# Coursework 2 – Data Visualisation with JavaScript

## Tasks: use JavaScript to create visual analysis of dataset(s).

- The recommend library is Vega-Lite (https://vega.github.io/vega-lite/);
- You can use any other JavaScript visualisation library, such as d3.js (https://d3js.org/).

## Dataset:

- VAST challenge 2018 Mini Challenge 2: http://www.vacommunity.org/VAST+Challenge+2018+MC2
- The data set is available from the coursework page;

## Analysis Questions:

1. Characterize the past and most recent situation with respect to chemical contamination in the Boonsong Lekagul waterways. Do you see any trends of possible interest in this investigation? Your submission for this questions should contain no more than 10 visualisations and 1000 words.
2. What anomalies do you find in the waterway samples dataset? How do these affect your analysis of potential problems to the environment? Is the Hydrology Department collecting sufficient data to understand the comprehensive situation across the Preserve? What changes would you propose to make in the sampling approach to best understand the situation? Your submission for this question should contain no more than 6 visualisations and 500 words.
3. After reviewing the data, do any of your findings cause particular concern for the Pipit or other wildlife? Would you suggest any changes in the sampling strategy to better understand the waterways situation in the Preserve? Your submission for this question should contain no more than 6 visualisations and 500 words.

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 20MB), including the html, css, javascript, external library, dataset, and any other file you needed for the document and its 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.

## Marking Scheme

Each analysis question is 5 mark, so the total is 15 marks. For each analysis question:

### The quality of the finding: 2 mark

- Make sure you describe what the finding is;
- No mark for finding that is not correct (e.g. uses the wrong statistics) or trivial (e.g., the Water Temperature at site XXX is YYY degree at time ZZZ).
    i. Explain why a finding is important: why would someone care about it?
- Explain all the analyses used, such as filtering and derived data, and the reason for doing that;
- Insightful finding receives higher mark.

### Effectiveness of the visual design: 3 mark

For the given dataset/data/attribute type and analysis task, an effective visual design uses:

- The most effective chart, such as line chart vs. bar chart vs scatter plot;
- The most effective channel, such as the choice of channels for quantitative data;
- The most effective adjustment, such as sorting the bars according to value to show the min and max value in a bar chart;
- Extra mark for designing novel visualisation, e.g. a new type of chart, to support analysis.