Creating a Interactive Data Visualisation Tool for click data.

CAKE, (Cook-Along Kitchen Experience) is an online based interactive experience.An OBM (Object Based Media) experience from the BBC. OBM is a way to tailor content to the individual users based on their requirements. For example a TV broadcast could be broken down into various objects such as audio, video, subtitles, then rearranged based on the device that a viewer is viewing this content, whether on TV, mobile or in a browser.

In the case of CAKE, at the beginning of the experience users are asked several questions such as confidence cooking, number of people cooking for, and then tailors the experience based on the user's answers. The experience also scaled depending on the device the user was using.

The BBC R&D wanted to find out how people navigate their way through this experience. An experiment was set-up to see how participants navigated their way throughthe CAKE experience compared with the same content presented in a linear fashion, in this case a static video with the written recipe displayed alongside.Different types of interaction data was collected from mouse movement to button clicks.

The large amount of data made it difficult to sift through so we focues on button click data, as it has been shown to be indicative of user behaviour and some more insight would be useful.The click data was messy and difficult to gain meaningful insight from in it's raw form. Initially bespoke scripts were written to filter, sort and eventually visualise the data.Even though the results were published in two papers (see notes), writing and re-writing scripts soon became tiresome,especially when making small changes to the parameters. The usefulness of a tool that could automate the process by allowing the user to change the parameters for themselves as wellas interact with the plots, soon became apparent. Even better, if the tool was generalised it couldbe re-used in other projects that require the analysis of click data.

That's what the Interaction Data Visualisation Tool (IDVT) does. It's a web tool takes the click data, processes it, and creates several different interactive visualisations togive researchers a way to start their analysis of the data. As it's a web app it can be easily shared, used and updated. Additionally, the ability to download the plots as HTML or PNG files means that the results can be shared with other researchers and easily added to papers. Having the summary statistics (eg clicks per minute, total time taken etc) available means that further analysis can be made.

Due to the general nature of the tool it can be used with any click data as long as each action contains four simple parameters, a participant_id, timestamp, action and item. This means that the IDVT can be reused in other projects that deal with click data, speeding up their initial analysis, leaving more time to try and answer their research question.

Notes

- "Identifying Latent Indicators of Technical Difficulties from Interaction Data" - Jonathan Carlton, Joshua Woodcock, Andy J Brown, John Keane, Caroline Jay.
- Using Low-Level Interaction Data to Explore User Behaviour in Interactive-Media Experiences - Jonathan Carlton, Andy J Brown, Caroline Jay, John Keane.