Project Proposal

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Load Packages

```r
library(readr)
library(tidyverse)
library(readxl)
library(dplyr)

library(sf)
```

```
## Linking to GEOS 3.8.0, GDAL 3.0.4, PROJ 6.3.1
```

```r
library(rgeos)
```

```
## Loading required package: sp
```

```
## rgeos version: 0.5-7, (SVN revision 676)
##  GEOS runtime version: 3.8.0-CAPI-1.13.1
##  Please note that rgeos will be retired by the end of 2023,
## plan transition to sf functions using GEOS at your earliest convenience.
##  Linking to sp version: 1.4-5
##  Polygon checking: TRUE
```

```r
library(scales)
```

```
##
## Attaching package: 'scales'
```

```
## The following object is masked from 'package:purrr':
##
##     discard
```

```
## The following object is masked from 'package:readr':
##
##     col_factor
```

```r
library(maps)
```

```
##
## Attaching package: 'maps'
```

```
## The following object is masked from 'package:purrr':
##
##     map
```

```
theme_set(theme_bw())
```

Load Data

```
Carolina_Small_Business_Dataset <- read_excel("~/Carolina Small Business: Stats 198 Project/data/Carolin
```

```
map('county','north carolina')
```


Introduction and Data, including Research Questions

(The introduction should introduce your general research question and your data (where it came from, how it was collected, what are the cases, what are the variables, etc.). Your research questions should be clearly specified. The motivation for your research question should be clear, with citations to relevant literature as appropriate.)

Research Questions:

1) Is more money lent to minority and women owned businesses? Is the difference in lending money significant based on whether a business is minority and/or women owned?

2) Is there a difference in social, community trust, and financial stability scores based on whether the business is minority and/or women owned?

3) What do employment outcomes look like for minority owned and women owned businesses versus businesses that are not minority or women owned?

Glimpse

Here is a glimpse of our dataset:

```
glimpse(Carolina_Small_Business_Dataset)
```

```
## Rows: 175
## Columns: 15
## $ `Program Name`          <chr> "Durham Small Business Recovery Loan", "Me~
## $ `Application No.`        <chr> "03492", "00290", "01130", "01087", "03638~
## $ Amount                  <dbl> 35000, 30746, 25000, 35000, 25011, 7668, 5~
## $ `NAICS 6-Digit Code`     <chr> "312120", "423450", "541840", "541910", "5~
## $ `Social Capital Score`   <dbl> 2.0, 1.4, 1.4, 1.6, -0.4, 2.0, -0.2, 0.4, ~
## $ `Community Trust Score`  <dbl> 2.9, 2.6, 3.1, 3.0, 3.0, 3.7, 2.5, 2.0, 2.~
```

```
## $ `Financial Stability Score` <dbl> 0.5, 0.5, 0.5, -1.0, 1.0, 0.5, 1.3, -0.5, ~
## $ `Minority-Owned Firm`       <chr> "True", "True", "False", "False", "False",~
## $ `Women-Owned Firm`          <chr> "True", "False", "False", "True", "False",~
## $ `Veteran-Owned Firm`        <chr> "False", "False", "False", "False", "False~
## $ County                      <chr> "Durham", "Mecklenburg", "Mecklenburg", "M~
## $ `Shipping Zip/Postal Code`  <chr> "27713", "28211", "28203", "28202", "28217~
## $ `Created FTE`               <dbl> 4.0, 0.3, 9.1, 0.0, 1.1, 0.0, 2.6, 1.1, 1.~
## $ `Retained FTE`              <dbl> 0.0, 1.7, 17.1, 1.1, 1.4, 1.0, 1.0, 2.4, 2~
## $ `Current FTE`               <dbl> 8.0, 1.7, 17.1, 10.3, 1.4, 1.0, 1.0, 2.4, ~
```

Data Analysis Plan

(Specify the outcome (response, Y) and predictor (explanatory, X) variables you will use to answer your question, as well as the comparison groups you will use, if applicable. You may include very preliminary exploratory data analysis, including some summary statistics and visualizations, along with some explanation on how they help you learn more about your data. Note the statistical method(s) that you believe will be useful in answering your question(s). What results from these specific statistical methods are needed to support your hypothesized answer?)

References