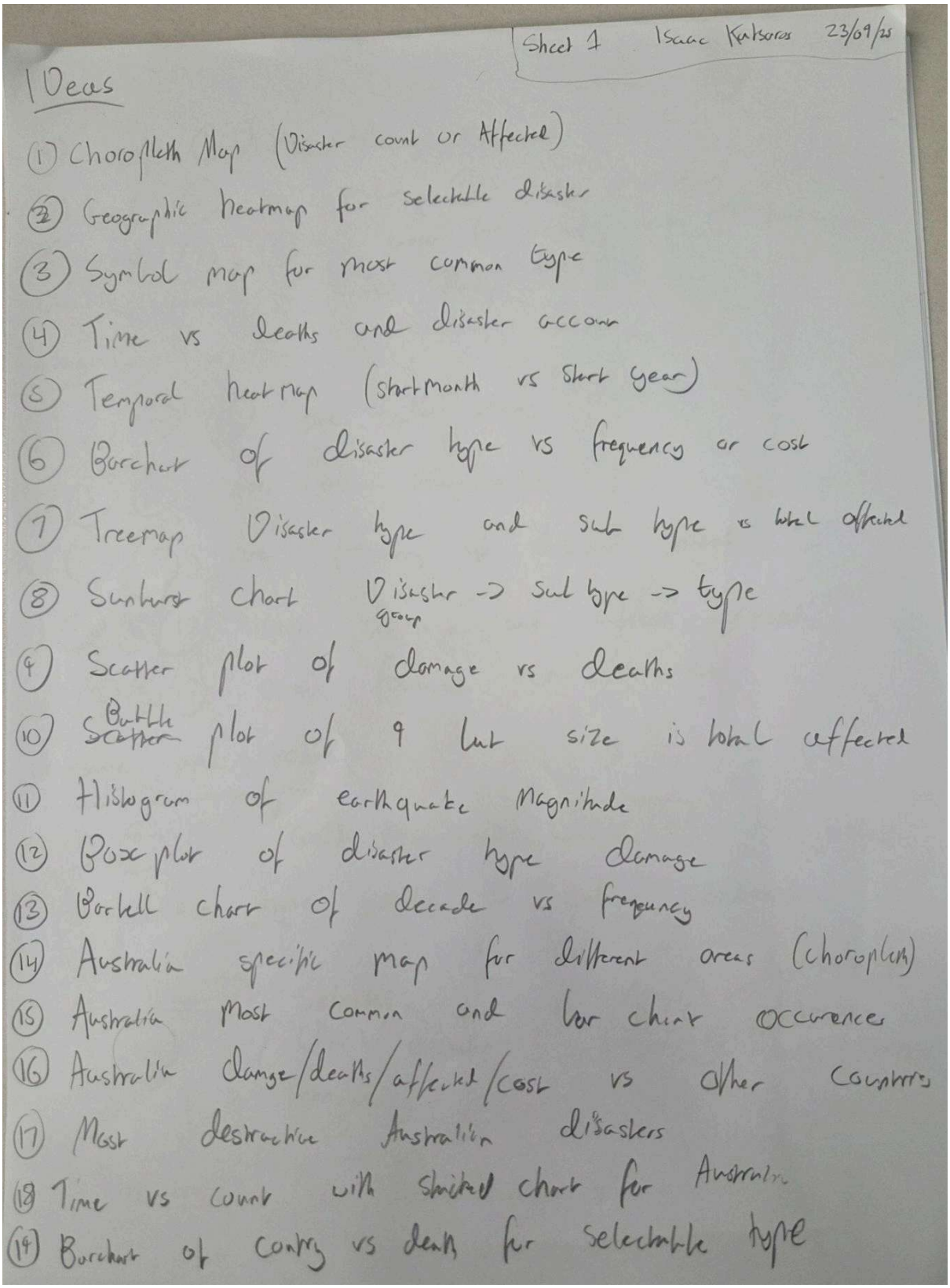
DESIGN SHEETS 1 PART 1



Sheet 1 Isaac Katsaros 23/09/25

Ideas

(1) Choropleth Map (Disaster count or Affected)
(2) Geographic heatmap for selectable disaster
(3) Symbol map for most common type
(4) Time vs deaths and disaster accounts
(5) Temporal heat map (start month vs start year)
(6) Barchart of disaster type vs frequency or cost
(7) Treemap Disaster type and sub type vs total affected
(8) Sunburst chart Disaster group -> sub type -> type
(9) Scatter plot of damage vs deaths
(10) ~~Scatter~~ Bubble plot of 9 but size is total affected
(11) Histogram of earthquake magnitude
(12) Boxplot of disaster type damage
(13) Barbell chart of decade vs frequency
(14) Australia specific map for different areas (choropleth)
(15) Australia most common and bar chart occurences
(16) Australia damage/deaths/affected/cost vs other countries
(17) Most destructive Australian disasters
(18) Time vs count with stacked chart for Australia
(19) Barchart of country vs death for selectable type

DESIGN SHEETS 1 PART 2

Sheet 1 Continue | Isaac Katsoras | 23/9/25

Filter

- (9) and (10) too similar, remove (9)
- (13) and (4) too similar, (13) more intresting
- (6) and (7), (6) is easier to digest, but (7) more visually intresting, so keep (7)

Categorise

(1) (2) (3) (14) are all maps

(4) (5) (13) are all time-based

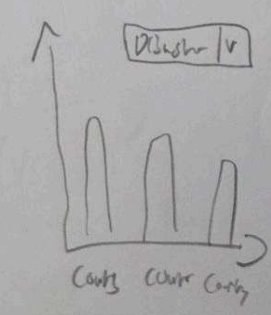
(6) (7) (8) are frequency of disaster based

(9) (12) (16) (17) are damage and affect focused

(14) (15) (16) (17) are focused on Australia

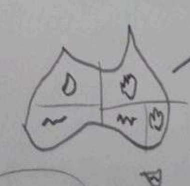
Combine and refine

- (1) (2) (14) could have -> "Disaster | v" to select
- All disaster types would be colour coordinated
-



Selectable bar chart disaster frequency

-



Symbols for disasters used across (14) and (3) and (1) (2) selection

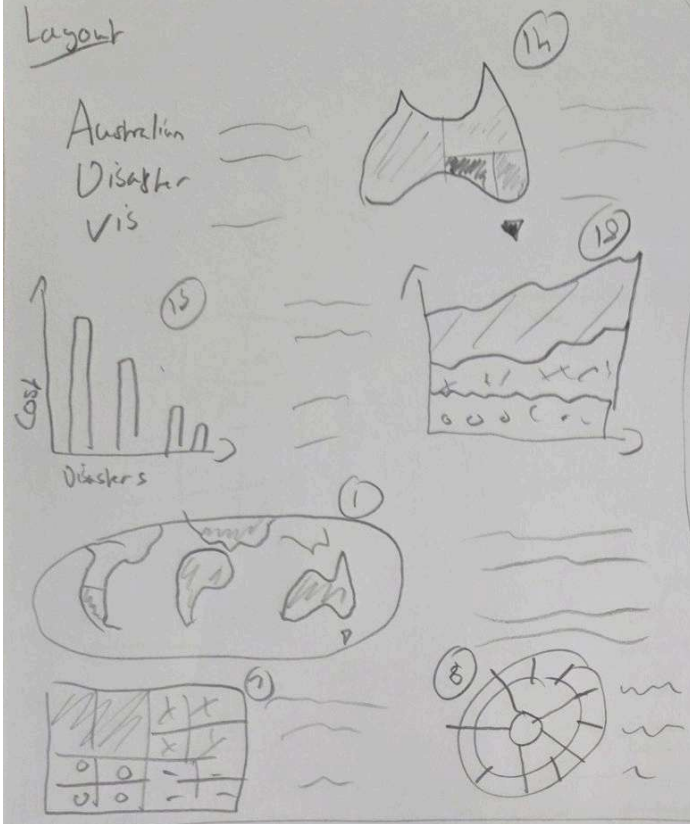
Questions

- Is data for all countries overwelming?
- Will Australia Vis data be too samey?
- Not enough simple idioms
- Hard to build story

DESIGN SHEET 2

Sheet 2 Isaac Kirkness
23/09/25

Layout



Title: Disaster frequency Australia to the world
Description: starts with AUS, then goes global for frequency

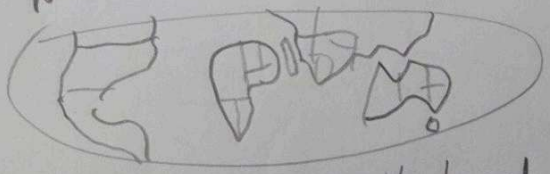
Component

- Tool tips on everything
- specifically, on both maps highlight most common and actual count
- (1), (8) and (8) will sync when highlighted.

Focus

Global Frequency Count

- Each country has tool tip for: count, Most common, yearly



- The colours with will be red.
- Dark red for high freq, light for low freq

They will spend time looking at all the country and how they compare, as well as hot spots and most common

Pros vs Cons

Pros: Cons:

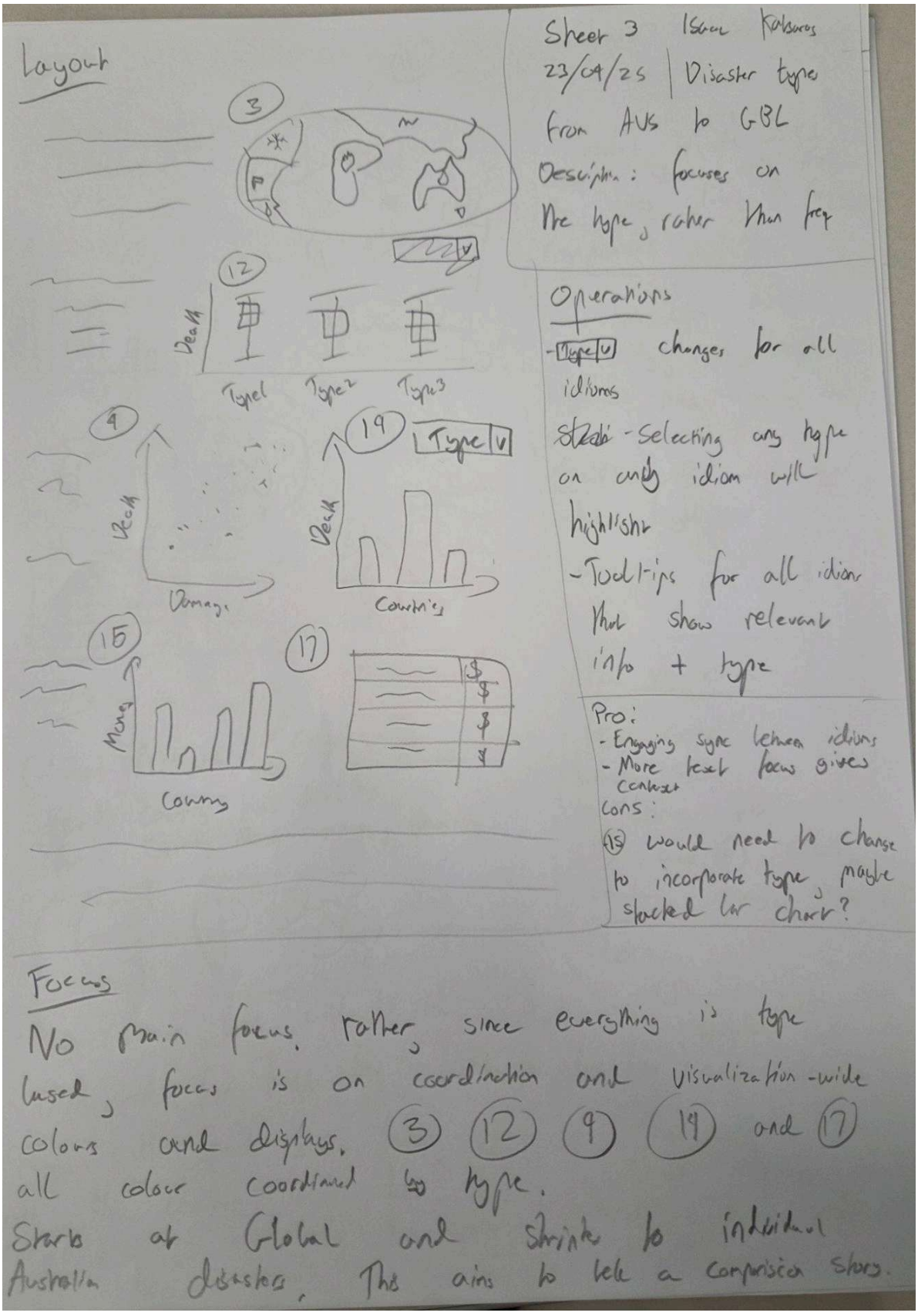
-Australia states too similar so boring vis

- (7) and (8) slightly similar, maybe repetitive

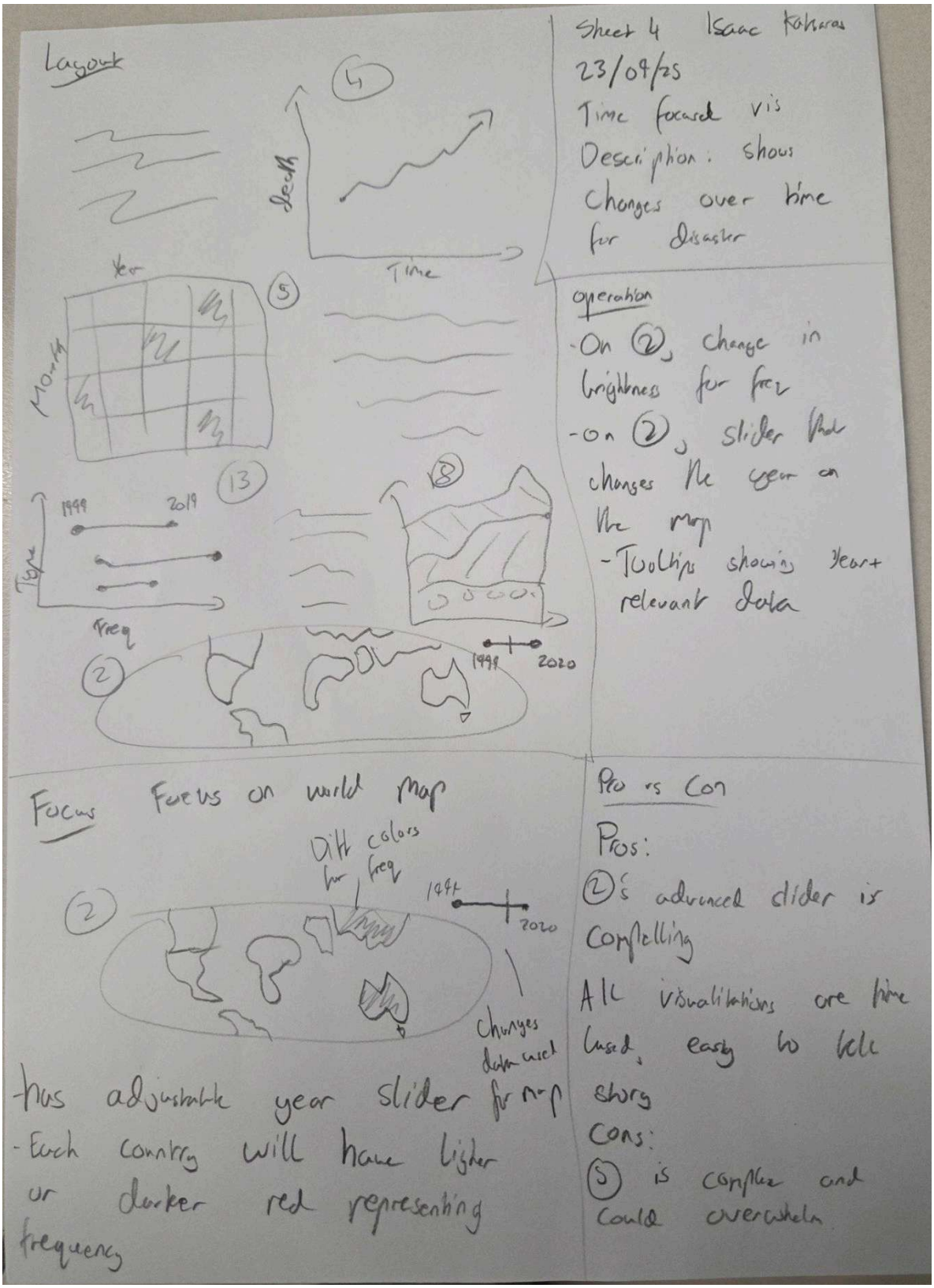
Pros:

- (1) is large and simple, will grab attention
- The order makes sense, starting at Australia then wider world.

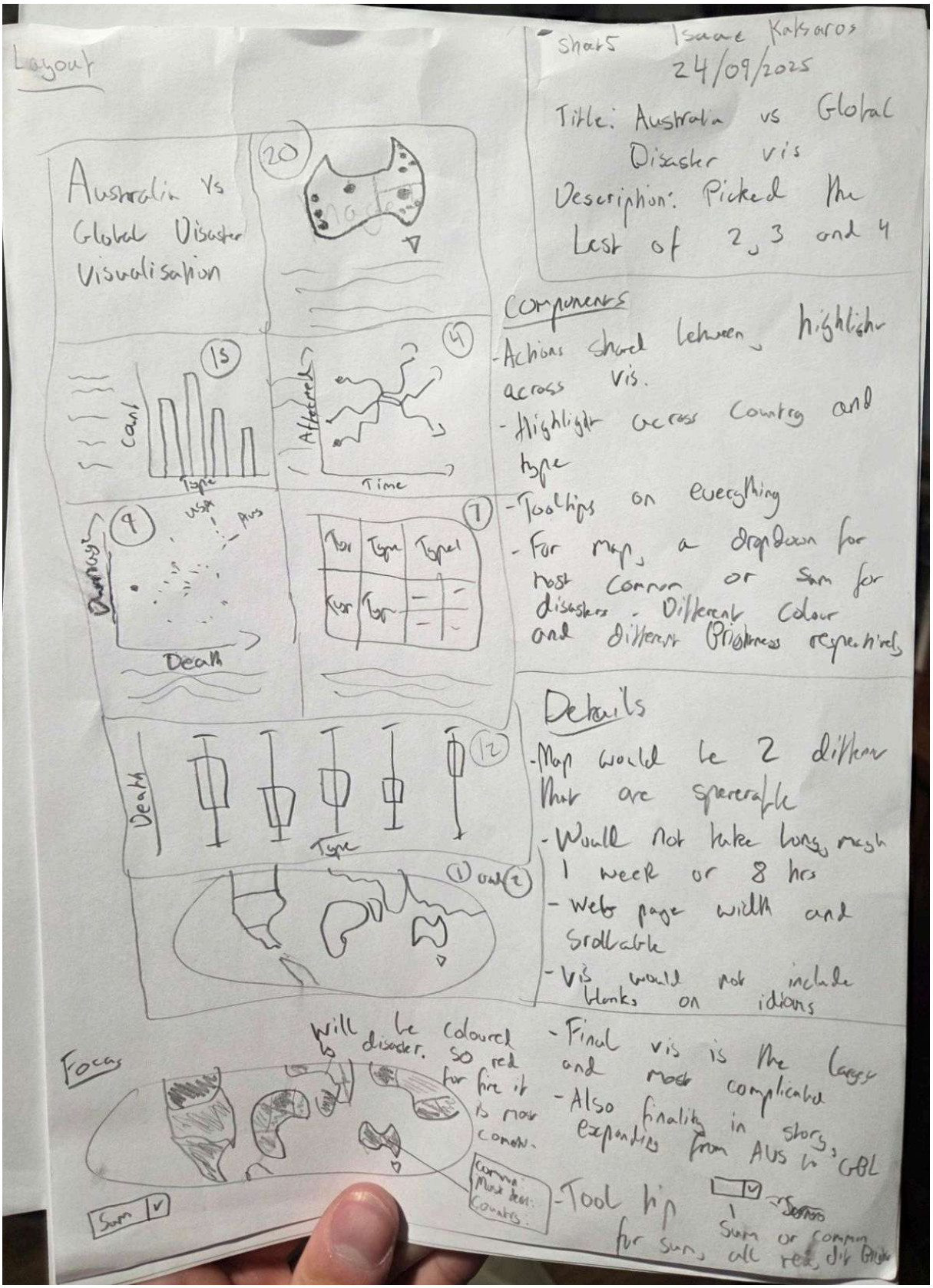
DESIGN SHEET 3



DESIGN SHEET 4



DESIGN SHEET 5



i. The Domain, the Why, and the Who

The domain of this project is **Natural Disasters**. The vis follows a narrative that begins with the recent 2019-20 Black Summer bushfires, then expanding to Australia vs other countries, and finally zooming out to a global overview.

The “why” is to provide perspective on the scale and impact of natural disasters. Australians are fortunate enough to experience very few disasters, this dashboard contextualises our worst recent event against other global disasters, highlighting their devastating human and economic costs. The “who” is therefore the Australian public who may be less aware of the sheer frequency and scale of disasters worldwide.

ii. What: The Data

1. **NASA Bush fire satellite data:** This dataset provides detailed satellite data on fire hotspots, location, and brightness temperature.The file is for 2019-20 summer. Furthermore, I sampled 1/10 of the rows randomly for my dataset to reduce the size to around 3mb (with permission from TA)
2. **EM-DAT: The International Disaster Database:** This database covers global disasters from 2000 to 2025. To manage file size, all unused columns were removed, retaining only those relevant to the visualisation.

iii. How: Rationale for Visualisation Choices

The dashboard is designed as a guided analysis, with each idiom chosen for a specific task.

The narrative begins with a **proportional symbol map** of Australian bushfires. This idiom was chosen to show the precise location and intensity of individual fire events during this period, which is more effective for visualising a specific incident like the Black Summer than a choropleth map. The dashboard then broadens its scope with a **box plot** to compare the *distribution* and *variability* of annual disaster counts between a handful of popular countries.

To provide a global overview, a **bar chart** is used to clearly rank the frequency of different disaster types, while a **line graph** effectively shows the trend of total people affected over time. A **scatter plot** was chosen as the ideal idiom for exploring the correlation between two quantitative variables: the financial damage and human cost of each disaster (Structural damage vs Human damage). I also wanted this dot plot to see if there would be any differences between sudden and expected disasters, and how expecting a disaster can impact on cost and lives.

This is followed by a series of **pie charts**, the idiom for showing part-to-whole relationships, which effectively communicate the composition of total deaths by disaster type. This is placed below the frequency chart in order to convey how most common does not take the most lives.

Finally, a **choropleth map** displays the year over year disaster frequency across all countries, providing a clear global overview of high-risk regions.

Special features are built in to enhance exploration: the choropleth map includes a **time slider**, all charts feature detailed **tooltips**, and several include **dynamic text annotations** to highlight key insights like the "Most Frequent" or "Most deadly" events.