### HW1

#### Ramy Khalef

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## Requirement 1

```
library(tidyverse)
library(tinytex)
library(foreign)
```

### Requirement 2

```
setwd("C:/Users/Ramy Khalaf/Documents/PhD/Phd Materials/Spring 2021/Data science/Assignment/1//hw1-ramy)
data <- read.dta("mto_sci_puf_cells_20130206.dta")
head(data) # showing only first 6 observations because it is long</pre>
```

```
##
     cell_id mn_happy_scale123_z_ad mn_happy_scale123_ad
## 1
                         -0.34977543
                                                  1.705882
## 2
           2
                         0.28878802
                                                  2.157895
## 3
                         0.28878802
                                                  2.157895
## 4
           4
                         -0.01275583
                                                  1.944444
           5
## 5
                          0.24231723
                                                  2.125000
## 6
                          0.26754424
                                                  2.142857
     mn_happy_verypretty_happy_ad mn_happy_very_happy_ad mn_rad_c9010t_perpov_yr1
## 1
                         0.5882353
                                                0.1176471
                                                                           0.4668750
## 2
                         0.7894737
                                                0.3684210
                                                                           0.4586842
## 3
                         0.8421053
                                                0.3157895
                                                                           0.5023685
## 4
                         0.722222
                                                0.222222
                                                                           0.2044444
## 5
                         0.8125000
                                                 0.3125000
                                                                           0.2156250
## 6
                         0.7857143
                                                0.3571429
                                                                           0.1811538
     mn_rad_c9010t_perpov_yr5 mn_rad_c9010t_perpov_m08 mn_f_c9010t_perpov_dw
## 1
                                                                      0.3692894
                    0.4244118
                                              0.2850000
## 2
                    0.3723684
                                              0.2644737
                                                                      0.3461874
## 3
                    0.4286842
                                              0.2576316
                                                                      0.3847574
## 4
                    0.1444445
                                              0.1755556
                                                                      0.1757596
## 5
                    0.1975000
                                              0.1681250
                                                                      0.2041654
```

```
## 6
                     0.1673077
                                                0.1750000
                                                                       0.2162084
##
     mn_f_c9010t_perpov_dw_zc00t mn_f_c9010t_perpov_dw_z
                                                 -0.2134276
##
  1
                        1.8648560
## 2
                        1 6776847
                                                 -0.3970376
## 3
                        1.9901773
                                                 -0.0904909
## 4
                        0.2968872
                                                 -1.7515616
## 5
                        0.5270300
                                                 -1.5257978
## 6
                        0.6246011
                                                 -1.4300833
##
     mn_f_c9010t_perpov_dw_und20 mn_f_c9010t_perpov_dw_und30
## 1
                       0.05882353
                                                      0.1764706
## 2
                       0.05263158
                                                      0.2631579
## 3
                       0.05263158
                                                      0.2631579
##
  4
                       0.7222221
                                                      0.944444
## 5
                       0.62500000
                                                      0.8750000
## 6
                       0.50000000
                                                      0.8571429
##
     mn_f_c9010t_perpov_dw_und40 mn_rad_c9010t_pminorty_m08
## 1
                        0.5882353
                                                     0.8629411
## 2
                        0.6842105
                                                     0.8507895
## 3
                        0.4210526
                                                     0.7739474
## 4
                        1.0000000
                                                     0.7422222
## 5
                        0.9375000
                                                     0.7196875
## 6
                        0.9285714
                                                     0.8403571
     mn_f_c9010t_pminorty_dw mn_f_c9010t_pminorty_dw_z mn_f_spl_moves_n
##
## 1
                    0.8878819
                                               0.04780718
                                                                   3.411765
## 2
                    0.7858317
                                              -0.58293563
                                                                   2.947368
##
  3
                    0.8358445
                                              -0.27382153
                                                                   3.105263
##
  4
                    0.6524160
                                              -1.40754032
                                                                   3.055556
##
   5
                    0.7533627
                                              -0.78361762
                                                                   3.937500
                                                                   3.571429
## 6
                    0.8019626
                                              -0.48323604
##
     mn_f_nb_safe_unsafday_ad mn_f_hc_hsgprb_fix mn_f_sn_monit_graffiti_ad
## 1
                    0.17647059
                                          1.000000
                                                                     0.7058824
## 2
                    0.15789473
                                          2.631579
                                                                     0.5789474
## 3
                    0.05263158
                                          1.578947
                                                                     0.5789474
## 4
                    0.11111111
                                          1.388889
                                                                     0.6666667
## 5
                    0.06250000
                                          1.500000
                                                                     0.8125000
##
  6
                    0.07142857
                                          1.857143
                                                                     0.6428571
##
     mn_f_sn_net_anyfrndgrad_ad mn_f_ec_idx_z_ad mn_f_ph_idx_fix_z_ad
## 1
                       0.5882353
                                       -0.15161270
                                                               0.10141525
## 2
                       0.8421053
                                       -0.07541321
                                                              -0.31206441
## 3
                                       -0.10535166
                                                              -0.05579822
                       0.5263158
                                                               0.23690723
##
                       0.7647059
                                        0.20191853
## 5
                       0.5625000
                                        0.22336833
                                                              -0.13511603
##
   6
                       0.7142857
                                        0.10591456
                                                              -0.03569046
##
     mn_f_mh_idx_z_ad mn_f_in_selfsuf_ad mn_f_em_emp_ad mn_rad_in_head2009
## 1
           0.12062371
                                 0.4117647
                                                 0.4705882
                                                                      10794.12
## 2
           0.17235731
                                 0.4210526
                                                 0.4736842
                                                                      16194.74
##
  3
          -0.01252877
                                 0.3684210
                                                 0.4210526
                                                                      12823.53
## 4
           0.32260719
                                 0.555556
                                                 0.555556
                                                                      14517.65
## 5
           0.08372110
                                 0.5625000
                                                 0.5625000
                                                                      19203.12
##
  6
          -0.27264792
                                 0.5000000
                                                 0.5000000
                                                                      13025.00
##
     mn_f_in_tanf_fam mn_rad_in_govt2009 mn_f_ph_hlth_fair_ad mn_f_ph_asma_y_ad
## 1
            0.1176471
                                  4991.176
                                                       0.4117647
                                                                         0.29411766
## 2
            0.1578947
                                  5021.053
                                                       0.4736842
                                                                         0.36842105
## 3
            0.1578947
                                  3336.111
                                                       0.3684210
                                                                         0.36842105
```

```
## 4
            0.1111111
                                 2000.000
                                                      0.5000000
                                                                        0.0555556
                                                      0.3125000
## 5
            0.0625000
                                 4046.875
                                                                        0.37500000
## 6
            0.1428571
                                 1623.077
                                                      0.3571429
                                                                        0.35714287
##
     mn_f_ph_bmi_obese_srm_ad mn_f_ph_bp_hi mn_f_ph_limit_liftstair
## 1
                     0.5294118
                                   0.2941177
                                                             0.4705882
## 2
                     0.6842105
                                   0.4117647
                                                             0.6315789
## 3
                     0.5789474
                                   0.3157895
                                                             0.5789474
                                   0.2777778
## 4
                     0.6111111
                                                             0.3888889
## 5
                     0.8750000
                                   0.3750000
                                                             0.3750000
## 6
                     0.3571429
                                   0.6153846
                                                             0.5000000
##
     mn_f_mh_k6_raw_ad mn_f_mh_dep_y_ad mn_f_mh_gad_y_ad mn_f_mh_calm_ad
              6.882353
                                                0.0000000
                               0.1176471
## 1
                                                                  0.4705882
##
  2
              5.947369
                               0.1052632
                                                0.05263158
                                                                  0.5789474
              5.263158
                                                0.15789473
## 3
                               0.1052632
                                                                  0.5263158
## 4
                                                0.0000000
                                                                  0.777778
              5.444445
                               0.1111111
## 5
              5.312500
                               0.0000000
                                                0.12500000
                                                                  0.4375000
## 6
                               0.1428571
              4.357143
                                                0.21428572
                                                                  0.4285714
     mn_f_ph_habit_sleep_78hrs_ad mn_x_rad_ad_male mn_x_rad_ad le 35
## 1
                         0.3125000
                                          0.00409906
                                                            0.002035522
## 2
                         0.2777778
                                          0.00366758
                                                            0.001821256
## 3
                         0.2105263
                                          0.00366758
                                                            0.001821256
## 4
                         0.1666667
                                          0.0000000
                                                            0.05555556
## 5
                         0.2142857
                                          0.00000000
                                                            0.125000000
## 6
                         0.0000000
                                          0.00497743
                                                            0.073900275
     mn x rad ad 36 40 mn x rad ad 41 45 mn x rad ad 46 50
##
## 1
             0.1334294
                                0.1252337
                                                   0.4843070
## 2
             0.1720158
                                0.2699460
                                                   0.3806958
##
             0.1193842
                                0.3752091
                                                   0.1701694
## 4
             0.1666667
                                0.222222
                                                   0.3333333
## 5
             0.3125000
                                0.3750000
                                                   0.1250000
## 6
             0.1620214
                                0.2949267
                                                   0.2309442
##
     mn_x_rad_ad_ethrace_black_nh mn_x_rad_ad_ethrace_hisp mn_x_f_ad_working
## 1
                         0.9452755
                                                  0.02371931
                                                                      0.3529412
## 2
                         0.9510360
                                                  0.02122254
                                                                      0.4210526
## 3
                         0.9510360
                                                  0.02122254
                                                                      0.2228548
## 4
                         1.0000000
                                                  0.0000000
                                                                      0.2777778
## 5
                         1.0000000
                                                  0.0000000
                                                                      0.0625000
## 6
                         0.9335489
                                                  0.02880202
                                                                      0.2857143
     mn_x_f_ad_edged mn_x_f_ad_edgradhs mn_x_f_ad_edgradhs_miss mn_x_f_ad_edinsch
##
## 1
           0.1764706
                               0.4117647
                                                       0.00000000
                                                                          0.17647059
## 2
                               0.4210526
                                                       0.0000000
           0.1578947
                                                                          0.0000000
## 3
           0.3157895
                               0.3157895
                                                       0.05263158
                                                                          0.27167413
##
           0.222222
                               0.5000000
                                                       0.0000000
                                                                          0.0555556
## 5
           0.000000
                               0.5000000
                                                       0.06250000
                                                                          0.07261302
## 6
           0.2857143
                               0.3571429
                                                       0.0000000
                                                                          0.0000000
     mn_x_f_ad_nevmarr mn_x_f_ad_parentu18 mn_x_f_hood_5y mn_x_f_hood_chat
##
## 1
             0.7058824
                                  0.2130516
                                                  0.6470588
                                                                    0.8235294
## 2
             0.7894737
                                  0.1216284
                                                  0.3157895
                                                                    0.6842105
## 3
             0.6706891
                                  0.2795231
                                                  0.7095568
                                                                    0.6116058
## 4
             0.722222
                                  0.222222
                                                  0.5000000
                                                                    0.6111111
## 5
                                                  0.5000000
                                                                    0.7500000
             0.8750000
                                  0.4375000
## 6
             0.7857143
                                  0.2587055
                                                  0.5714286
                                                                    0.5000000
##
     mn_x_f_hood_nbrkid mn_x_f_hood_nofamily mn_x_f_hood_nofriend
## 1
              0.7058824
                                    0.5882353
                                                           0.4117647
```

```
## 2
              0.6315789
                                    0.7368421
                                                          0.3157895
                                                          0.5501400
## 3
              0.6652020
                                    0.7223717
                                    0.8333333
## 4
              0.8333333
                                                          0.555556
## 5
              0.6875000
                                    0.7500000
                                                          0.4657913
## 6
              0.4285714
                                    0.9285714
                                                          0.4285714
     mn_x_f_hood_unsafenit mn_x_f_hood_verydissat mn_x_f_hh_car mn_x_f_hh_disabl
##
                                         0.7058824
                                                       0.00000000
## 1
                 0.4705882
                                                                         0.05882353
## 2
                 0.4210526
                                          0.6842105
                                                       0.05263158
                                                                         0.10526316
## 3
                 0.5038528
                                          0.4512335
                                                       0.05487457
                                                                         0.16388738
## 4
                 0.444444
                                          0.5000000
                                                       0.0555556
                                                                         0.11111111
## 5
                 0.6875000
                                          0.6250000
                                                       0.06250000
                                                                         0.06250000
## 6
                                          0.6428571
                                                       0.0000000
                                                                         0.07142857
                 0.5714286
##
     mn_x_f_hh_noteens mn_x_f_hh_afdc mn_x_f_hh_victim mn_x_f_hh_size2
             0.4705882
## 1
                             0.5882353
                                               0.4705882
                                                               0.3529412
## 2
             0.6842105
                             0.6842105
                                               0.4736842
                                                                0.1578947
## 3
             0.4210526
                             0.7794244
                                               0.4443279
                                                               0.3157895
## 4
             0.5000000
                             0.944444
                                               0.555556
                                                               0.1666667
## 5
             0.7500000
                             0.9375000
                                               0.5625000
                                                                0.3125000
## 6
             0.5714286
                             0.7142857
                                               0.2857143
                                                               0.2857143
##
     mn x f hh size3 mn x f hh size4 mn x f hous fndapt mn x f hous mov3tm
## 1
           0.2352941
                           0.17647059
                                                0.7058824
                                                                   0.11764706
## 2
           0.4736842
                           0.05263158
                                                0.4736842
                                                                   0.05263158
## 3
                           0.26315790
                                                                   0.11195359
           0.3684210
                                                0.4503985
## 4
                                                0.444444
           0.3888889
                           0.27777779
                                                                   0.11111111
## 5
           0.2500000
                           0.37500000
                                                0.6250000
                                                                   0.18750000
           0.3571429
                           0.21428572
                                                0.6112552
                                                                   0.0000000
##
     mn_x_f_hous_sec8bef mn_x_f_hous_movdrgs mn_x_f_hous_movschl mn_x_f_release1
## 1
               0.4705882
                                    0.8235294
                                                         0.4117647
                                                                          0.4117647
## 2
               0.4736842
                                    0.5789474
                                                         0.4736842
                                                                          0.5263158
## 3
               0.6075669
                                    0.9137495
                                                         0.4365107
                                                                          0.1052632
## 4
               0.5000000
                                    0.8888889
                                                         0.3888889
                                                                          0.6111111
## 5
               0.5625000
                                    0.8616925
                                                         0.2769521
                                                                          0.6250000
## 6
               0.3571429
                                    0.8419343
                                                         0.3165167
                                                                          0.2142857
##
     mn_cov_hous_movapt mn_cov_hous_movjob mn_rad_svy_bl_totincm_2009d
## 1
              0.5294118
                                0.117647059
                                                                12367.647
## 2
              0.6315789
                                0.00000000
                                                                12823.685
## 3
              0.4013603
                                0.111532092
                                                                10538.889
## 4
              0.444444
                                0.05555556
                                                                 8077.778
## 5
              0.6588718
                                0.003722178
                                                                 8243.750
## 6
              0.3958535
                                                                 7292.857
                                0.075682491
     mn_f_svy_cmove predsg_perpov_dw_z predsg_pminorty_dw_z x_f_site_balt
## 1
                  0
                             -0.9517738
                                                   -0.6498632
                                                                 1=Baltimore
## 2
                  0
                             -0.9517738
                                                   -0.6498632
                                                                 1=Baltimore
## 3
                  0
                                                                 1=Baltimore
                             -0.9517738
                                                   -0.6498632
## 4
                  1
                             -0.9517738
                                                   -0.6498632
                                                                 1=Baltimore
## 5
                             -0.9517738
                                                   -0.6498632
                                                                 1=Baltimore
                  1
                                                   -0.6498632
## 6
                             -0.9517738
                                                                 1=Baltimore
##
                                       x_f_site_bos
## 1 O=Baltimore, Chicago, Los Angeles or New York
## 2 O=Baltimore, Chicago, Los Angeles or New York
## 3 O=Baltimore, Chicago, Los Angeles or New York
## 4 O=Baltimore, Chicago, Los Angeles or New York
## 5 O=Baltimore, Chicago, Los Angeles or New York
## 6 O=Baltimore, Chicago, Los Angeles or New York
```

```
##
                                     x f site chi
## 1 O=Baltimore, Boston, Los Angeles or New York
## 2 O=Baltimore, Boston, Los Angeles or New York
## 3 O=Baltimore, Boston, Los Angeles or New York
## 4 O=Baltimore, Boston, Los Angeles or New York
## 5 O=Baltimore, Boston, Los Angeles or New York
## 6 O=Baltimore, Boston, Los Angeles or New York
                                  x f site la
## 1 O=Baltimore, Boston, Chicago or New York
## 2 O=Baltimore, Boston, Chicago or New York
## 3 O=Baltimore, Boston, Chicago or New York
## 4 O=Baltimore, Boston, Chicago or New York
## 5 O=Baltimore, Boston, Chicago or New York
## 6 O=Baltimore, Boston, Chicago or New York
                           sgx_rasite_3g_all_nyc
## 1 O=Baltimore, Boston, Chicago or Los Angeles 1=Baltimore
## 2 O=Baltimore, Boston, Chicago or Los Angeles 1=Baltimore
## 3 O=Baltimore, Boston, Chicago or Los Angeles 1=Baltimore
## 4 O=Baltimore, Boston, Chicago or Los Angeles 1=Baltimore
## 5 O=Baltimore, Boston, Chicago or Los Angeles 1=Baltimore
## 6 O=Baltimore, Boston, Chicago or Los Angeles 1=Baltimore
                               ra_group
                                                              ra_grp_exp
## 1 1=Low-Poverty Voucher/Experimental 1=Low-Poverty Voucher/Exp. Group
## 2 1=Low-Poverty Voucher/Experimental 1=Low-Poverty Voucher/Exp. Group
## 3 1=Low-Poverty Voucher/Experimental 1=Low-Poverty Voucher/Exp. Group
## 4 1=Low-Poverty Voucher/Experimental 1=Low-Poverty Voucher/Exp. Group
## 5 1=Low-Poverty Voucher/Experimental 1=Low-Poverty Voucher/Exp. Group
## 6 1=Low-Poverty Voucher/Experimental 1=Low-Poverty Voucher/Exp. Group
                                       ra_grp_s8
## 1 O=Low-Poverty Voucher/Exp. or Control Group O=Traditional Voucher/Section 8
## 2 0=Low-Poverty Voucher/Exp. or Control Group 0=Traditional Voucher/Section 8
## 3 O=Low-Poverty Voucher/Exp. or Control Group O=Traditional Voucher/Section 8
## 4 0=Low-Poverty Voucher/Exp. or Control Group 0=Traditional Voucher/Section 8
## 5 O=Low-Poverty Voucher/Exp. or Control Group O=Traditional Voucher/Section 8
## 6 O=Low-Poverty Voucher/Exp. or Control Group O=Traditional Voucher/Section 8
                                   ra_poolgrp_exps8 sd_happy_scale123_z_ad
## 1 1=Low-Poverty/Exp. Or Traditional/Sec8 Voucher
                                                                 0.9691127
## 2 1=Low-Poverty/Exp. Or Traditional/Sec8 Voucher
                                                                 1.0803281
## 3 1=Low-Poverty/Exp. Or Traditional/Sec8 Voucher
                                                                 0.9722953
## 4 1=Low-Poverty/Exp. Or Traditional/Sec8 Voucher
                                                                 1.0247217
## 5 1=Low-Poverty/Exp. Or Traditional/Sec8 Voucher
                                                                 1.0154510
## 6 1=Low-Poverty/Exp. Or Traditional/Sec8 Voucher
                                                                 1.0882531
    sd_happy_scale123_ad sd_happy_verypretty_happy_ad sd_happy_very_happy_ad
## 1
               0.6859943
                                             0.5072997
                                                                    0.3321056
## 2
                0.7647191
                                             0.4188539
                                                                    0.4955946
## 3
                                                                    0.4775669
                0.6882472
                                             0.3746343
## 4
                0.7253577
                                             0.4608886
                                                                    0.4277926
## 5
                0.7187953
                                             0.4031129
                                                                    0.4787135
                0.7703289
                                             0.4258153
                                                                    0.4972452
##
    sd_rad_c9010t_perpov_yr1 sd_rad_c9010t_perpov_yr5 sd_rad_c9010t_perpov_m08
## 1
                    0.1842541
                                            0.14376502
                                                                     0.18408558
## 2
                    0.1885386
                                            0.13730915
                                                                     0.14454809
## 3
                    0.2005781
                                            0.17375623
                                                                     0.17460565
## 4
                    0.2301271
                                            0.10794728
                                                                     0.11074466
```

```
## 5
                     0.1801284
                                              0.11868726
                                                                         0.15670434
## 6
                     0.1973803
                                              0.08397955
                                                                         0.08467131
##
     sd_f_c9010t_perpov_dw sd_f_c9010t_perpov_dw_zc00t sd_f_c9010t_perpov_dw_z
## 1
                 0.10930628
                                               0.8855940
                                                                         0.8687432
##
  2
                 0.09564403
                                               0.7749032
                                                                         0.7601587
## 3
                 0.10863059
                                               0.8801197
                                                                         0.8633730
## 4
                 0.07750965
                                               0.6279793
                                                                         0.6160303
                0.08802394
                                               0.7131656
## 5
                                                                         0.6995957
## 6
                 0.07863019
                                                0.6370578
                                                                         0.6249362
##
     sd_f_c9010t_perpov_dw_und20 sd_f_c9010t_perpov_dw_und30
## 1
                        0.2425356
                                                      0.3929526
## 2
                        0.2294157
                                                      0.4524139
## 3
                        0.2294157
                                                      0.4524139
                        0.4608886
## 4
                                                      0.2357023
## 5
                        0.5000000
                                                      0.3415650
## 6
                        0.5188745
                                                      0.3631365
##
     sd_f_c9010t_perpov_dw_und40 sd_rad_c9010t_pminorty_m08
## 1
                        0.5072997
## 2
                        0.4775669
                                                     0.2112020
## 3
                        0.5072573
                                                     0.2593774
## 4
                        0.0000000
                                                     0.2496481
## 5
                        0.2500000
                                                     0.3043653
## 6
                        0.2672612
                                                     0.1964929
##
     sd_f_c9010t_pminorty_dw sd_f_c9010t_pminorty_dw_z sd_f_spl_moves_n
                                               0.5844247
## 1
                    0.0945562
                                                                   2.647141
## 2
                    0.1959103
                                                1.2108655
                                                                   1.957143
## 3
                    0.1332502
                                               0.8235812
                                                                   1.696229
## 4
                    0.2074747
                                                1.2823417
                                                                   1.625974
## 5
                    0.1662430
                                                1.0275002
                                                                   1.569235
## 6
                    0.1491055
                                               0.9215782
                                                                   2.243428
##
     sd_f_nb_safe_unsafday_ad sd_f_hc_hsgprb_fix sd_f_sn_monit_graffiti_ad
## 1
                     0.3929526
                                          1.658312
                                                                     0.4696682
## 2
                     0.3746343
                                          2.290331
                                                                     0.5072573
## 3
                                                                     0.5072573
                     0.2294157
                                          1.574653
## 4
                     0.3233808
                                          1.195033
                                                                     0.4850712
## 5
                     0.2500000
                                          1.751190
                                                                     0.4031129
## 6
                     0.2672612
                                          2.032700
##
     sd_f_sn_net_anyfrndgrad_ad sd_f_ec_idx_z_ad sd_f_ph_idx_fix_z_ad
## 1
                       0.5072997
                                         1.0701416
                                                                0.8637001
## 2
                       0.3746343
                                         1.0964566
                                                               1.0721997
## 3
                       0.5129892
                                         0.9997550
                                                                0.7596593
## 4
                       0.4372373
                                                               0.9783034
                                         0.8153585
## 5
                       0.5123475
                                         1.0596459
                                                                0.9290795
## 6
                       0.4688072
                                         1.0004293
                                                                1.1764442
##
     sd_f_mh_idx_z_ad sd_f_in_selfsuf_ad sd_f_em_emp_ad sd_rad_in_head2009
            1.0300382
## 1
                                 0.5072997
                                                0.5144957
                                                                      15391.96
## 2
            1.0488982
                                 0.5072573
                                                 0.5129892
                                                                      14911.54
## 3
            1.0025865
                                 0.4955946
                                                 0.5072573
                                                                      15996.83
## 4
            0.7316885
                                 0.5113100
                                                 0.5113100
                                                                      11237.99
## 5
            0.6825469
                                 0.5123475
                                                 0.5123475
                                                                      20839.11
## 6
            1.1068542
                                 0.5222329
                                                0.5222329
                                                                      17067.33
##
     sd_f_in_tanf_fam sd_rad_in_govt2009 sd_f_ph_hlth_fair_ad sd_f_ph_asma_y_ad
## 1
            0.3321056
                                 6258.600
                                                       0.5072997
                                                                          0.4696682
## 2
            0.3746343
                                  6576.375
                                                       0.5129892
                                                                          0.4955946
```

```
## 3
            0.3746343
                                4054.257
                                                     0.4955946
                                                                        0.4955946
                                                                        0.2357023
## 4
            0.3233808
                                5236.355
                                                     0.5144957
                                                     0.4787135
## 5
            0.2500000
                                5447.705
                                                                        0.5000000
## 6
            0.3631365
                                2879.642
                                                     0.4972452
                                                                        0.4972452
##
     sd_f_ph_bmi_obese_srm_ad sd_f_ph_bp_hi sd_f_ph_limit_liftstair
## 1
                    0.5144957
                                  0.4696682
                                                           0.5144957
## 2
                                  0.5072997
                    0.4775669
                                                           0.4955946
## 3
                    0.5072573
                                  0.4775669
                                                           0.5072573
## 4
                    0.5016313
                                  0.4608886
                                                           0.5016313
## 5
                    0.3415650
                                  0.5000000
                                                           0.5000000
##
                    0.4972452
                                  0.5063697
                                                           0.5188745
##
     sd_f_mh_k6_raw_ad sd_f_mh_dep_y_ad sd_f_mh_gad_y_ad sd_f_mh_calm_ad
## 1
              5.946452
                              0.3321056
                                                0.0000000
                                                                0.5144957
## 2
              5.995125
                                                                0.5072573
                              0.3153018
                                                0.2294157
## 3
              3.124137
                              0.3153018
                                                0.3746343
                                                                0.5129892
## 4
              5.511723
                              0.3233808
                                                0.000000
                                                                0.4277926
## 5
                              0.0000000
                                                0.3415650
                                                                0.5123475
              4.331570
##
              4.325366
                              0.3631365
                                                0.4258153
                                                                0.5135526
##
     sd_f_ph_habit_sleep_78hrs_ad sd_x_rad_ad_male sd_x_rad_ad_le_35
## 1
                        0.4787135
                                        0.01690086
                                                          0.008392671
                        0.4608886
## 2
                                         0.01598661
                                                          0.007938672
## 3
                        0.4188539
                                         0.01598661
                                                          0.007938672
## 4
                        0.3834825
                                                          0.235702261
                                         0.00000000
                                         0.00000000
## 5
                        0.4258153
                                                          0.341565013
## 6
                        0.0000000
                                         0.01862384
                                                          0.266709268
     sd x rad ad 36 40 sd x rad ad 41 45 sd x rad ad 46 50
## 1
             0.3325401
                               0.3307203
                                                  0.5041692
##
  2
             0.3734066
                               0.4492023
                                                  0.4888044
## 3
                                                  0.3729906
             0.3163319
                               0.4911312
## 4
             0.3834825
                               0.4277926
                                                  0.4850712
## 5
             0.4787135
                               0.5000000
                                                  0.3415650
## 6
             0.3620956
                               0.4640035
                                                  0.4213256
##
     sd_x_rad_ad_ethrace_black_nh sd_x_rad_ad_ethrace_hisp sd_x_f_ad_working
## 1
                        0.2256348
                                                 0.09779724
                                                                    0.4925922
## 2
                        0.2134291
                                                 0.09250692
                                                                    0.5072573
## 3
                        0.2134291
                                                 0.09250692
                                                                    0.4157489
## 4
                        0.000000
                                                 0.0000000
                                                                    0.4608886
## 5
                        0.0000000
                                                 0.0000000
                                                                    0.2500000
## 6
                        0.2486374
                                                 0.10776731
                                                                    0.4688072
     ##
                              0.5072997
## 1
           0.3929526
                                                       0.0000000
                                                                         0.3929526
## 2
           0.3746343
                              0.5072573
                                                       0.0000000
                                                                         0.0000000
## 3
           0.4775669
                              0.4775669
                                                       0.2294157
                                                                         0.4486927
## A
           0.4277926
                              0.5144957
                                                       0.0000000
                                                                         0.2357023
## 5
           0.0000000
                              0.5163978
                                                       0.2500000
                                                                         0.2505753
## 6
                                                                         0.000000
           0.4688072
                              0.4972452
                                                       0.0000000
##
     sd_x_f_ad_nevmarr sd_x_f_ad_parentu18 sd_x_f_hood_5y sd_x_f_hood_chat
## 1
             0.4696682
                                 0.3890468
                                                 0.4925922
                                                                  0.3929526
## 2
             0.4188539
                                 0.3175958
                                                 0.4775669
                                                                  0.4775669
## 3
             0.4717305
                                  0.4479678
                                                 0.4512927
                                                                  0.4875028
## 4
             0.4608886
                                 0.4277926
                                                 0.5144957
                                                                  0.5016313
## 5
             0.3415650
                                 0.5123475
                                                 0.5163978
                                                                  0.4472136
## 6
             0.4258153
                                 0.4166133
                                                 0.5135526
                                                                  0.5188745
     sd x f hood nbrkid sd x f hood nofamily sd x f hood nofriend
```

```
## 1
               0.4696682
                                     0.5072997
                                                            0.5072997
## 2
               0.4955946
                                                            0.4775669
                                     0.4524139
## 3
               0.4714477
                                     0.4479037
                                                            0.4974644
## 4
               0.3834825
                                     0.3834825
                                                            0.5113100
## 5
               0.4787135
                                     0.4472136
                                                            0.4988999
## 6
               0.5135526
                                     0.2672612
                                                            0.5135526
##
     sd x f hood unsafenit sd x f hood verydissat sd x f hh car sd x f hh disabl
                                                         0.0000000
## 1
                  0.5144957
                                          0.4696682
                                                                            0.2425356
##
  2
                  0.5072573
                                          0.4775669
                                                         0.2294157
                                                                            0.3153018
## 3
                  0.5002819
                                          0.4977844
                                                         0.2290807
                                                                            0.3728749
##
  4
                  0.5113100
                                           0.5144957
                                                         0.2357023
                                                                            0.3233808
                                                                            0.2500000
## 5
                  0.4787135
                                           0.5000000
                                                         0.2500000
##
  6
                  0.5135526
                                          0.4972452
                                                         0.000000
                                                                            0.2672612
##
     sd_x_f_hh_noteens sd_x_f_hh_afdc sd_x_f_hh_victim sd_x_f_hh_size2
## 1
             0.5144957
                              0.5072997
                                                0.5144957
                                                                 0.4925922
## 2
             0.4775669
                             0.4775669
                                                0.5129892
                                                                 0.3746343
## 3
             0.5072573
                             0.4158017
                                                0.4969043
                                                                 0.4775669
## 4
             0.5144957
                              0.2357023
                                                0.5113100
                                                                 0.3834825
## 5
             0.4472136
                             0.2500000
                                                0.5123475
                                                                 0.4787135
## 6
             0.5135526
                              0.4688072
                                                0.4688072
                                                                 0.4688072
##
     sd_x_f_hh_size3 sd_x_f_hh_size4 sd_x_f_hous_fndapt sd_x_f_hous_mov3tm
## 1
           0.4372373
                            0.3929526
                                                 0.4696682
                                                                     0.3321056
## 2
           0.5129892
                            0.2294157
                                                                     0.2294157
                                                 0.5129892
## 3
           0.4955946
                                                 0.4975813
                                                                     0.3142911
                            0.4524139
## 4
           0.5016313
                            0.4608886
                                                 0.5113100
                                                                     0.3233808
## 5
           0.4472136
                            0.5000000
                                                 0.5000000
                                                                     0.4031129
## 6
           0.4972452
                            0.4258153
                                                 0.4867496
                                                                     0.000000
##
     sd_x_f_hous_sec8bef sd_x_f_hous_movdrgs sd_x_f_hous_movschl sd_x_f_release1
## 1
               0.5144957
                                     0.3929526
                                                          0.5072997
                                                                            0.5072997
## 2
               0.5129892
                                     0.5072573
                                                          0.5129892
                                                                            0.5129892
## 3
               0.4877428
                                     0.2350722
                                                          0.4677131
                                                                            0.3153018
## 4
                0.5144957
                                     0.3233808
                                                          0.5016313
                                                                            0.5016313
## 5
                0.5123475
                                     0.3405164
                                                          0.4441263
                                                                            0.5000000
## 6
                0.4972452
                                                                            0.4258153
                                     0.3611465
                                                          0.4627180
##
     sd_cov_hous_movapt sd_cov_hous_movjob sd_rad_svy_bl_totincm_2009d
## 1
               0.5144957
                                  0.33210558
                                                                  8087.277
## 2
               0.4955946
                                  0.0000000
                                                                  9574.610
## 3
               0.4607008
                                  0.31364742
                                                                  8386.536
## 4
                                                                  2915.033
               0.5113100
                                  0.23570226
## 5
               0.4724345
                                  0.01488871
                                                                  4782.952
                                  0.26650977
##
               0.4883181
                                                                  3582.160
##
     sd_f_svy_cmove cell_numobs cell_sumwgt wt_happy_scale123_z_ad
                                     13.46493
## 1
                   0
                               17
                                                              13.46493
## 2
                   0
                                     15.04904
                                                              15.04904
                               19
                   0
## 3
                               19
                                     15.04904
                                                              15.04904
                   0
                                                              14.25699
## 4
                               18
                                     14.25699
## 5
                   0
                               16
                                     12.67288
                                                              12.67288
## 6
                   0
                               14
                                     11.08877
                                                              11.08877
##
     wt_happy_scale123_ad wt_happy_verypretty_happy_ad wt_happy_very_happy_ad
## 1
                  13.46493
                                                 13.46493
                                                                         13.46493
## 2
                  15.04904
                                                 15.04904
                                                                         15.04904
## 3
                  15.04904
                                                 15.04904
                                                                         15.04904
                  14.25699
## 4
                                                 14.25699
                                                                         14.25699
## 5
                  12.67288
                                                 12.67288
                                                                         12.67288
```

```
## 6
                  11.08877
                                                 11.08877
                                                                         11.08877
##
     wt_rad_c9010t_perpov_yr1 wt_rad_c9010t_perpov_yr5 wt_rad_c9010t_perpov_m08
                                                 13.46493
## 1
                      12.67288
                                                                            13.46493
## 2
                      15.04904
                                                 15.04904
                                                                            15.04904
## 3
                      15.04904
                                                 15.04904
                                                                            15.04904
## 4
                      14.25699
                                                 14.25699
                                                                            14.25699
## 5
                      12.67288
                                                 12.67288
                                                                            12.67288
## 6
                      10.29671
                                                 10.29671
                                                                            11.08877
##
     wt_f_c9010t_perpov_dw wt_f_c9010t_perpov_dw_zc00t wt_f_c9010t_perpov_dw_z
## 1
                   13.46493
                                                 13.46493
                                                                           13.46493
## 2
                   15.04904
                                                 15.04904
                                                                           15.04904
## 3
                   15.04904
                                                 15.04904
                                                                           15.04904
## 4
                   14.25699
                                                 14.25699
                                                                           14.25699
## 5
                   12.67288
                                                 12.67288
                                                                           12.67288
## 6
                   11.08877
                                                 11.08877
                                                                           11.08877
##
     wt_f_c9010t_perpov_dw_und20 wt_f_c9010t_perpov_dw_und30
## 1
                         13.46493
                                                       13.46493
## 2
                         15.04904
                                                       15.04904
## 3
                         15.04904
                                                       15.04904
## 4
                         14.25699
                                                       14.25699
## 5
                         12.67288
                                                       12.67288
## 6
                         11.08877
                                                       11.08877
     wt_f_c9010t_perpov_dw_und40 wt_rad_c9010t_pminorty_m08
##
## 1
                         13.46493
                                                      13.46493
## 2
                         15.04904
                                                      15.04904
## 3
                         15.04904
                                                      15.04904
## 4
                         14.25699
                                                      14.25699
## 5
                         12.67288
                                                      12.67288
## 6
                         11.08877
                                                      11.08877
     wt_f_c9010t_pminorty_dw wt_f_c9010t_pminorty_dw_z wt_f_spl_moves_n
## 1
                     13.46493
                                                 13.46493
                                                                   13.46493
## 2
                     15.04904
                                                 15.04904
                                                                   15.04904
## 3
                     15.04904
                                                 15.04904
                                                                   15.04904
## 4
                     14.25699
                                                 14.25699
                                                                   14.25699
## 5
                     12.67288
                                                 12.67288
                                                                   12.67288
## 6
                     11.08877
                                                 11.08877
                                                                   11.08877
     wt_f_nb_safe_unsafday_ad wt_f_hc_hsgprb_fix wt_f_sn_monit_graffiti_ad
## 1
                      13.46493
                                          13.46493
                                                                      13.46493
## 2
                      15.04904
                                           15.04904
                                                                      15.04904
## 3
                                           15.04904
                                                                      15.04904
                      15.04904
## 4
                                           14.25699
                      14.25699
                                                                      14.25699
## 5
                      12.67288
                                          12.67288
                                                                      12.67288
## 6
                      11.08877
                                           11.08877
                                                                      11.08877
##
     wt_f_sn_net_anyfrndgrad_ad wt_f_ec_idx_z_ad wt_f_ph_idx_fix_z_ad
## 1
                        13.46493
                                          13.46493
                                                                 13.46493
## 2
                        15.04904
                                          15.04904
                                                                 15.04904
## 3
                        15.04904
                                           15.04904
                                                                 15.04904
## 4
                        13.46493
                                           14.25699
                                                                 14.25699
## 5
                        12,67288
                                           12.67288
                                                                 12,67288
## 6
                        11.08877
                                           11.08877
                                                                 11.08877
##
     wt_f_mh_idx_z_ad wt_f_in_selfsuf_ad wt_f_em_emp_ad wt_rad_in_head2009
## 1
             13.46493
                                 13.464933
                                                 13.464933
                                                                      13.46493
## 2
             15.04904
                                 15.049043
                                                 15.049043
                                                                      15.04904
## 3
             15.04904
                                 15.049043
                                                 15.049043
                                                                      13.46493
```

```
## 4
             14.25699
                                14.256988
                                                14.256988
                                                                      13.46493
## 5
             12.67288
                                12.672878
                                                12.672878
                                                                      12.67288
                                 9.504659
                                                                      11.08877
## 6
             11.08877
                                                 9.504659
     wt_f_in_tanf_fam wt_rad_in_govt2009 wt_f_ph_hlth_fair_ad wt_f_ph_asma_y_ad
##
## 1
             13.46493
                                 13.46493
                                                        13.46493
                                                                           13.46493
## 2
             15.04904
                                 15.04904
                                                        15.04904
                                                                           15.04904
             15.04904
                                 14.25699
                                                        15.04904
                                                                           15.04904
## 4
             14.25699
                                 14.25699
                                                        14.25699
                                                                           14.25699
## 5
             12.67288
                                 12.67288
                                                        12.67288
                                                                           12.67288
## 6
             11.08877
                                 10.29671
                                                        11.08877
                                                                           11.08877
     wt_f_ph_bmi_obese_srm_ad wt_f_ph_bp_hi wt_f_ph_limit_liftstair
## 1
                      13.46493
                                    13.46493
                                                              13.46493
## 2
                      15.04904
                                    13.46493
                                                              15.04904
## 3
                      15.04904
                                     15.04904
                                                              15.04904
## 4
                      14.25699
                                     14.25699
                                                              14.25699
## 5
                      12.67288
                                     12.67288
                                                              12.67288
## 6
                      11.08877
                                    10.29671
                                                              11.08877
     wt_f_mh_k6_raw_ad wt_f_mh_dep_y_ad wt_f_mh_gad_y_ad wt_f_mh_calm_ad
              13.46493
## 1
                                13.46493
                                                  13.46493
                                                                   13.46493
## 2
              15.04904
                                15.04904
                                                  15.04904
                                                                   15.04904
## 3
              15.04904
                                15.04904
                                                  15.04904
                                                                   15.04904
## 4
              14.25699
                                14.25699
                                                                   14.25699
                                                  14.25699
## 5
              12.67288
                                12.67288
                                                  12.67288
                                                                   12.67288
                                11.08877
## 6
              11.08877
                                                  11.08877
                                                                   11.08877
     wt_f_ph_habit_sleep_78hrs_ad wt_x_rad_ad_male wt_x_rad_ad_le_35
## 1
                          12.67288
                                            13.46493
                                                               13.46493
## 2
                          14.25699
                                            15.04904
                                                               15.04904
## 3
                          15.04904
                                            15.04904
                                                               15.04904
## 4
                          14.25699
                                            14.25699
                                                               14.25699
## 5
                          11.08877
                                            12.67288
                                                               12.67288
## 6
                          10.29671
                                            11.08877
                                                               11.08877
##
     wt_x_rad_ad_36_40 wt_x_rad_ad_41_45 wt_x_rad_ad_46_50
## 1
              13.46493
                                 13.46493
                                                     13.46493
## 2
              15.04904
                                                    15.04904
                                 15.04904
## 3
              15.04904
                                 15.04904
                                                     15.04904
## 4
              14.25699
                                 14.25699
                                                    14.25699
## 5
              12.67288
                                 12.67288
                                                     12.67288
## 6
              11.08877
                                 11.08877
                                                    11.08877
     wt x rad ad ethrace black nh wt x rad ad ethrace hisp wt x f ad working
## 1
                          13.46493
                                                    13.46493
                                                                        13.46493
## 2
                          15.04904
                                                                        15.04904
                                                    15.04904
## 3
                          15.04904
                                                    15.04904
                                                                        15.04904
## 4
                          14.25699
                                                    14.25699
                                                                        14.25699
## 5
                          12.67288
                                                    12.67288
                                                                       12.67288
                          11.08877
## 6
                                                    11.08877
                                                                       11.08877
     wt_x_f_ad_edged wt_x_f_ad_edgradhs wt_x_f_ad_edgradhs_miss wt_x_f_ad_edinsch
##
## 1
            13.46493
                                13.46493
                                                          13.46493
                                                                             13.46493
## 2
            15.04904
                                15.04904
                                                          15.04904
                                                                             15.04904
## 3
            15.04904
                                15.04904
                                                          15.04904
                                                                             15.04904
## 4
            14.25699
                                 14.25699
                                                          14.25699
                                                                             14.25699
## 5
            12.67288
                                12.67288
                                                          12.67288
                                                                             12.67288
## 6
            11.08877
                                11.08877
                                                          11.08877
                                                                             11.08877
##
     wt_x_f_ad_nevmarr wt_x_f_ad_parentu18 wt_x_f_hood_5y wt_x_f_hood_chat
## 1
              13.46493
                                   13.46493
                                                   13.46493
                                                                     13.46493
```

```
## 2
             15.04904
                                 15.04904
                                                15.04904
                                                                 15.04904
## 3
             15.04904
                                 15.04904
                                                15.04904
                                                                 15.04904
## 4
                                 14.25699
                                                                 14.25699
             14.25699
                                                14.25699
## 5
             12.67288
                                 12.67288
                                                12.67288
                                                                 12.67288
## 6
             11.08877
                                 11.08877
                                                11.08877
                                                                 11.08877
    wt_x_f_hood_nbrkid wt_x_f_hood_nofamily wt_x_f_hood_nofriend
##
             13.46493
## 1
                                  13.46493
                                                        13.46493
## 2
              15.04904
                                   15.04904
                                                        15.04904
## 3
              15.04904
                                   15.04904
                                                        15.04904
## 4
              14.25699
                                   14.25699
                                                        14.25699
## 5
              12.67288
                                   12.67288
                                                        12.67288
## 6
              11.08877
                                   11.08877
                                                        11.08877
## wt_x_f_hood_unsafenit wt_x_f_hood_verydissat wt_x_f_hh_car wt_x_f_hh_disabl
## 1
                 13.46493
                                                                       13.46493
                                       13.46493
                                                      13.46493
## 2
                 15.04904
                                        15.04904
                                                      15.04904
                                                                       15.04904
## 3
                 15.04904
                                        15.04904
                                                      15.04904
                                                                       15.04904
## 4
                 14.25699
                                        14.25699
                                                      14.25699
                                                                       14.25699
## 5
                 12.67288
                                        12.67288
                                                      12.67288
                                                                      12.67288
## 6
                 11.08877
                                       11.08877
                                                      11.08877
                                                                       11.08877
##
    wt x f hh noteens wt x f hh afdc wt x f hh victim wt x f hh size2
           13.46493
## 1
                            13.46493
                                            13.46493
                                                           13.46493
             15.04904
                            15.04904
                                             15.04904
                                                            15.04904
                                            15.04904
## 3
             15.04904
                            15.04904
                                                            15.04904
## 4
             14.25699
                            14.25699
                                             14.25699
                                                             14.25699
## 5
             12.67288
                            12.67288
                                             12.67288
                                                            12.67288
            11.08877
                           11.08877
                                             11.08877
                                                            11.08877
## wt_x_f_hh_size3 wt_x_f_hh_size4 wt_x_f_hous_fndapt wt_x_f_hous_mov3tm
## 1
           13.46493
                        13.46493
                                            13.46493
                                                                 13.46493
## 2
                           15.04904
           15.04904
                                              15.04904
                                                                 15.04904
## 3
           15.04904
                           15.04904
                                             15.04904
                                                                 15.04904
## 4
           14.25699
                           14.25699
                                              14.25699
                                                                 14.25699
## 5
           12.67288
                           12.67288
                                              12.67288
                                                                 12.67288
                          11.08877
## 6
           11.08877
                                             11.08877
                                                                 11.08877
## wt_x_f_hous_sec8bef wt_x_f_hous_movdrgs wt_x_f_hous_movschl wt_x_f_release1
## 1
            13.46493
                                   13.46493
                                                  13.46493
                                                                       13.46493
## 2
               15.04904
                                   15.04904
                                                       15.04904
                                                                       15.04904
## 3
               15.04904
                                   15.04904
                                                      15.04904
                                                                       15.04904
## 4
               14.25699
                                   14.25699
                                                      14.25699
                                                                      14.25699
## 5
               12.67288
                                   12.67288
                                                       12.67288
                                                                       12.67288
## 6
               11.08877
                                   11.08877
                                                      11.08877
                                                                       11.08877
    wt_cov_hous_movapt wt_cov_hous_movjob wt_rad_svy_bl_totincm_2009d
## 1
             13.46493
                             13.46493
                                                            13.46493
## 2
              15.04904
                                 15.04904
                                                             15.04904
## 3
                                 15.04904
              15.04904
                                                            14.25699
## 4
                                                            14.25699
              14.25699
                                 14.25699
## 5
              12.67288
                                 12.67288
                                                            12.67288
                                                            11.08877
## 6
              11.08877
                                 11.08877
    wt_f_svy_cmove mn_f_wt_totsvy
## 1
          13.46493
                        0.7920549
## 2
          15.04904
                        0.7920549
## 3
          15.04904
                       0.7920549
## 4
          14.25699
                      0.7920549
## 5
          12.67288
                      0.7920549
## 6
          11.08877
                       0.7920549
```

# Requirements 3 (ALL)

## Header level 1

#### Header level 2

 $This\ is\ an\ italicized\ text$ 

#### This is a bold text

- unordered list
  - sub-Item 1
  - sub-Item 2
    - $* \ \operatorname{sub-sub-Item}$
- 1. Ordered Item 1
- 2. Ordered Item 2
- 3. Ordered Item 3
  - Ordered Item 3a
  - Ordered Item 3b



As you can see the image is pulled from the link (https://cdn.hswstatic.com/gif/10-breathtaking-views-1-orig.jpg)

## Requirement 4

```
x <- 5 # radius of a circle
x
## [1] 5</pre>
```

For a circle with the radius 5 and its area is about 78.5.

### Requirement 5

This is done in RStudio

### Requirement 6

```
# my_variable <- 10
# my_variable
# Error: object 'my_variable' not found</pre>
```

This is since the letter "i" in both are different (one has the dot and the other does not); as such, the second object is not available in the code to realize its value. The variable is not available in order to be called

# Requirement 7

Showing R markdown in a new menu (source: https://twitter.com/JosephTumber/status/1350185715976470531? s=20). This is very helpful since I like to use many windows for better productivity.

## Requirement 8

I would say the most difficult for me would have to be p-value fishing, since often in our research we are given a dataset and often we have to "fish" for what to look into the data. I would also like to say that a lot of times in reviewing of paper in journals, I notice that partial publication seems to be evident. Where not the entire story is detailed in attempts to get a "better" publication. This is very unethical.