

# STAT3622 Data Visualization: In-class Quiz 2

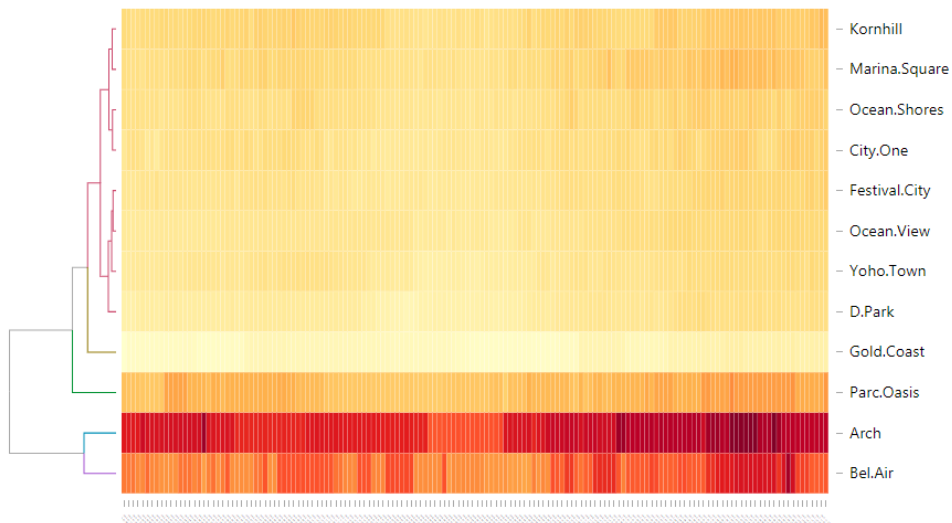
23 November 2017 (40min)

Name: \_\_\_\_\_ ID: \_\_\_\_\_ Score: \_\_\_\_\_

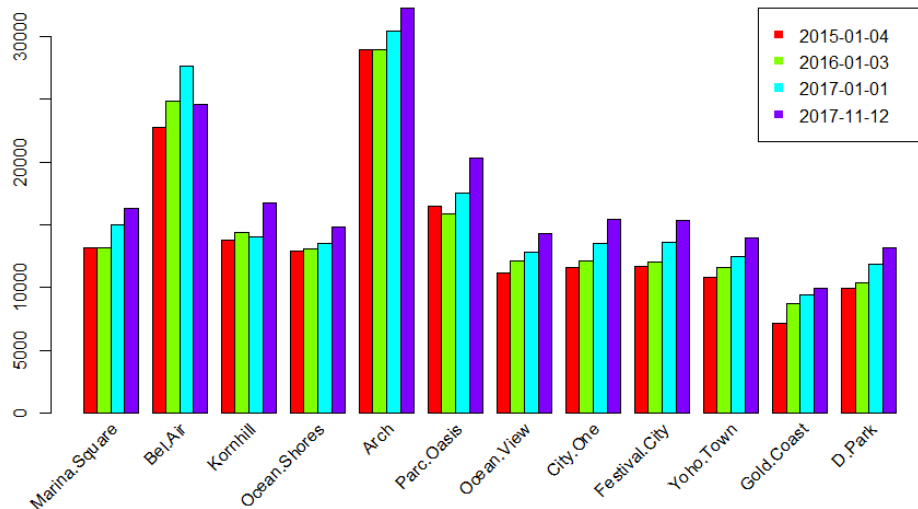
**Q1** (50%) The layered grammar of graphics allows us to concisely describe the components of a statistical graphic, and provides a guideline during the process of creating a chart.

- (1). List the necessary components for a `ggplot2` graphic. (10%)
- (2). List the optional components for a `ggplot2` graphic. (10%)
- (3). Consider the *animated* version of Rosling's bubble chart as created from `R:gampminder` data, using the `magick` rather than `plotly`. Explain through this example each of the necessary components in a concrete way. (20%)
- (4). Based the above example, explain the optional components that are essential for customizing the bubble chart in a concrete way. (10%)

**Q2 (50%)** Shown below is a heatmap of weekly house prices of 12 selected HK estates since 2015. The light to dark colors represent the prices from low to high.



- (1). From the chart, find a) the **estate** with highest overall prices; b) the **estate** with lowest overall prices; and c) the **estate** with most fluctuating prices. (15%)
- (2). By reading the dendrogram in the above plot, find the subgroups of estates based on a) two-cluster decision, b) three-cluster decision, and c) five-cluster decision. (15%)
- (3). We may compare the latest prices to last years by the following bar chart. What do you find in terms of price levels and price changes? (20%)



Answer for Question 2: