

# A generalized data dashboard to visualize user interface logging in IIR experiments

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## Background

Logging and analysing user interactions is commonplace in the IIR field. LogUI is a framework that aims to simplify this process, it makes it very easy to capture web events.

Parsing and analysing log files exported from LogUI can be difficult and time consuming. Our solution to this problem is a data dashboard that displays key metrics.

## Research Questions

**RQ1:** Which behavioural metrics do IIR researchers generally look for when performing user interface experiments?

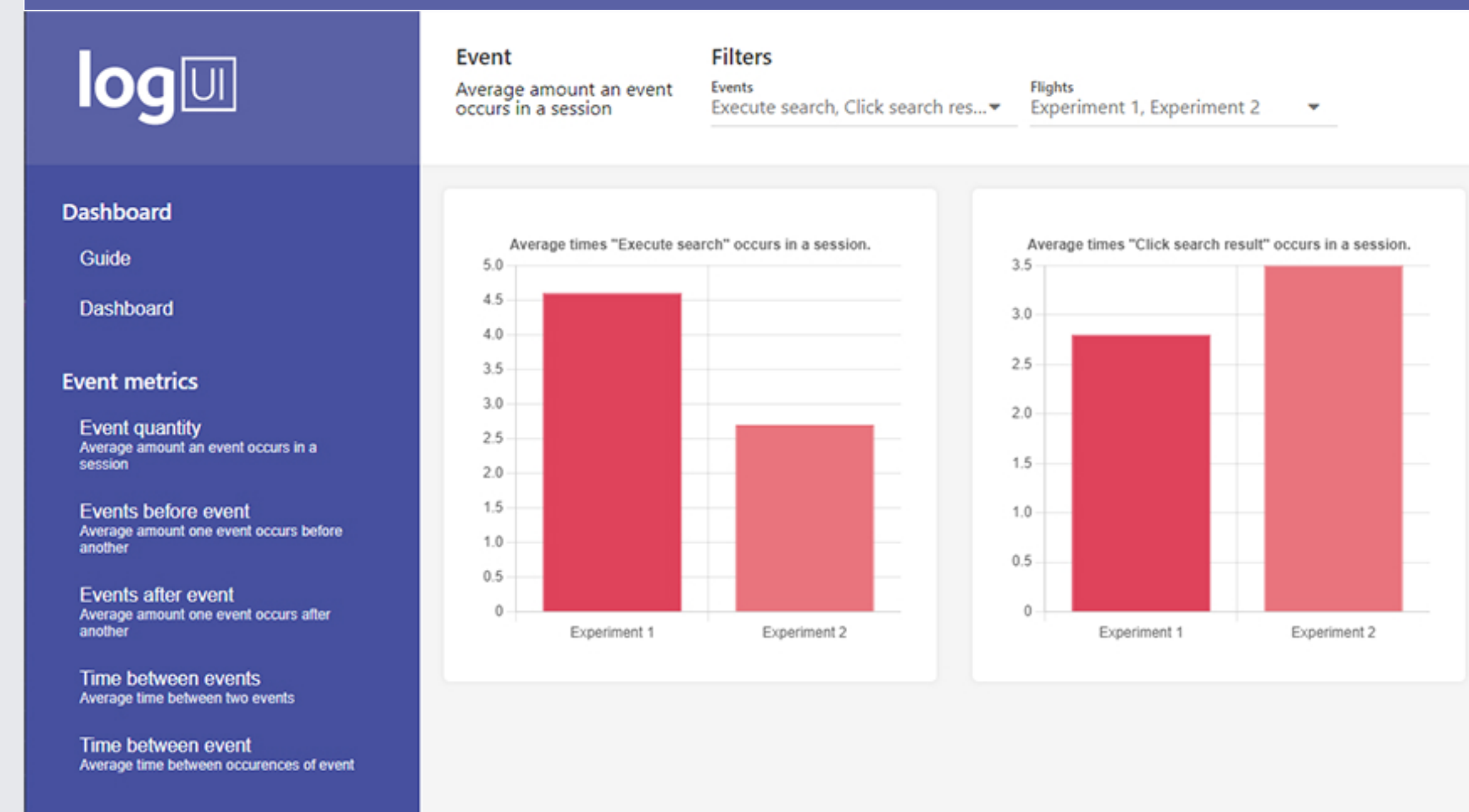
**RQ2:** How can we present a summary of logging data that allows the user to perform an exploratory analysis on the data?

## RQ1: Popular metrics

We went over existing papers in the IIR field to find the most **popular metrics**:

- Average count of event X per session.
- Average time between event X and event Y per session.
- Average time between occurrences of event X.
- Average count of event X before event Y per session.
- Average count of event X occurs after event Y per session.

## RQ2: Data Dashboard



## Method

We performed a **user study** to verify the dashboard, which involved the following steps:

1. Shortly introduce the dashboard.
2. Monitor the participant through Zoom screen sharing while they independently use the dashboard to answer basic research questions.
3. Let the participant fill the User Experience Questionnaire (UEQ) to obtain quantitative
4. Have a semi-structured interview to discuss their use of the dashboard and potential improvements.

The UEQ is a survey consisting of 26 opposing qualities where the participant is asked to rank on a scale of 1 to 7 how much the application matches that quality.

## Results & Future Work

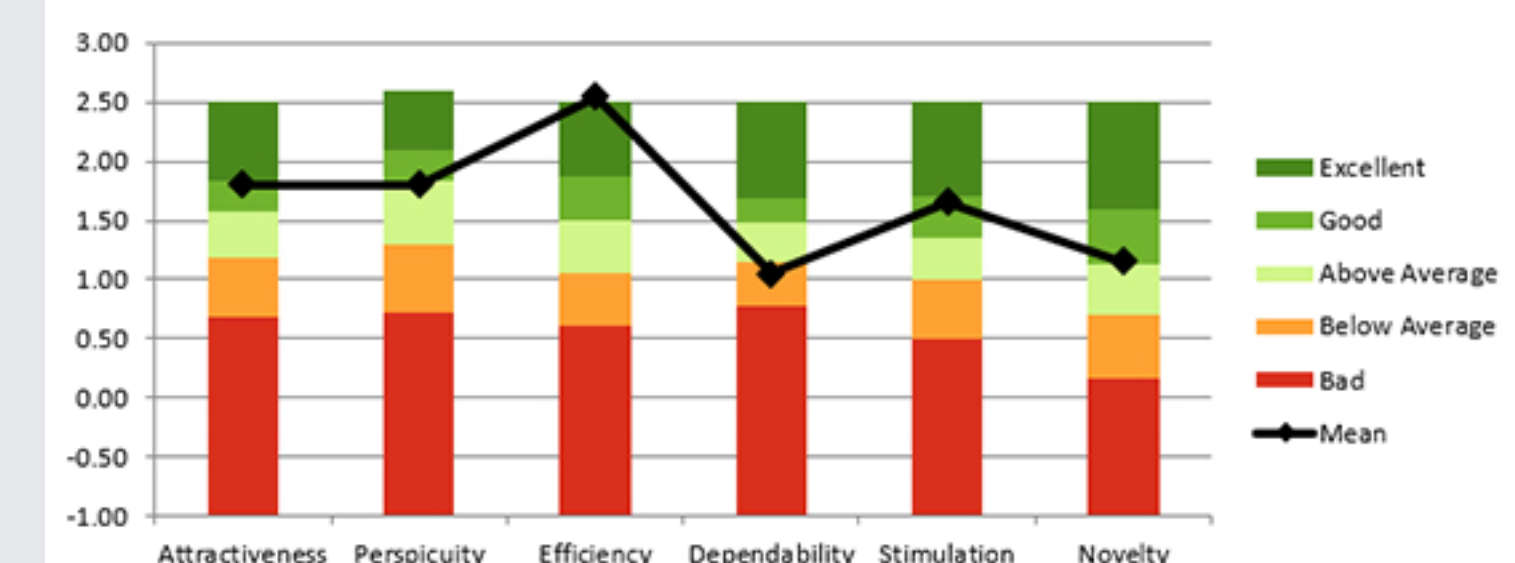
Average time to answer all four research questions in our experiment: 5 minutes and 19 seconds.

The participants found the dashboard satisfactory. Only one participant was unable to answer one of the questions

### Suggested improvements:

- Unclear wording in metric
- Show probability distribution
- Show individual user data instead of only averages
- Add more advanced filtering e.g. custom LogUI properties

### UEQ results:



### Conclusions:

We have shown our dashboard has been able to visualize logging data in a manner that allows researchers to perform an exploratory analysis on their data. Our solution reduces the effort and knowledge required to analyze LogUI data.