Homework/Discussion 5

IFSC 54503 Data Visualization

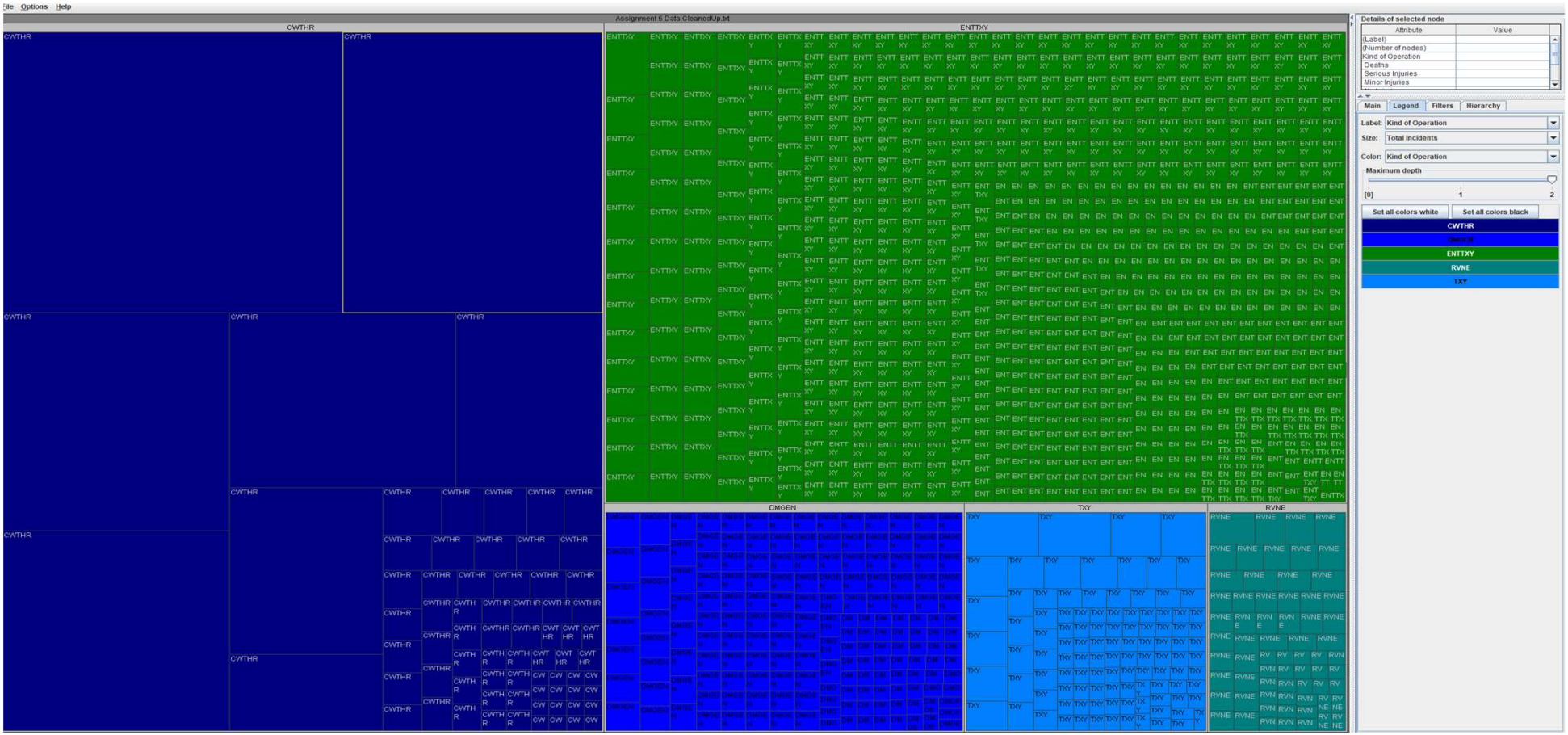
Submitted to - Prof. Mihail Tudoreanu

Treemap Views with original Treemap tool (Treemap-4.1.2.zip)

Dataset - Assignment 5 Data CleanedUp.txt

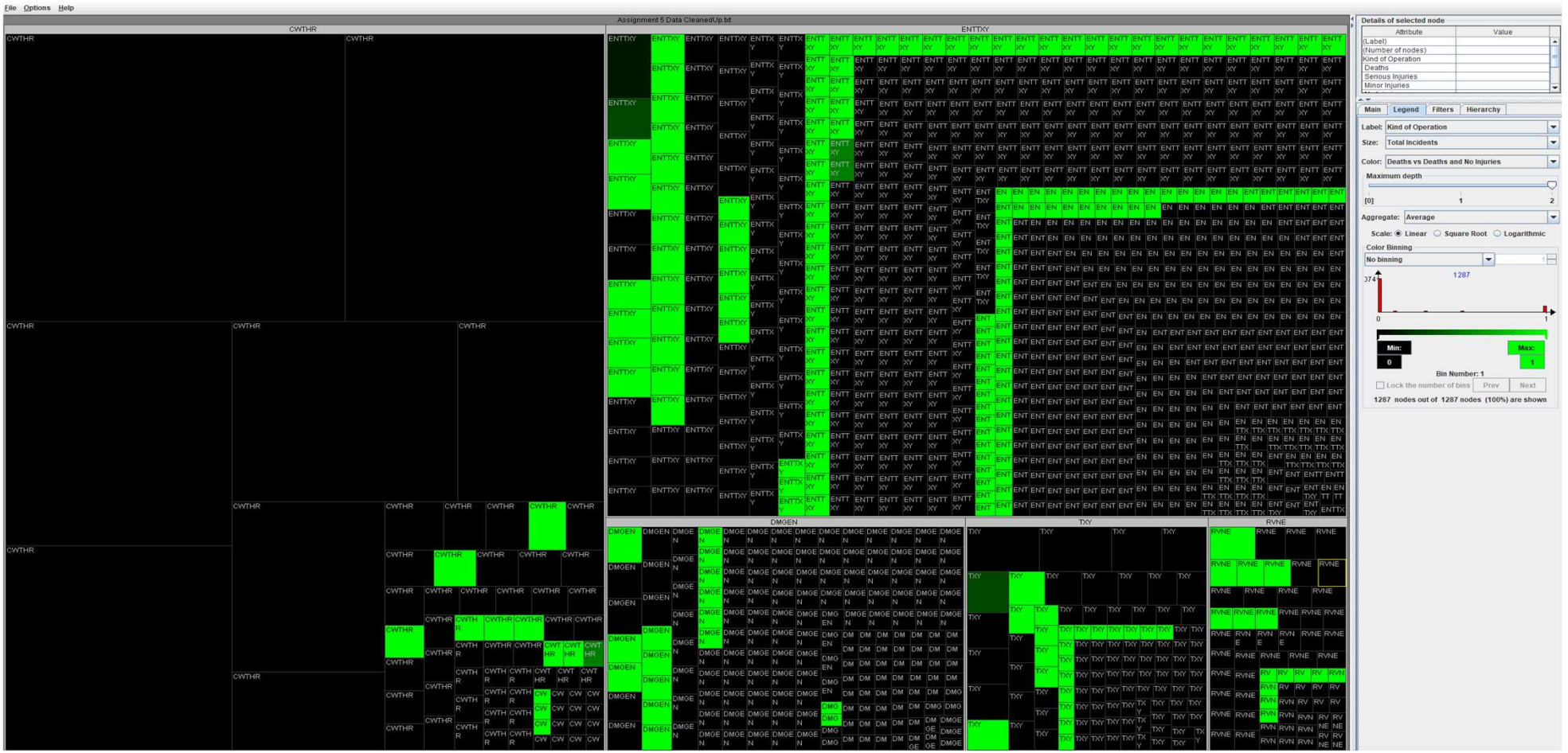
View 1 – Compare Total Incidents and Operation Type

TMS File : Total Incidents and Operation Type.tms



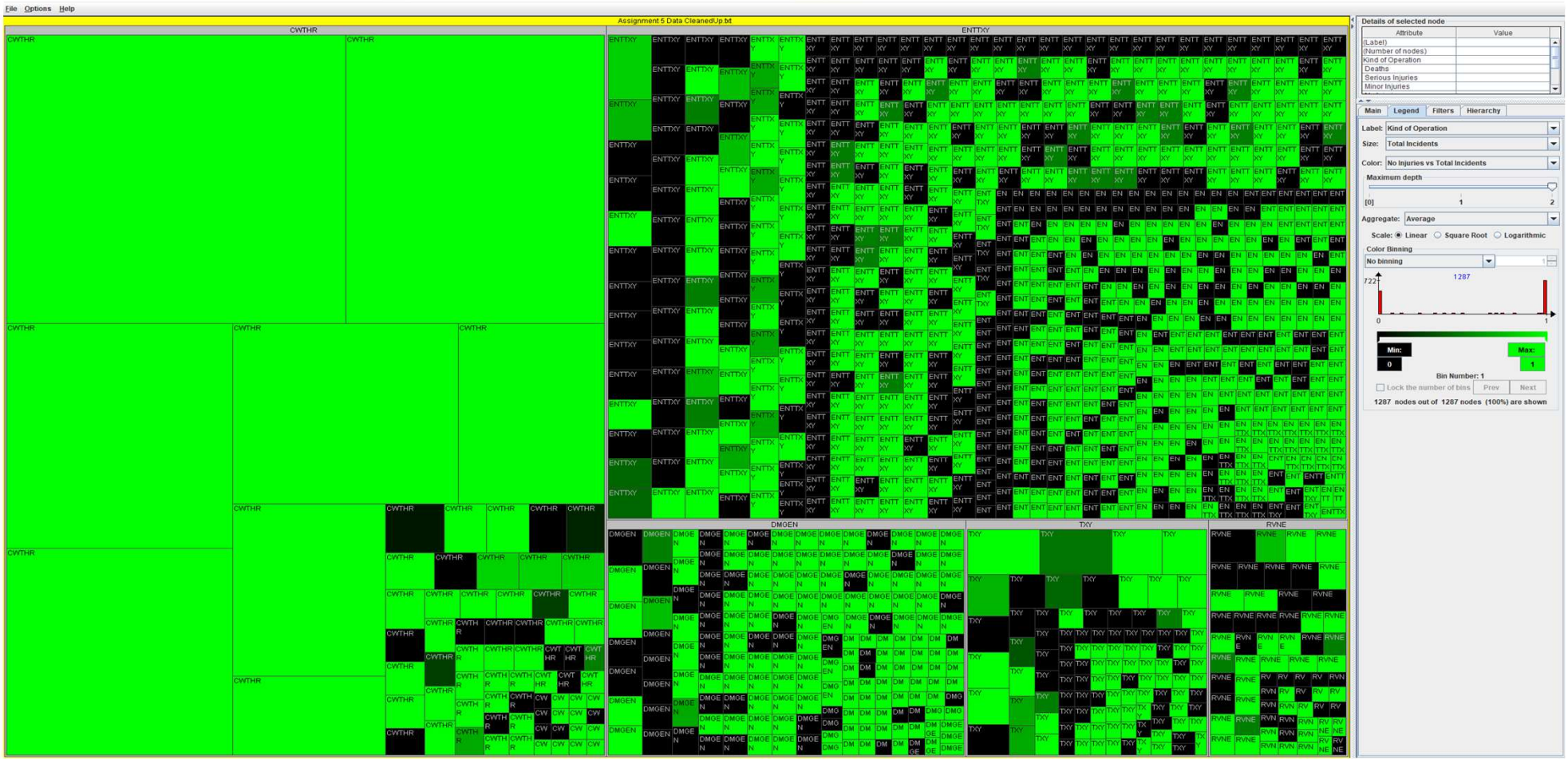
View 2 – Visualize Proportion of Deaths

TMS File : VisualizeProportionOfDeaths.tms



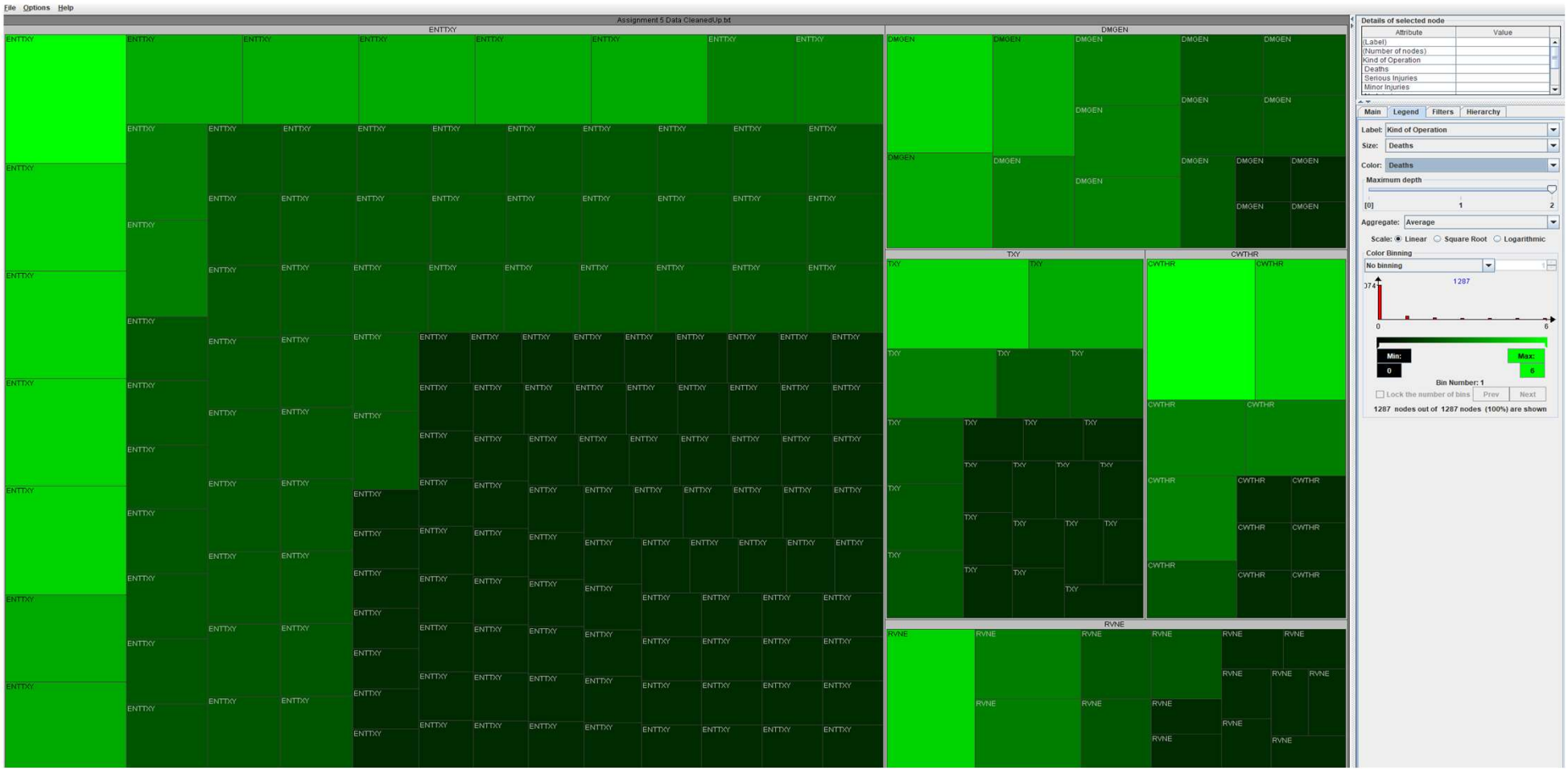
View 3 – Focus on injuries with high no injury rates

TMS File : NoInjuriesVsTotalIncidents.tms



View 4 – Highlight operations with highest death counts

TMS File : OperationsWithHighestDeathCount.tms



Answer : based on Treemaps generated in original Treemap Tool

Kind of Operation	Total Incidents	Total Deaths	Total No Injuries	Deaths Proportion	No Injuries Proportion
CWTHR	106	26	1,040	0.024	0.976
RVNE	48	14	56	0.200	0.800
ENTTXY	408	94	203	0.316	0.684

CWTHR has an extremely low death proportion (2.4%) and a very high no-injury rate (97.6%), indicating that most incidents result in no injuries.
RVNE has a moderate death proportion (20%) and a strong no-injury rate (80%), suggesting a relatively safe profile but with more fatalities than CWTHR.
ENTTXY shows a significantly higher death proportion (31.6%) and lower no-injury rate (68.4%), indicating a riskier profile compared to CWTHR and RVNE.

When comparing flight operation types based on the proportion of deaths and no injuries:
CWTHR is more similar to RVNE due to their lower death rates and higher no-injury proportions.
ENTTXY differs significantly, with a higher incidence of fatalities and fewer no-injury outcomes.

Question: Are any of the different types of operation of flights (see "Kind of Operation" column) similar to each other in terms of incidence of "Deaths" and "No Injuries" numbers? For example, do CWTHR numbers look more like RVNE numbers or like ENTTXY numbers when looking at the proportion of deadly injuries and not injured (relative to the total incidents/accidents for each of type of flying)?

Treemap Views with Tableau

Dataset used - Assignment 5 Data CleanedUp Tableau.xlsx

Tableau View 1 – Incidents by kind of operation

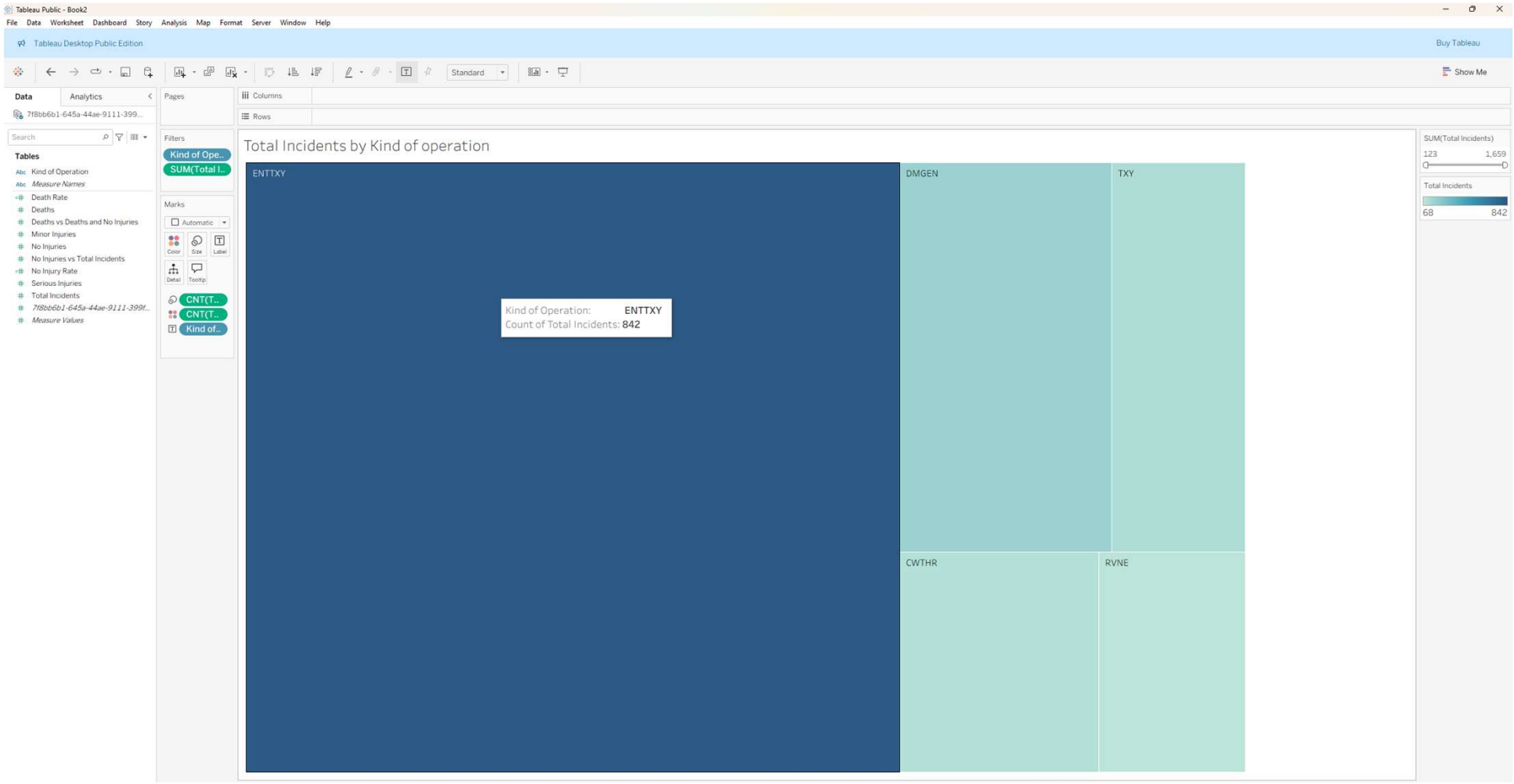


Tableau View 2 – Proportions of death

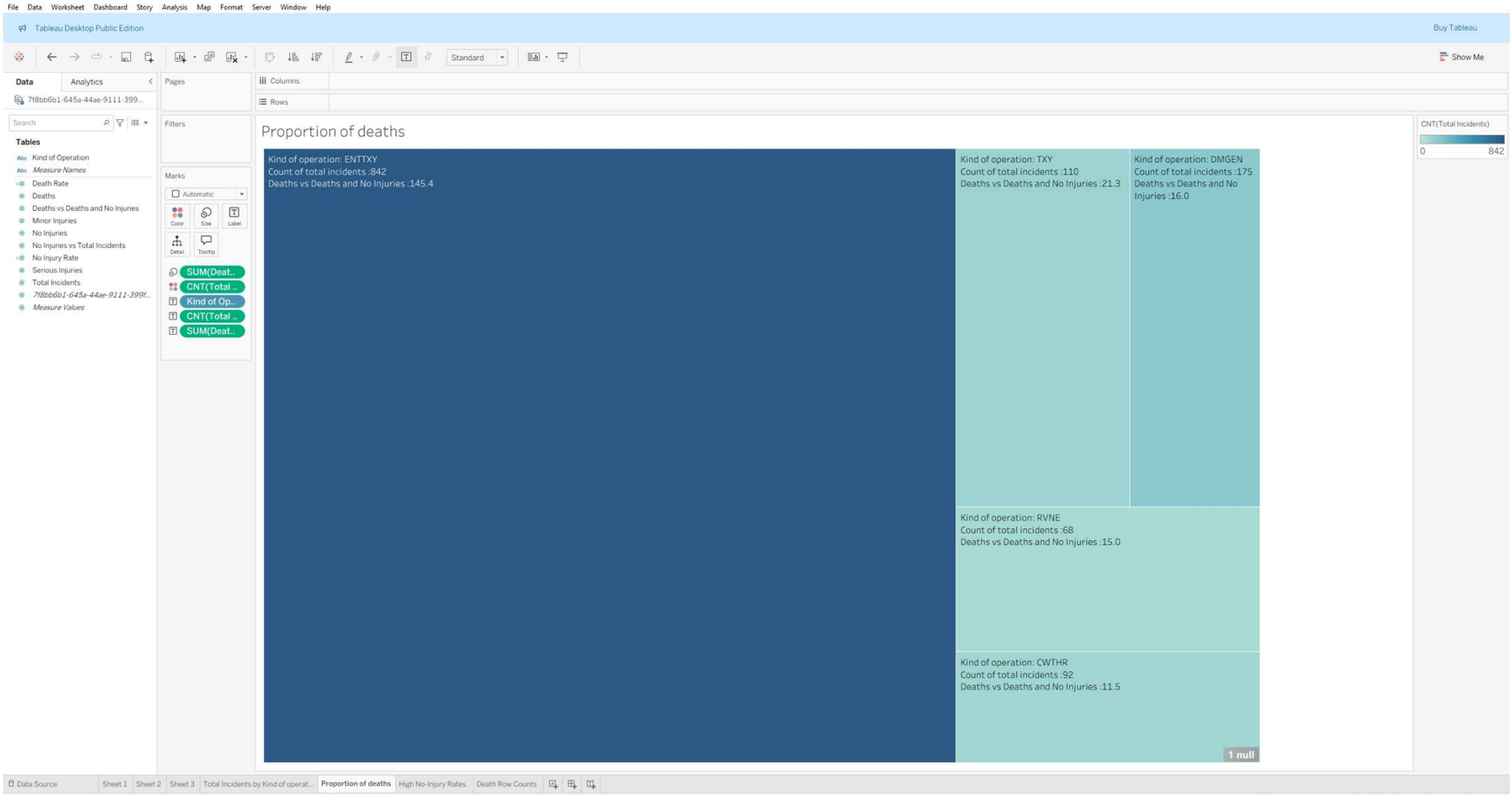


Tableau View 3 – High No-Injury Rates

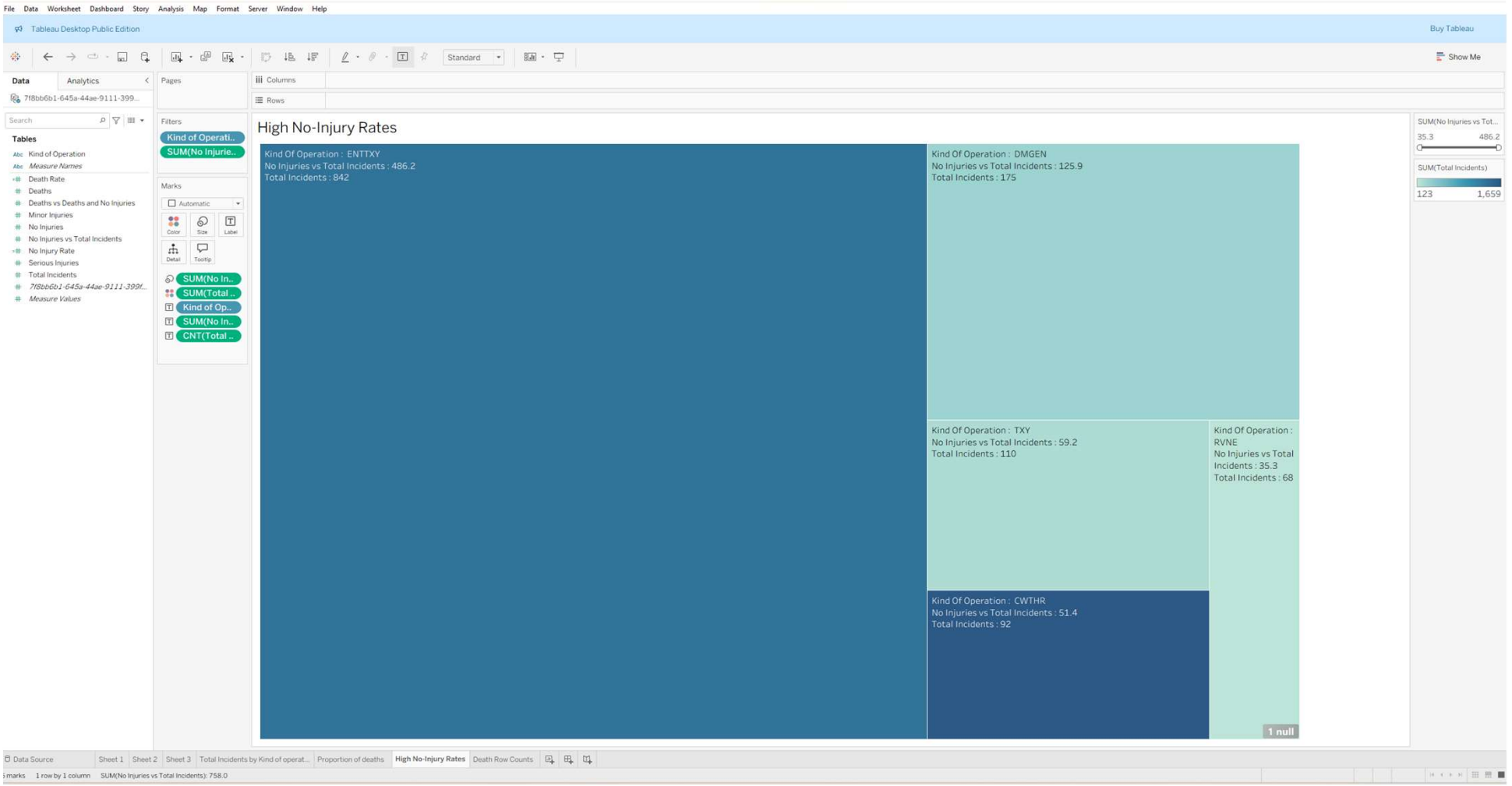
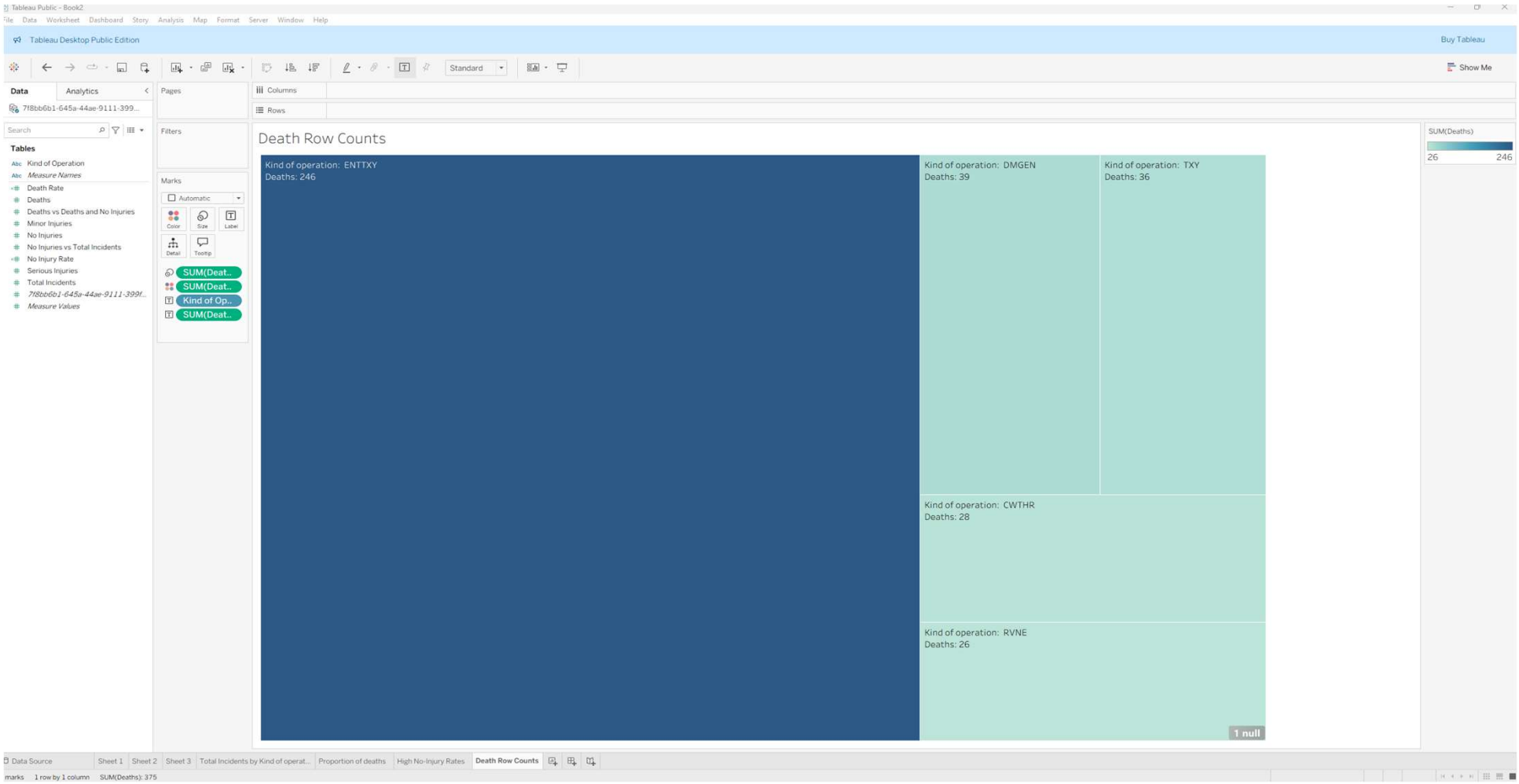


Tableau View 4 – Death Row Counts



Answer : based on Treemaps generated in Tableau

Kind of Operation	Death Rate (approx)	No Injury Rate (approx)	Observations
CWTH	High (e.g., 3 deaths, few/no no-injury cases)	Very Low	High fatality, low survivability
RVNE	Moderate (some deaths, some no-injury cases)	Moderate	Mixed outcomes, some survivable
ENTTXY	Low (many no-injury cases, few deaths)	High	Mostly non-fatal, many no-injury incidents

CWTHR

Has a high death rate and very low no-injury rate.

Suggests that when incidents occur, they are more likely to be fatal.

RVNE

Shows a moderate death rate and moderate no-injury rate.

Incidents are more balanced between fatal and non-fatal.

ENTTXY

Has a low death rate and high no-injury rate.

Most incidents result in no injuries, indicating safer outcomes.

CWTHR is more similar to RVNE than to ENTTXY in terms of the proportion of deaths and no injuries. However, **ENTTXY stands out** as significantly safer, with a much higher proportion of **no-injury incidents** and fewer deaths.

Question: Are any of the different types of operation of flights (see "Kind of Operation" column) similar to each other in terms of incidence of "Deaths" and "No Injuries" numbers? For example, do CWTHR numbers look more like RVNE numbers or like ENTTXY numbers when looking at the proportion of deadly injuries and not injured (relative to the total incidents/accidents for each of type of flying)?

References and Tools used

- Lecture slides from lecture 7 slide 20-23 on Treemaps
- Pre-recorded lectures for lecture 7
- Treemap Tool version 4.1
- Tableau Public 2025 - https://www.tableau.com/community/public
- https://www.tableau.com/chart/what-is-treemap
- Assignment Dataset provided in the Assignment Material