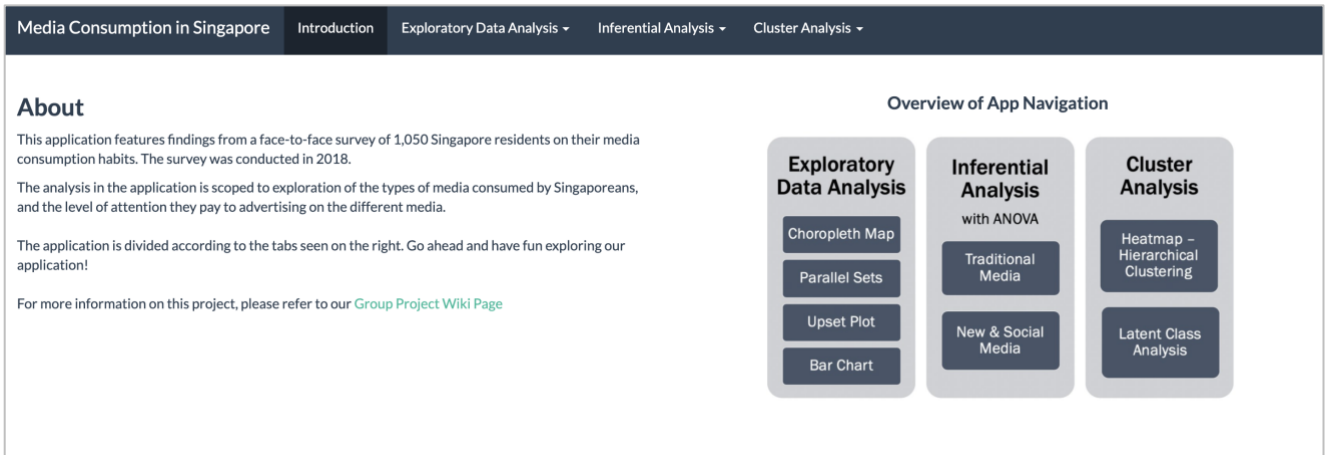


## User Guide – A Visual Exploration of Media Consumption in Singapore

### 1. Introduction Page

On this page, there is a short description of the application and an overview of the application navigation.

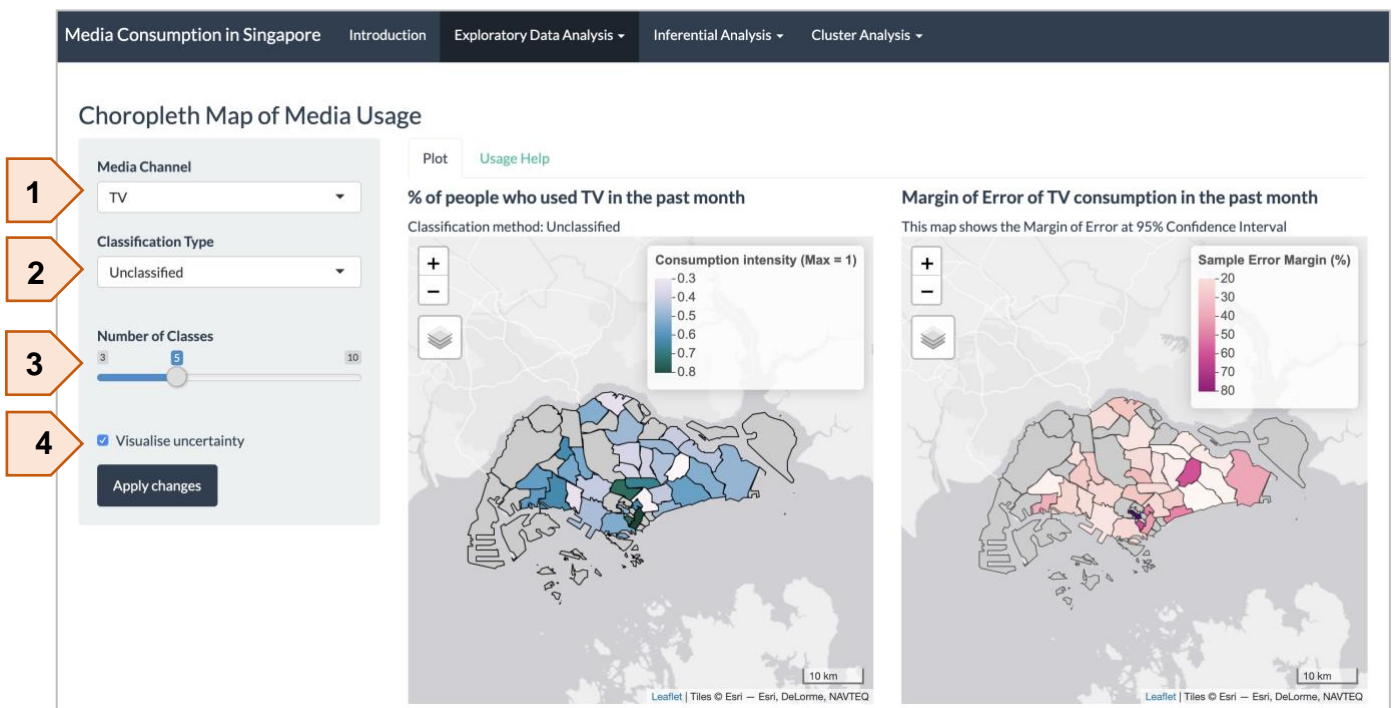


### 2. Exploratory Data Analysis (EDA)

Across each tab, there is a “Usage Help” sub tab that gives instructions on how to the user can interact with the visualization.

#### 2.1. Choropleth Map

Choropleth Map is a thematic map in which areas are shaded in proportion to a statistical variable that represents an aggregate summary of a characteristic within each area.



[1] Select the desired Media Channel to visualise the percentage of people who consumed that specific media type in the previous 4 weeks.

[2] Select the method to classify the data into ranges. Generally, the best approach is to put areas with similar percentages in the same class, and separate areas with very different percentages into different classes.

(Alternatively, you can avoid placing the data into classes by selecting an unclassified choropleth map where each variable gets a unique colour. However, this approach may conceal key signals in the data.)

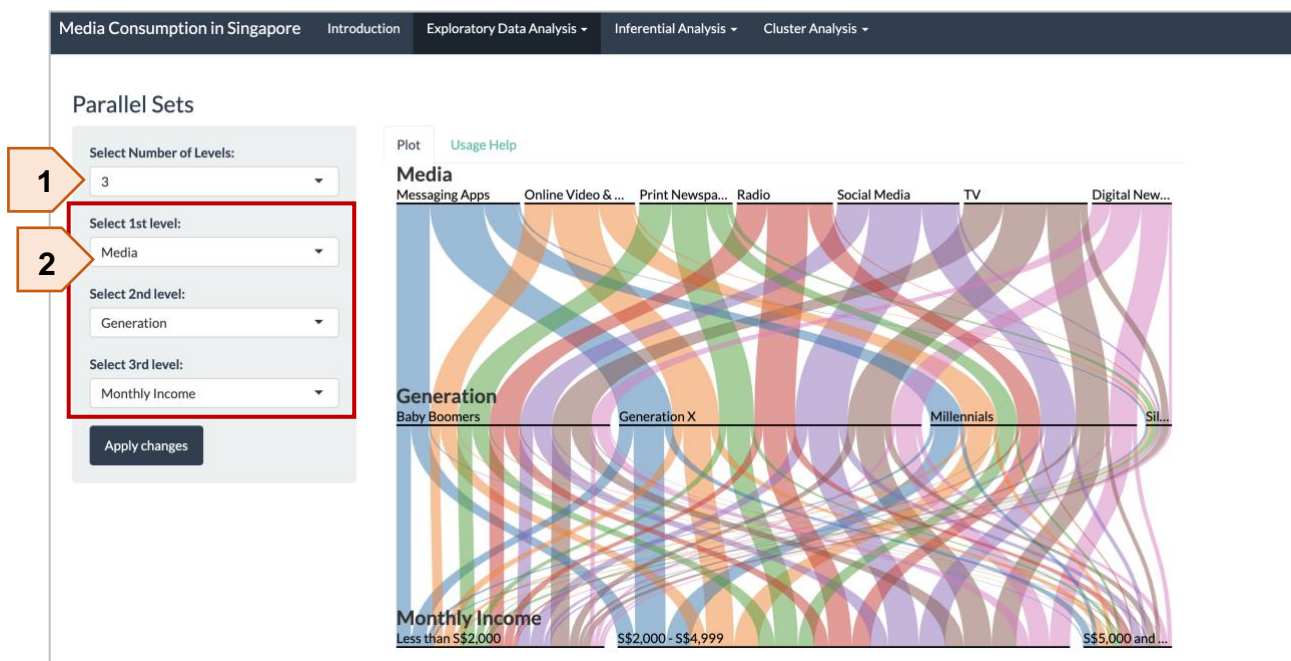
[3] Select the desired number of data classes. More classes means less data generalisation, but comes at the cost of poorer legibility.

[4] Select whether you would like to visualise the uncertainty in the data. If selected, a secondary map will be generated which shows the survey margin of error in each area.

[5] Select “Apply Changes” to generate the Choropleth Map.

## 2.2. Parallel Sets

Parallel Set charts are similar to Sankey Diagrams in the way they show flow and proportions. Each flow-path can be coloured to show and compare the distribution between different categories. For each dimension, a horizontal bar is shown for each of its possible categories. The width of the bar denotes the absolute number of matches for that category.



[1] Select the number of levels or categories that you wish to visualise.

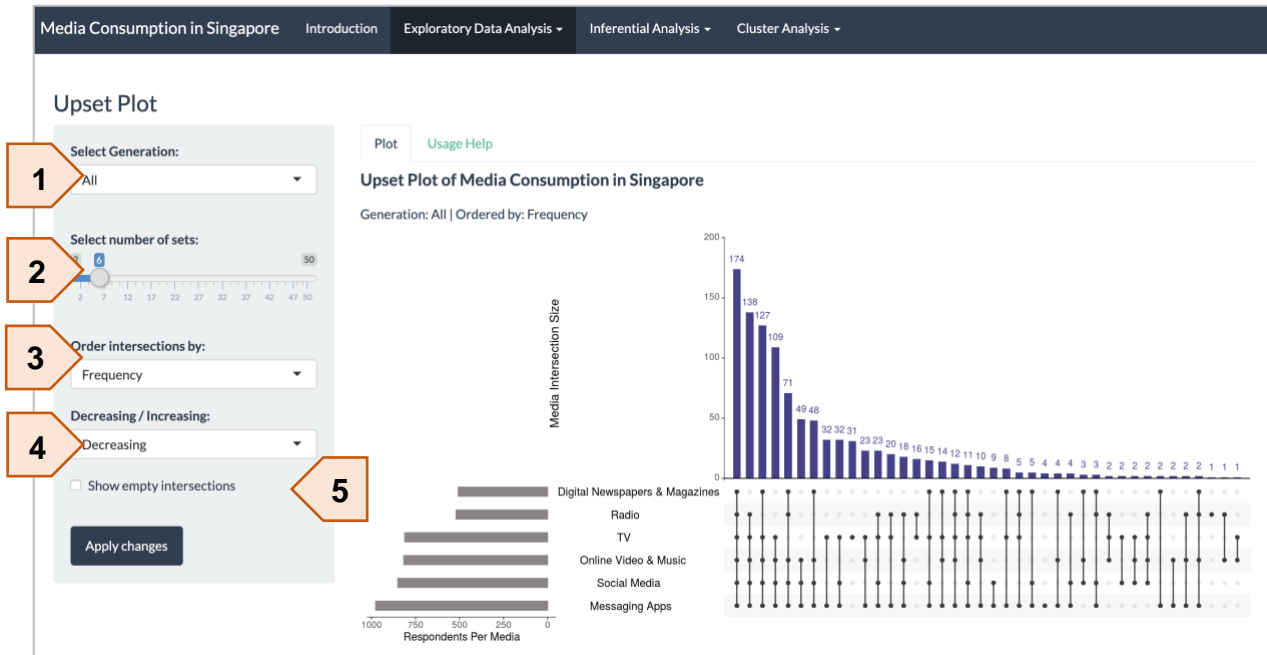
[2] Select the categories that you wish to visualise.

[3] Click the “Apply Changes” button to ensure that selections are applied.

Note: You can drag the dimensions or categories to reorder them. Also, you can click the “alpha” or “size” links that appear next to the dimension name on mouseover, to order the categories by name or frequency.

### 2.3. Upset Plot

The Upset technique visualizes set intersections and size in a matrix layout and introduces aggregates based on groupings. The matrix layout enables the effective representation of associated data, such as the number of elements in the aggregates and intersections.



[1] Select type of Generation to filter the data according to generation.

[2] Select number of sets to look at.

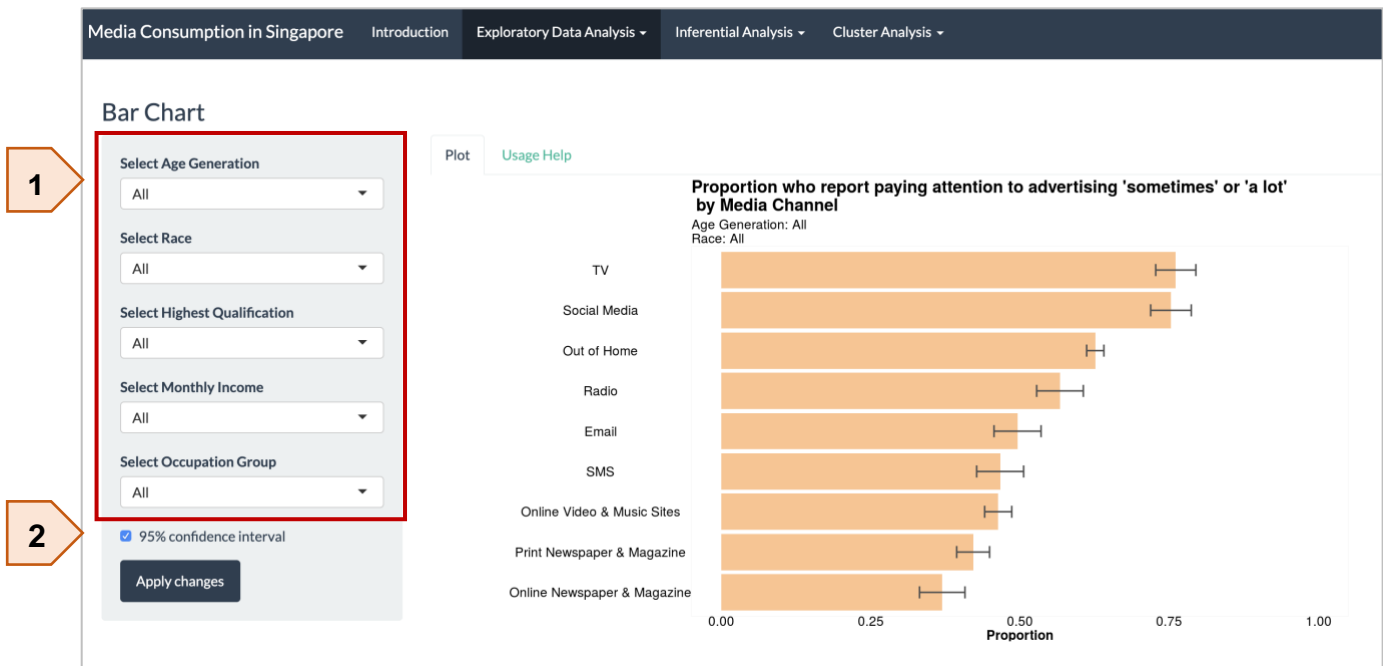
[3] Order intersections by 'Frequency' or 'Degree'. This would determine how the intersections in the matrix should be ordered by.

[4] Select the option 'Decreasing' (greatest to least) or 'Increasing' (least to greatest), to determine how the variables should be ordered.

[5] The show empty intersection option additionally displays empty sets.

[6] Once selections or options have been selected, click 'Apply changes' to plot the Upset Plot.

## 2.4. Bar Chart



[1] Select any combination of demographic filters to apply to the data from the sidebar panel.

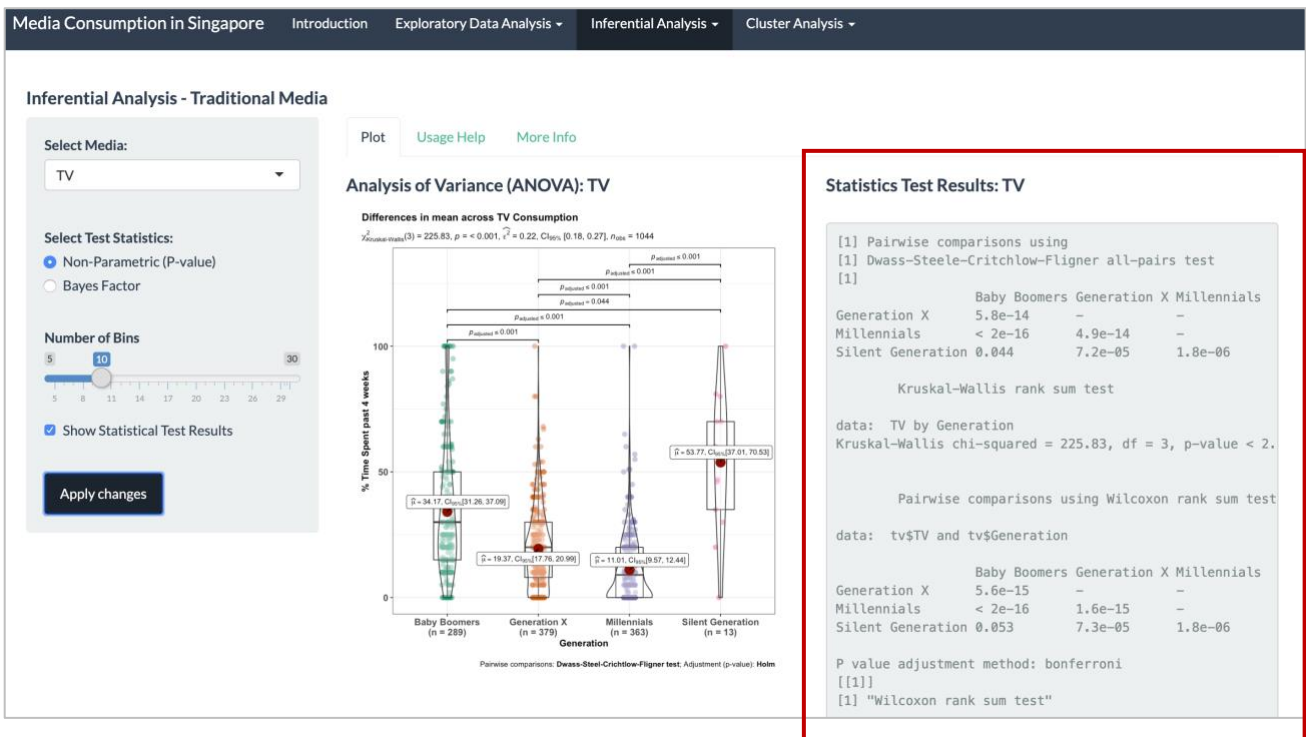
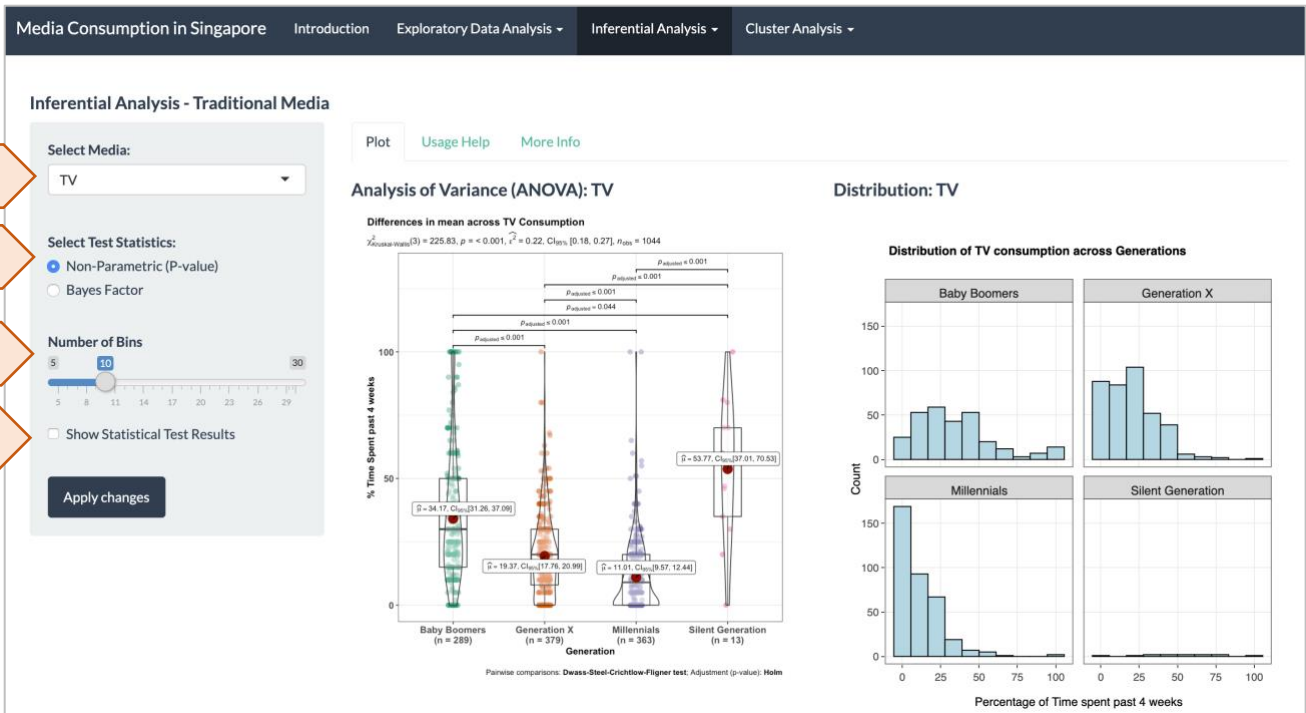
[2] Select whether you would like to include error bars that represent the 95% confidence intervals of the sample proportions in the chart.

[3] Select “Apply Changes” to generate the Bar Chart. The bar will be automatically ordered in descending order from the media channel with the highest % of people who report paying attention to advertising on that platform ‘sometimes’ or ‘a lot’.

Note: Under Occupation group, “PMET” stands for Professional, Managers, Executives and Technicians and “RnF” stands for Rank-and-file workers

## 3. Inferential Analysis – Analysis of Variance (ANOVA) Test

There are two drop downs under the Inferential Analysis tab under the main navigation bar, namely “Traditional Media” and “New & Social Media”. The only difference between both tabs is the Media type choices. “Traditional Media” consist of TV, Radio and Print Newspaper & Magazines while “New & Social Media” consist of Digital Newspaper & Magazines, Online Music & Video, Social Media and Messaging Apps. The selection options for both tabs are the same as seen below.



[1] Select Media type.

[2] Select the test statistics that you are interested in.

[3] Select the number bins for the histogram.

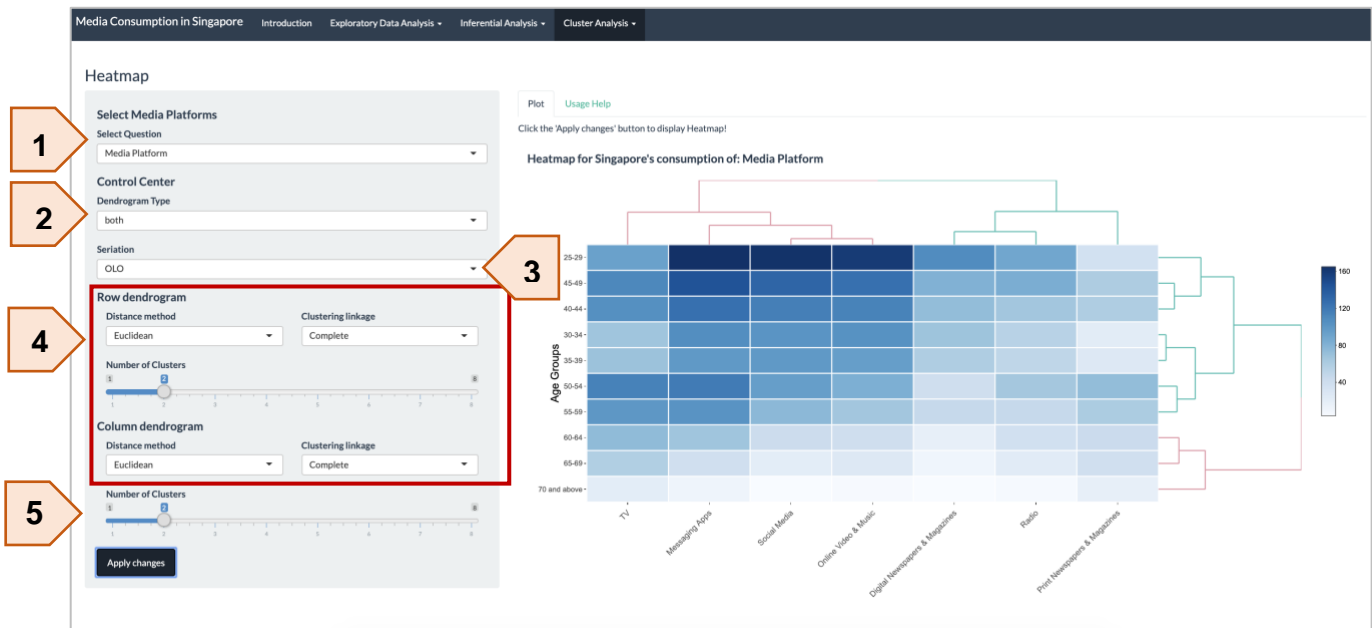
[4] If you are interested in finding out the detailed statistical test results of the One-way ANOVA test, click on the “Show Test Statistics results” checkbox. The statistical test results

would display the selected statistical test results along with the pairwise comparisons test (i.e. using Dwass-Steele-Critchlow-Fligner all-pairs test and Wilcoxon rank sum test).

[5] Once the selections have been made, click “Apply changes” to refresh the plots.

## 4. Cluster Analysis

### 4.1. Heatmap



[1] The control center on the left allows the user to subset the data by various media platforms

To reflect any change made in the control center, it is necessary to click the “Apply Changes” button.

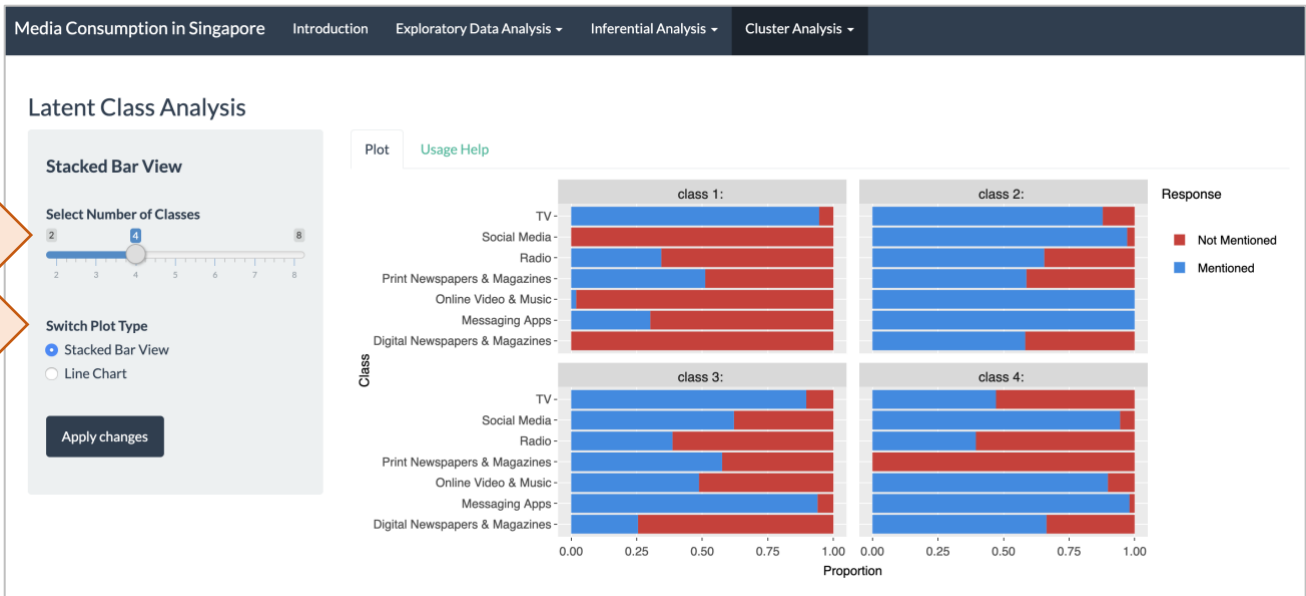
[2] The user can choose between displaying either, none or both row and column dendrograms

[3] Method of seriation can be chosen between “OLO”, “GW”, “Mean” and “None”

[4] The distance method and clustering method for hierarchical clustering can be altered

[5] The user can also choose the number of clusters through the slider

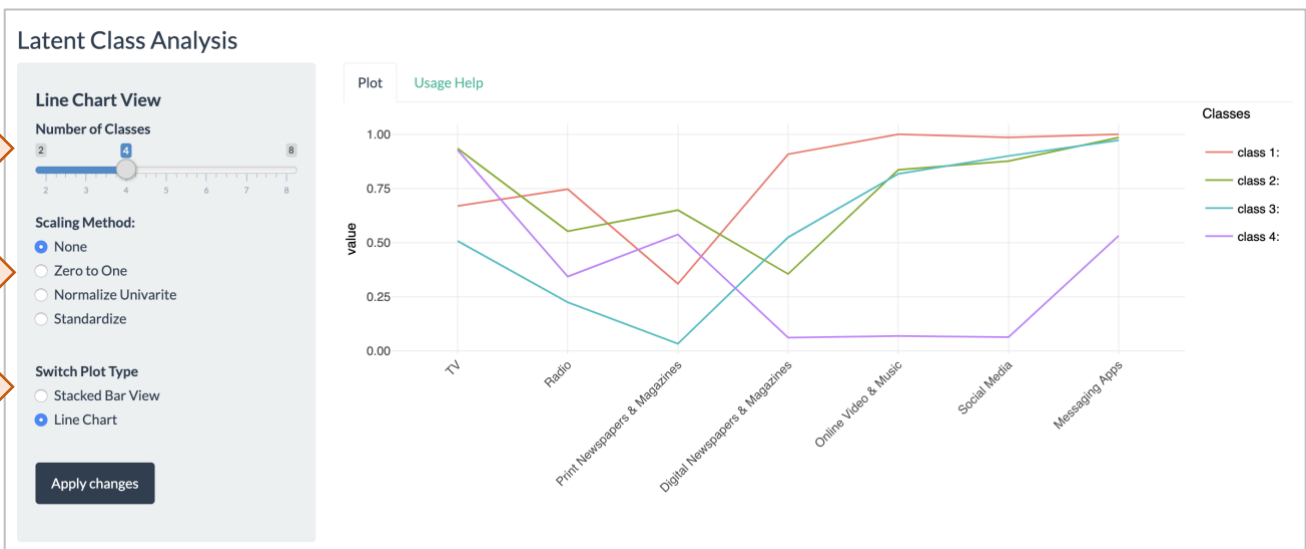
### 4.2. Latent Class Analysis



[1] By default the app shows only the stacked bar view. The number of classes can be toggled between 2 to 8 through the slider.

Any changes made will be reflected after clicking the “Apply Changes” button

[2] Additionally the clusters can be shown in the form of a line chart with media categories on x-axis and the probabilities on y-axis.



[1] A slider allows the toggle the number of clusters to out the LCA.

[2] On the line chat view, the user can select the y-axis scaling method through radio buttons

[3] The user can switch back to the stacked bar view