Color Your Data
Design

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1 Goal and design

For a statistician, it is usually not enough to only conduct good data analysis – visualizing the results is also crucial. Especially when people want to show the data that come from different classes, it is extremely important to choose a set of colors that are distinguishable and suitable for the data.

My goal is to build a small app that helps people choose color schemes. Specifically,

1. It provides several built in color schemes that have been carefully selected beforehand.
2. Users can also design their own favorite color schemes.
3. The app has a default data set, but users can also import their own data (with no greater than 10 classes).
4. The advantage of my app is that user can immediately view the colors in different plots, so that they can decide whether to use it or not.
5. Users can save, delete, and export their favorite color schemes.
6. The app also provides a basic k-Means algorithm to help cluster data into different groups. The newly clustered data can also be exported.

The design and user interface are inspired by `http://colorbrewer2.org/`, but many new features are added (2,3,5,6).

2 Implementation

The app is implemented in Tkinter. It includes three classes:

1. ColorYourData: the main app, which finishes all manipulations of drawings.
2. Data: a class that can read data from file, and also with related methods to perform k-Means clustering, as well as generating bar plot, pie chart and scatter plots.
3. DefaultColorSchemes: a class that reads in default color schemes from file, along with a series of methods to draw color scheme legends.
4. ColorWheel: a class that generates the color wheel.