

For this project, you will be *helping the RCYC management team better understand how different groups of members use their facilities so that they can better adapt to members' needs.*

You should make sure that your final insights are specific and tied to the data; i.e. not general recommendations like, "the RCYC should renovate their fitness facilities" which are not tied to these data. You may consider searching for additional sources of data to combine with this data, if you wish, but you are expected to use the data provided as . You will write your project proposal individually, but there will be options to complete later parts of the project as a group or as an individual - we will share more details about this later.

The above objective is very broad, so in your project, you will need to formulate specific questions to help the RCYC better understand how different groups of members use their facilities over time so that they can better adapt to members' needs. You are not required to use the same questions as you formulated in your project proposal, but we expect that those questions (and/or the feedback you received on them) will be useful in helping you think about the elements of interesting and meaningful questions for your audience (RCYC managers).

General comments on this Project

- We expect that your analysis will require **data wrangling**, **exploratory data analysis** (plots and summary statistics), and **statistical methods** (e.g. hypothesis tests, confidence intervals, classification trees, and/or regression models). Your project should NOT include *all* of the statistical methods we've learned.
- You do not need to use all of the variables in the dataset and are encouraged to create *new* variables from the data and/or link outside datasets that may be more suitable for answering relevant questions.
- You might also choose not to include all observations in your analyses. Think carefully about what questions your group would like to explore and the story you are telling with your analysis.
- Make sure that the visualizations and methods you choose to use make sense for the questions you are trying to answer! Some of the statistical methods we covered in this course are not useful to answer certain research questions, and choosing appropriate methods to answer each of your questions is an important part of this project. The visualizations you choose should be meaningful for your audience (RCYC managers)

Grading rubric

1. Research question

Three distinct research questions are present. All three research questions are relevant to the RCYC and incorporate some type of demographic information. Scope of the questions is very clear and can be addressed with the available data (if additional data is used, it is introduced clearly).

2. Data wrangling

Succinct discussion of data wrangling choices that are creative, produce informative variables, account for outliers (if relevant), restrict to the appropriate sub-sample, or other techniques to appropriately prepare the data for analysis

3. Data visualization

An appropriate data visualization for each research questions is displayed. The choice of each of the data visualizations is appropriate for the audience and provides meaningful information. Informative titles/axes/labels provided. Graphics stand alone with adequate details.

4. Statistical analysis

A minimum of two different statistical methods are used across the three research questions (e.g. only one statistical method per question is needed, but at least two methods are used overall). The choice of statistical methods is logical and appropriate to the research question(s); analyses are complete and thoughtful; explanation of the methods is at a level appropriate for the intended audience.

5. Results and conclusions

Results are statistically correct and clearly and completely summarized for the intended audience. Appropriate limitations and concerns are clearly stated.

6. Organization

Contents are very well organized under the appropriate section and subsection headings. No more than 18 slides (excluding reference and acknowledgements slide(s), if applicable).

7. Writing techniques

Very well polished and well written. Use of well written bullet points. Choice of language is appropriate for the intended audience. Minor punctuation or grammar issues are allowable.