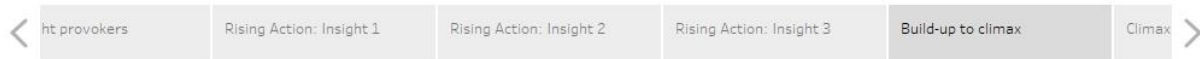
Rising Action:

Build-up rising action by explaining what I plan to investigate, in a sequential manner, to ensure the story flows as I have not found the true drivers of poor satisfaction ratings yet.



Climax build-up:

About to reveal the key factor that leads to poor ratings. This page **adds flow to the story** by stitching rising action and climax by showing why the story progresses from A to B.

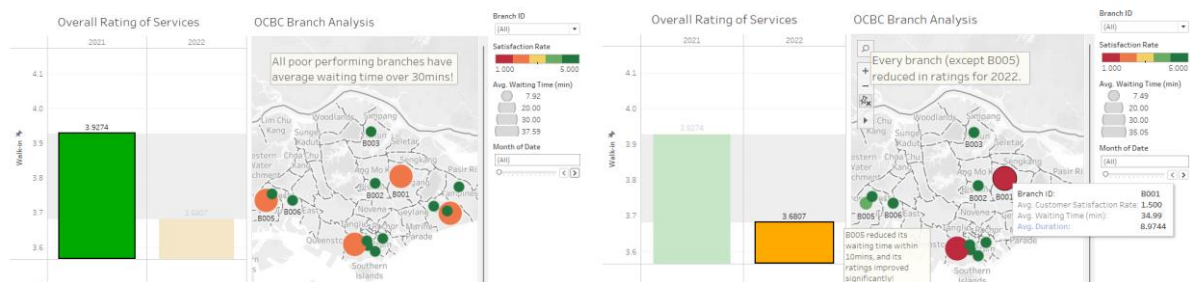


So it isn't our agents being unadept in answering certain inquiries that led to poor ratings...

So could the problem be within the OCBC Branch?

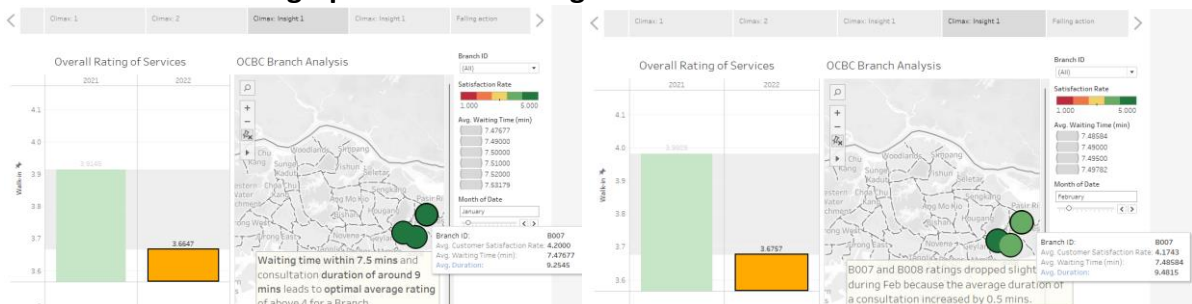
Climax:

Show the story of how ratings changed from 2021-2022 for each branch. This graph is **meant to be interactive** where customers must hover over a dot to uncover facts and derive **deeper insights into each branch from the tooltip**. This page answers: 'Identify factors that affect rating score and explain how they influence the score'.



Insight from interacting:

To make it intuitive for the reader to focus on the insight I'm showing, I **highlighted the 3 branches and excluded the rest of the branches**. This example teaches the reader how they can **interact with the graph to discover insights**.



Falling Action:

Since I already revealed the exciting insight of the most impactful factor on customer satisfaction, **this part is a summary** to recap the reader on what they should have picked up from the story so far.

Additionally, I have **yet to address anything on peak hours of customer service and any insights on call-in which are requirements** the business expects me to uncover from my analysis. Hence, I had to **weave in a reason for me to explore the demand of customer service across the day** to ensure all needs of business requirements are fully answered.

Based on investigation...

1. Main reason that causes customer dissatisfaction is a long waiting time of 30mins.

Branch B005 proven that reducing waiting time below 10 mins can improve ratings to above 3.8.

3. Additionally,

- card issues may occur more frequently during Jan, Jun, July, & Dec
- bank announcements during sep-oct are unclear/misleading and requires further clarification from customer service.

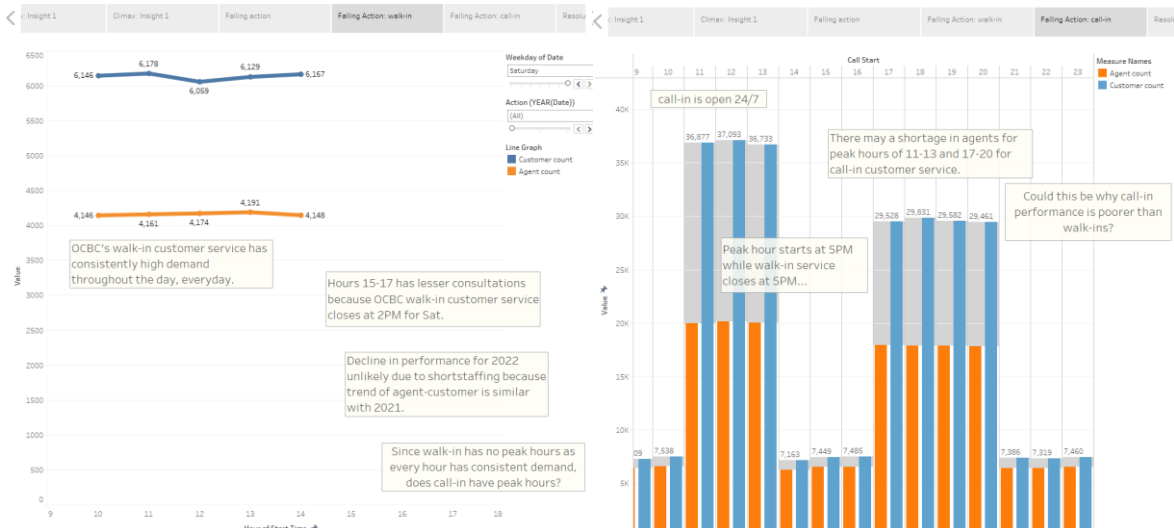


2. Customers prefer short and concise consultations that are about 9 mins.

4. Could the long waiting time for poor performing branches be caused by a shortage of agents?

Falling Action:

These 2 **pages answer the 2 business requirements**: 'Identify peak periods when both call-in and walk-in channels experience the highest activity' and 'Identify if there is a specific time when a channel is preferred over the other and why'. Analysis and insights from these **2 pages do not play a detrimental role in the story or formulating of recommendations** but are required, which is why it's placed at falling action. I connected the analysis of call-in demand after walk-in demand analysis by justifying why I should analyse call-in too. This ensures that the page will still flow logically in my story.



All business requirements from the problem statement are addressed, which means I can end the story now as all aspects of business needs are covered. I will end the story with a resolution that contains recommendations that are relevant to help improve customer service at OCBC.

Resolution:

Relevant takeaways and recommendations from the story that answer the purpose of the investigation and can be implemented to improve customer service performance. Includes Call to action to remind the reader (OCBC Executives) to consider taking the recommended actions in case they forget the problem and the need to action. Also had to make CTA convincing enough to compel the urgency to act as soon as possible.

<	Climax: Insight 1	Falling action	Falling Action: walk-in	Falling Action: call-in	Resolution
---	-------------------	----------------	-------------------------	-------------------------	------------

Recommendation:

1. Resolve long-waiting issue in B001, B010, B014:
 - Waiting time should be within 9 mins for each customer to ensure satisfactory standards.
 - Aim for a waiting time within 7.5 mins to get a higher rating above 4.
2. Train agents to be clear and concise:
 - resolve issues within 9 minutes.
 - understand how 2021 agents engaged customers such that customers didn't get bored during long consultations.
3. Focus agent training on the common inquiries:
 - bank transaction
 - services
 - card issues

Ensuring adeptness in popular inquiries adds assurance that an average customer would be highly satisfied.
4. Make bank announcements during sep-oct clearer so that customers do not have to clarify. This helps relieve the demand for unnecessary customer service, ensuring that only relevant inquiries that cannot be resolved alone by customers are received.
5. Investigate if call-in agents can manage their workload as the analysis show signs of agent shortage during peak hours.
6. Better bonus should go to call-in agents for maintaining consistent performance while keeping up with high demand call-in demand.

Call to action:

Based on data-driven insights from this investigation, implementing these recommendations will lead to tangible improvements in our customer service and increase customer satisfaction.

Declining customer satisfaction is an impending issue that necessitates immediate action.

These recommendations must be earnestly considered and expeditiously implemented to avert the possibility of OCBC's customer service reputation being damaged to an irreversible point.

Your prompt consideration and action in this matter is crucial in safeguarding the sterling reputation of OCBC.

Signing off,
Javen (Data Analyst for OCBC)

End of Report

References:

Interactive bar chart that can expand and collapse -

<https://www.youtube.com/watch?v=b4KfAx2jSis&t=167s>

Research on Freystag's Pyramid - <https://www.masterclass.com/articles/freytags-pyramid>