Homework 5

February 9, 2022

Instructions

- This homework is due Wednesday, February 16 at 3pm EST.
- Submit via GitHub. Remember to commit and push online so I can see it.
- Please format your homework solutions using R Markdown. You are welcome to simply add your answers below each question.
  - If the question requires a figure, make sure you have informative title, axis labels, and legend if needed.
  - Note: When I've given the framework of an answer's code, I've included the option `eval=FALSE` in the R chunk. When you start filling in your answer, you'll need to switch this to `eval=TRUE`.
- Turn in both the .rmd file and the knitted .pdf or .html file.
  - Knitting the .rmd file to a .pdf or .html file should help ensure your code runs without errors, but double check the output is what you expected.

Question 1

This homework asks you to start thinking about how you would represent your research design in the MIDA framework. Your tasks:

- Fill in the following functions with a *first draft* of how you see an experimental design testing one of your hypotheses.
- For each of the MIDA components, explain in at least a few sentences what you're doing and why you're doing it.
- For each declaration, comment on if it somehow isn't representing your research design how you want it to yet. Essentially, I want to see a list of "todo's" from you. Some examples:
  - You want three experimental conditions, but you've only coded up two so far.
  - You want to use block randomization, but you've only coded up complete randomization so far.
  - You want to measure your outcome as an index across five items, but you're only representing your outcome as a single item.

```
#M - models of the world
declare_population()
declare_potential_outcomes()
```

```
#I - inquiry
declare_inquiry()
```

```
#D - data strategy
declare_assignment()
declare_reveal()
```

```
#A - answer strategy
declare_estimator()
```

Question 2

Even though your design will be incomplete and/or unrepresentative of what you envision for the final product, I want you to get in the habit of diagnosing it. Using the `diagnose_design` function, diagnose your design and comment on the results.

```
diagnose_design()
```

Question 3

Here, I want you to comment on two things:

1. Do you have any specific questions for me?
2. What do you see as your next steps for this project?