Design & Implementation of 2 Visualisation Systems for Hiking Trails Data

The Residuals

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# Video Demonstration

Video demonstration of each visualisation system can be found at the following link.

**The Zebra System:** link

**The Giraffe System:** link

# Data Set Description

The Washington Hiking data set contains data on hiking trails in Washington State. The data set comes from the Tidy Tuesday community repository [1] and can be found at <https://github.com/rfordatascience/tidytuesday/tree/master/data/2020/2020-11-24>. It was obtained by scraping the Washington Trails Association website in November 2020 [2], however the data set is offline. The data set type is a 2-dimensional table, with static availability. The data item is a hiking trail, which is specified by name. The data attributes are location, length, gain, highpoint, user rating, and trail features. Hike trail description is of text data type [3].

|  |  |  |
| --- | --- | --- |
| Attribute | Attribute Type | Ordering Direction |
| location | categorical | - |
| length | quantitative | sequential |
| gain | quantitative | diverging |
| highpoint | quantitative | diverging |
| features | categorical | - |

Table : Classification of Data Attributes

# Visualisation Objective

[200 words]

* Actions and targets
* **Hiker should be able to find a hike trail that interests them based on attributes**
* Hiker should be able to find or select the region where they want to hike (for example, this is choosing which features we are presenting and discovering)
* The user rating should be conveyed by colour or size
* System charts make sense from a physical perspective (length is horizontal, peak height is vertical, forest inspired colour scheme)
* **Present** data – **discover** user rating, length, features
* Produce charts and derive which trails have the highest rating (transform data to have more meaning via the system)
* Discover features in the data (longest trails could be lowest rated, have highest gain)
* End user can identify which hike to take, allow the user to explore (1) or lookup (2) the hikes they want to take

# System Implementation

The visualisation systems are called The Zebra System and The Giraffe System. The implementation process of both systems can be followed in the program code, which can be found in the accompanying folders **zebra.zip** and **giraffe.zip**. For demonstration, see Video Demonstration.

# Design Comparison

[6 decisions, 100 words each]

# User Evaluation

[400 words, data in Appendix A]

# Future Work

[100 words]

# Appendix

[user evaluation data]

# Bibliography

[1] Thomas Mock (2021). Tidy Tuesday: A weekly data project aimed at the R ecosystem. <https://github.com/rfordatascience/tidytuesday>.

[2] *tidytuesday/data/2020/2020-11-24 at master · rfordatascience/tidytuesday*. (n.d.). Retrieved July 21, 2021, from https://github.com/rfordatascience/tidytuesday/tree/master/data/2020/2020-11-24

[3] *TEXT data type - IBM Documentation*. (n.d.). Retrieved July 21, 2021, from <https://www.ibm.com/docs/en/informix-servers/12.10?topic=types-text-data-type>

[4]