

Coursework 2 – Data Visualisation with JavaScript (20%)

Dataset

- VAST challenge 2018 Mini Challenge 2:
<http://www.vacommunity.org/VAST+Challenge+2018+MC2>
- Available as a coursework attachment.
- There is no need to introduce additional dataset, such as the toxicity level of a chemical.

Tasks: Use Vega-Lite to create visualisations that answer the following analysis questions:

1. Describe trends and anomalies with respect to chemical contamination in the Boonsong Lekagul waterways.
 2. Describe any data quality and uncertain issues, such as missing data, change in collection frequency, and unrealistic values (e.g. water temperature higher than 100 degrees).
 3. Describe any particular concern for the Pipit or other wildlife.
- You must use Vega-Lite to create the visualisations;
 - You are free to apply any pre-processing and/or non-visual analysis to help answer these questions.

Submission

- A html document including the vega-lite visualisations and answer to the three questions above.
- All the necessary files should be included in a zip file (max 10MB), including the html, css, javascript, external library, and dataset (please include the original data files used in the visualisations).
- You are free to use any third-party library or API to help with the analysis. Make sure the required files are included in the submission.

Requirements

- There should be at least one Vega-lite visualisation for each analysis question. Usually, 2-3 visualisations (including dashboard) is expected for each questions.
 - The number of visualisation depends on the number of findings in the answer: for example if three patterns are found for Question 1, one or more visualisations are expected for each pattern.
- Besides the visualisations, the answer to each question should include text that describes and discusses:
 - What the finding is (a pattern, an anomaly, etc.);
 - How the finding can be seen from the visualisation;

- How the visualisation design support the analysis, i.e. what the data and analysis task are and how the visualisation is designed to match and support them.
- Any advanced Vega-lite visualisation features used, such as multi-layer, chart concatenation, and interaction.
- Any additional (non-visual) analysis used and how it contributed to the answer.

Marking scheme (total 20%)

The quality of the findings, i.e., how insightful is the finding (6%)

- What is the finding, i.e., what message the visualisation aims to convey;
- Insightful finding receives higher mark: for example, findings that considers multiple aspects of the data, such as time, location, and measurements is more interesting than those with less aspects;
- Visualisation that clearly shows the intended finding receives higher mark.

The effectiveness of the visualisation design (6%):

Why such visual mapping is effective for the given data (*what*) and analysis (*why*), e.g.,

- Why is the chart type most appropriate for the analysis?
- Why are the choice of mark and channel the most effective?
- Is there any additional feature, such as sorting/filtering, dashboard or interactions, is used to improve the visualisation?

The quality of the visualisation and analysis code (8%):

- The quality of HTML, CSS, JavaScript, and most importantly Vega-lite code;
- Usage of advanced features such as multiple views/dashboard and interaction receives higher mark;
- Usage of additional analysis (such as statistical analysis) that contributes to the analysis (needs to be demonstrated) receives higher mark.