Midterm_Project_TW_Survey

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read data

```
tw_text<- read_excel("data/F00007687_WV6_Data_Taiwan_2012_Excel_v20180912_text.xlsx")
# read num data
tw_num<- read_excel("data/F00007625_WV6_Data_Taiwan_2012_Excel_v20180912_num.xlsx")
```

data select-selected questions and gender column

replace column name

```
# column name
tw_select_col <- colnames(tw_select)
tw_select_col_copy <- tw_select_col
# split comlumn name
tw_select_col_code <- str_split_fixed(tw_select_col_copy , ": ", 2)[,1]

# replace column name make it easy to use in filter function
tw_select_col <- str_replace_all(tw_select_col,": ","_")
tw_select_col <- str_replace_all(tw_select_col," ","_")
colnames(tw_select) <- tw_select_col_code
```

handle wrong data

```
summary(tw_select)
```

```
##        V4               V5               V6               V7
##  Min.   :-1.000   Min.   :-2.000   Min.   :-2.000   Min.   :-2.000
##  1st Qu.: 1.000   1st Qu.: 1.000   1st Qu.: 1.000   1st Qu.: 2.000
##  Median : 1.000   Median : 2.000   Median : 2.000   Median : 3.000
##  Mean   : 1.086   Mean   : 1.599   Mean   : 1.728   Mean   : 2.706
##  3rd Qu.: 1.000   3rd Qu.: 2.000   3rd Qu.: 2.000   3rd Qu.: 3.000
##  Max.   : 4.000   Max.   : 4.000   Max.   : 4.000   Max.   : 4.000
##        V8               V9              V10           V11
##  Min.   :-2.000   Min.   :-1.000   Min.   :-2.0   Min.   :-1.000
##  1st Qu.: 1.000   1st Qu.: 2.000   1st Qu.: 1.0   1st Qu.: 1.000
##  Median : 1.000   Median : 2.000   Median : 2.0   Median : 2.000
##  Mean   : 1.476   Mean   : 2.317   Mean   : 1.8   Mean   : 1.888
##  3rd Qu.: 2.000   3rd Qu.: 3.000   3rd Qu.: 2.0   3rd Qu.: 2.000
##  Max.   : 4.000   Max.   : 4.000   Max.   : 4.0   Max.   : 4.000
##       V23              V59              V140             V141
##  Min.   :-2.000   Min.   :-2.000   Min.   :-2.000   Min.   :-2.000
##  1st Qu.: 5.000   1st Qu.: 5.000   1st Qu.: 8.000   1st Qu.: 5.000
##  Median : 7.000   Median : 6.000   Median :10.000   Median : 7.000
##  Mean   : 6.745   Mean   : 6.194   Mean   : 8.553   Mean   : 6.465
##  3rd Qu.: 8.000   3rd Qu.: 8.000   3rd Qu.:10.000   3rd Qu.: 8.000
##  Max.   :10.000   Max.   :10.000   Max.   :10.000   Max.   :10.000
##       V142             V237             V238             V239
```

```
##  Min.   :-2.000   Min.   :-2.000   Min.   :-2.000   Min.   :-2.00
##  1st Qu.: 2.000   1st Qu.: 1.000   1st Qu.: 2.000   1st Qu.: 3.00
##  Median : 2.000   Median : 2.000   Median : 3.000   Median : 5.00
##  Mean   : 1.977   Mean   : 1.884   Mean   : 2.955   Mean   : 4.42
##  3rd Qu.: 2.000   3rd Qu.: 2.000   3rd Qu.: 4.000   3rd Qu.: 6.00
##  Max.   : 4.000   Max.   : 4.000   Max.   : 5.000   Max.   :10.00
##       V240
##  Min.   :1.000
##  1st Qu.:1.000
##  Median :2.000
##  Mean   :1.521
##  3rd Qu.:2.000
##  Max.   :2.000
```

```
# Delect wrong data--- response as -1 or -2
tw_select_clean <- tw_select %>%  filter_all(all_vars(.>0))
# summary tw_select_clean to see if still have invalid data
summary(tw_select_clean)
```

```
##        V4               V5               V6               V7
##  Min.   :1.000   Min.   :1.000   Min.   :1.000   Min.   :1.000
##  1st Qu.:1.000   1st Qu.:1.000   1st Qu.:1.000   1st Qu.:2.000
##  Median :1.000   Median :2.000   Median :2.000   Median :3.000
##  Mean   :1.085   Mean   :1.623   Mean   :1.771   Mean   :2.792
##  3rd Qu.:1.000   3rd Qu.:2.000   3rd Qu.:2.000   3rd Qu.:3.000
##  Max.   :4.000   Max.   :4.000   Max.   :4.000   Max.   :4.000
##        V8               V9              V10              V11
##  Min.   :1.000   Min.   :1.000   Min.   :1.000   Min.   :1.000
##  1st Qu.:1.000   1st Qu.:2.000   1st Qu.:1.000   1st Qu.:1.000
##  Median :1.000   Median :2.000   Median :2.000   Median :2.000
##  Mean   :1.482   Mean   :2.404   Mean   :1.831   Mean   :1.845
##  3rd Qu.:2.000   3rd Qu.:3.000   3rd Qu.:2.000   3rd Qu.:2.000
##  Max.   :4.000   Max.   :4.000   Max.   :4.000   Max.   :4.000
##       V23              V59              V140             V141
##  Min.   : 1.000   Min.   : 1.000   Min.   : 1.000   Min.   : 1.000
##  1st Qu.: 6.000   1st Qu.: 5.000   1st Qu.: 8.000   1st Qu.: 5.000
##  Median : 7.000   Median : 6.000   Median :10.000   Median : 7.000
##  Mean   : 6.899   Mean   : 6.385   Mean   : 8.944   Mean   : 6.903
##  3rd Qu.: 8.000   3rd Qu.: 8.000   3rd Qu.:10.000   3rd Qu.: 9.000
##  Max.   :10.000   Max.   :10.000   Max.   :10.000   Max.   :10.000
##       V142            V237             V238             V239
##  Min.   :1.000   Min.   :1.000   Min.   :1.000   Min.   : 1.000
##  1st Qu.:2.000   1st Qu.:1.000   1st Qu.:2.000   1st Qu.: 4.000
##  Median :2.000   Median :2.000   Median :3.000   Median : 5.000
##  Mean   :2.139   Mean   :1.992   Mean   :3.121   Mean   : 4.804
##  3rd Qu.:3.000   3rd Qu.:2.000   3rd Qu.:4.000   3rd Qu.: 6.000
##  Max.   :4.000   Max.   :4.000   Max.   :5.000   Max.   :10.000
##       V240
##  Min.   :1.00
##  1st Qu.:1.00
##  Median :2.00
##  Mean   :1.51
##  3rd Qu.:2.00
##  Max.   :2.00
```

factor analysis

```
# select data for factor analysis
tw_select_fa <- select(tw_select_clean,1:16)

##Correlation matrix
twMatrix <- cor(tw_select_fa)

## Barlett's test
cortest.bartlett(tw_select_fa)
```

```
## R was not square, finding R from data
```

```
## $chisq
## [1] 2732.389
##
## $p.value
## [1] 0
##
## $df
## [1] 120
```

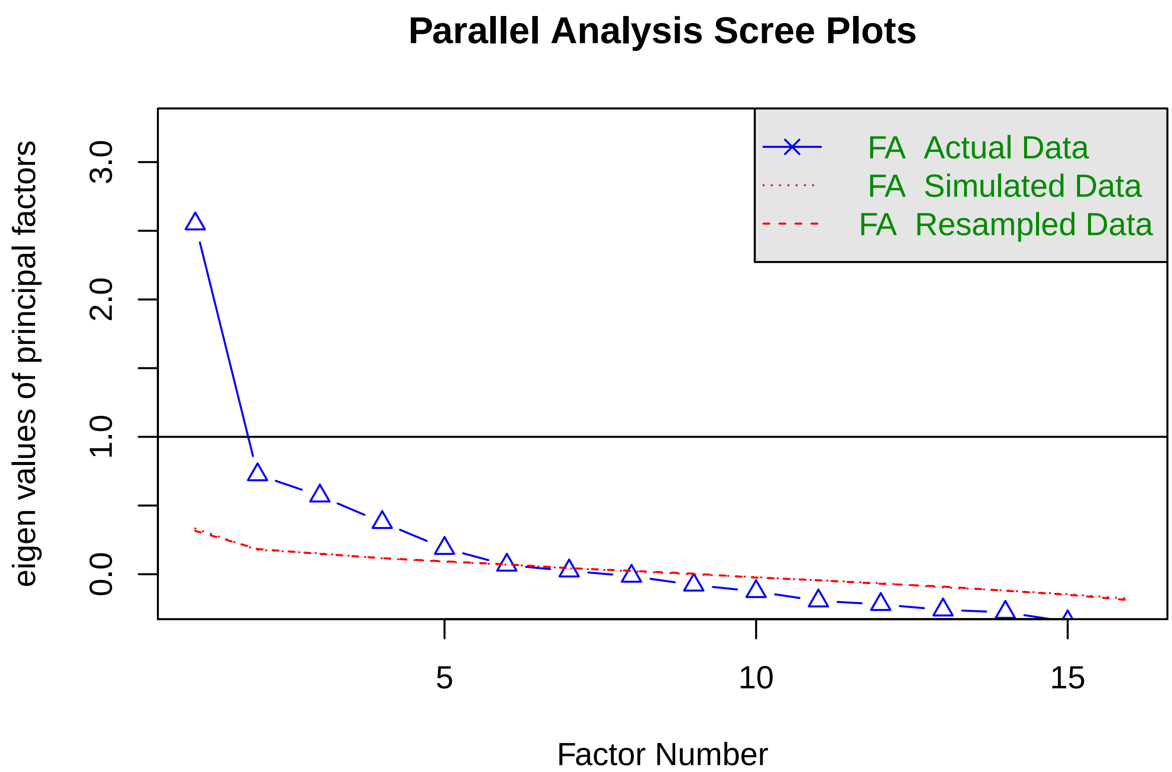
```
# For these data, Bartlett’s test is highly signicant,therefore factor analysis is appropriate.

det(twMatrix)
```

```
## [1] 0.07444169
```

```
# This value is greater than the necessary value of 0.00001. As such, our
# determinant does not seem problematic.

# Parallel Analysis
parallel <- fa.parallel(tw_select_fa,fm='minres',fa='fa')
```




```
## Parallel analysis suggests that the number of factors =  5  and the number of components =  NA
```

```
threefactor <- fa(tw_select_fa,nfactors = 3,rotate = "oblimin",fm="minres")
print(threefactor)
```

```
## Factor Analysis using method =  minres
## Call: fa(r = tw_select_fa, nfactors = 3, rotate = "oblimin", fm = "minres")
## Standardized loadings (pattern matrix) based upon correlation matrix
##        MR1   MR2   MR3    h2   u2 com
## V4    0.12 -0.09  0.24 0.092 0.91 1.8
## V5    0.10 -0.15  0.36 0.176 0.82 1.5
## V6    0.11 -0.10  0.35 0.155 0.84 1.4
## V7    0.00  0.02  0.46 0.209 0.79 1.0
## V8    0.01  0.00  0.21 0.043 0.96 1.0
## V9   -0.12 -0.01  0.44 0.202 0.80 1.1
## V10   0.50  0.09  0.11 0.244 0.76 1.2
## V11   0.41  0.08  0.07 0.163 0.84 1.1
## V23  -0.67 -0.04 -0.08 0.448 0.55 1.0
## V59  -0.70 -0.05 -0.01 0.474 0.53 1.0
## V140 -0.02  0.21 -0.18 0.082 0.92 2.0
## V141  0.01  0.81 -0.02 0.658 0.34 1.0
## V142  0.02 -0.59 -0.02 0.359 0.64 1.0
## V237  0.46 -0.11 -0.07 0.260 0.74 1.2
## V238  0.51 -0.12 -0.02 0.316 0.68 1.1
## V239 -0.64  0.10  0.15 0.469 0.53 1.2
##
##                        MR1  MR2  MR3
## SS loadings           2.33 1.18 0.84
## Proportion Var        0.15 0.07 0.05
## Cumulative Var        0.15 0.22 0.27
```

```
## Proportion Explained  0.54 0.27 0.19
## Cumulative Proportion 0.54 0.81 1.00
##
##  With factor correlations of
##       MR1   MR2   MR3
## MR1  1.00 -0.33  0.04
## MR2 -0.33  1.00 -0.01
## MR3  0.04 -0.01  1.00
##
## Mean item complexity =  1.2
## Test of the hypothesis that 3 factors are sufficient.
##
## The degrees of freedom for the null model are  120  and the objective function was  2.6 with Chi Squa
## The degrees of freedom for the model are 75  and the objective function was  0.53
##
## The root mean square of the residuals (RMSR) is  0.05
## The df corrected root mean square of the residuals is  0.06
##
## The harmonic number of observations is  1059 with the empirical chi square  565.72  with prob <  2.2e
## The total number of observations was  1059  with Likelihood Chi Square =  556.81  with prob <  1.1e-7
##
## Tucker Lewis Index of factoring reliability =  0.704
## RMSEA index =  0.078  and the 90 % confidence intervals are  0.072 0.084
## BIC =  34.43
## Fit based upon off diagonal values = 0.93
## Measures of factor score adequacy
##                                                   MR1  MR2  MR3
## Correlation of (regression) scores with factors   0.89 0.86 0.71
## Multiple R square of scores with factors          0.80 0.73 0.51
## Minimum correlation of possible factor scores     0.59 0.47 0.01
```

```r
fourfactor <- fa(tw_select_fa,nfactors = 4,rotate =
                     "oblimin",fm="minres")
print(fourfactor)
```

```
## Factor Analysis using method =  minres
## Call: fa(r = tw_select_fa, nfactors = 4, rotate = "oblimin", fm = "minres")
## Standardized loadings (pattern matrix) based upon correlation matrix
##        MR1   MR4   MR2   MR3    h2    u2 com
## V4    0.05  0.08 -0.06  0.25 0.090 0.910 1.5
## V5    0.10  0.01 -0.09  0.39 0.190 0.810 1.2
## V6    0.09  0.03 -0.05  0.38 0.170 0.830 1.2
## V7    0.01 -0.04  0.07  0.49 0.241 0.759 1.1
## V8   -0.06  0.06  0.01  0.19 0.042 0.958 1.4
## V9   -0.20  0.04  0.00  0.40 0.190 0.810 1.5
## V10  -0.06  0.63  0.02  0.03 0.363 0.637 1.0
## V11   0.07  0.39  0.05  0.03 0.180 0.820 1.1
## V23   0.00 -0.82  0.03  0.02 0.678 0.322 1.0
## V59  -0.35 -0.42 -0.03 -0.02 0.437 0.563 1.9
## V140 -0.01 -0.01  0.18 -0.19 0.077 0.923 2.0
## V141  0.01  0.00  0.96  0.00 0.923 0.077 1.0
## V142  0.06  0.02 -0.51  0.00 0.290 0.710 1.0
## V237  0.48  0.06 -0.05  0.00 0.285 0.715 1.1
## V238  0.66 -0.03 -0.02  0.10 0.447 0.553 1.0
## V239 -0.80 -0.01  0.00  0.05 0.649 0.351 1.0
```

```
##
##                        MR1  MR4  MR2  MR3
## SS loadings           1.61 1.50 1.27 0.87
## Proportion Var        0.10 0.09 0.08 0.05
## Cumulative Var        0.10 0.19 0.27 0.33
## Proportion Explained  0.31 0.29 0.24 0.16
## Cumulative Proportion 0.31 0.59 0.84 1.00
##
##  With factor correlations of
##       MR1   MR4   MR2   MR3
## MR1  1.00  0.50 -0.28  0.06
## MR4  0.50  1.00 -0.22  0.11
## MR2 -0.28 -0.22  1.00 -0.10
## MR3  0.06  0.11 -0.10  1.00
##
## Mean item complexity =  1.3
## Test of the hypothesis that 4 factors are sufficient.
##
## The degrees of freedom for the null model are  120  and the objective function was  2.6 with Chi Squa
## The degrees of freedom for the model are 62  and the objective function was  0.24
##
## The root mean square of the residuals (RMSR) is  0.03
## The df corrected root mean square of the residuals is  0.04
##
## The harmonic number of observations is  1059 with the empirical chi square  259.24  with prob <  6e-
## The total number of observations was  1059  with Likelihood Chi Square =  251.96  with prob <  9.8e-
##
## Tucker Lewis Index of factoring reliability =  0.859
## RMSEA index =  0.054  and the 90 % confidence intervals are  0.047 0.061
## BIC =  -179.87
## Fit based upon off diagonal values = 0.97
## Measures of factor score adequacy
##                                                    MR1  MR4  MR2  MR3
## Correlation of (regression) scores with factors   0.88 0.88 0.96 0.72
## Multiple R square of scores with factors          0.78 0.78 0.93 0.52
## Minimum correlation of possible factor scores     0.57 0.56 0.86 0.04
```

```r
print(fourfactor$loadings,cutoff = 0.3)
```

```
##
## Loadings:
##      MR1    MR4    MR2    MR3
## V4
## V5                         0.392
## V6                         0.378
## V7                         0.495
## V8
## V9                         0.402
## V10         0.631
## V11         0.391
## V23        -0.818
## V59  -0.348 -0.419
## V140
## V141               0.963
## V142              -0.512
```

```
## V237  0.484
## V238  0.664
## V239 -0.802
##
##                   MR1   MR4   MR2   MR3
## SS loadings    1.515 1.416 1.248 0.850
## Proportion Var 0.095 0.089 0.078 0.053
## Cumulative Var 0.095 0.183 0.261 0.314
```

```
fivefactor <- fa(tw_select_fa,nfactors = 5,rotate =
                     "oblimin",fm="minres")
```

```
## Warning in fac(r = r, nfactors = nfactors, n.obs = n.obs, rotate =
## rotate, : A loading greater than abs(1) was detected. Examine the loadings
## carefully.
```

```
print(fivefactor)
```

```
## Factor Analysis using method =  minres
## Call: fa(r = tw_select_fa, nfactors = 5, rotate = "oblimin", fm = "minres")
##
##  Warning: A Heywood case was detected.
## Standardized loadings (pattern matrix) based upon correlation matrix
##        MR1   MR2   MR4   MR3   MR5    h2     u2 com
## V4    0.08 -0.06  0.10  0.23  0.03 0.088 0.9120 1.9
## V5    0.18 -0.08  0.12  0.37  0.17 0.205 0.7952 2.3
## V6    0.16 -0.04  0.12  0.35  0.13 0.178 0.8223 2.0
## V7   -0.04  0.05 -0.11  0.54 -0.14 0.306 0.6940 1.2
## V8    0.03  0.03  0.16  0.18  0.18 0.065 0.9345 3.0
## V9   -0.22 -0.02  0.01  0.42 -0.06 0.211 0.7893 1.5
## V10  -0.02  0.02  0.69  0.00  0.03 0.447 0.5531 1.0
## V11   0.13  0.05  0.45  0.00  0.07 0.221 0.7789 1.3
## V23   0.01  0.07 -0.59  0.01  0.28 0.595 0.4049 1.5
## V59  -0.13  0.01 -0.12 -0.04  0.70 0.705 0.2948 1.1
## V140 -0.02  0.18 -0.02 -0.19  0.00 0.076 0.9244 2.0
## V141  0.01  1.00  0.01  0.00  0.01 0.995 0.0049 1.0
## V142  0.11 -0.49  0.08 -0.01  0.09 0.282 0.7184 1.2
## V237  0.38 -0.07 -0.05  0.01 -0.26 0.299 0.7009 1.9
## V238  0.71 -0.01  0.02  0.07  0.04 0.492 0.5084 1.0
## V239 -0.74  0.01  0.00  0.07  0.10 0.623 0.3771 1.1
##
##                        MR1  MR2  MR4  MR3  MR5
## SS loadings           1.48 1.34 1.23 0.87 0.86
## Proportion Var        0.09 0.08 0.08 0.05 0.05
## Cumulative Var        0.09 0.18 0.25 0.31 0.36
## Proportion Explained  0.26 0.23 0.21 0.15 0.15
## Cumulative Proportion 0.26 0.49 0.70 0.85 1.00
##
##  With factor correlations of
##       MR1   MR2   MR4   MR3   MR5
## MR1  1.00 -0.27  0.41  0.04 -0.44
## MR2 -0.27  1.00 -0.18 -0.07  0.15
## MR4  0.41 -0.18  1.00  0.09 -0.46
## MR3  0.04 -0.07  0.09  1.00 -0.05
## MR5 -0.44  0.15 -0.46 -0.05  1.00
```

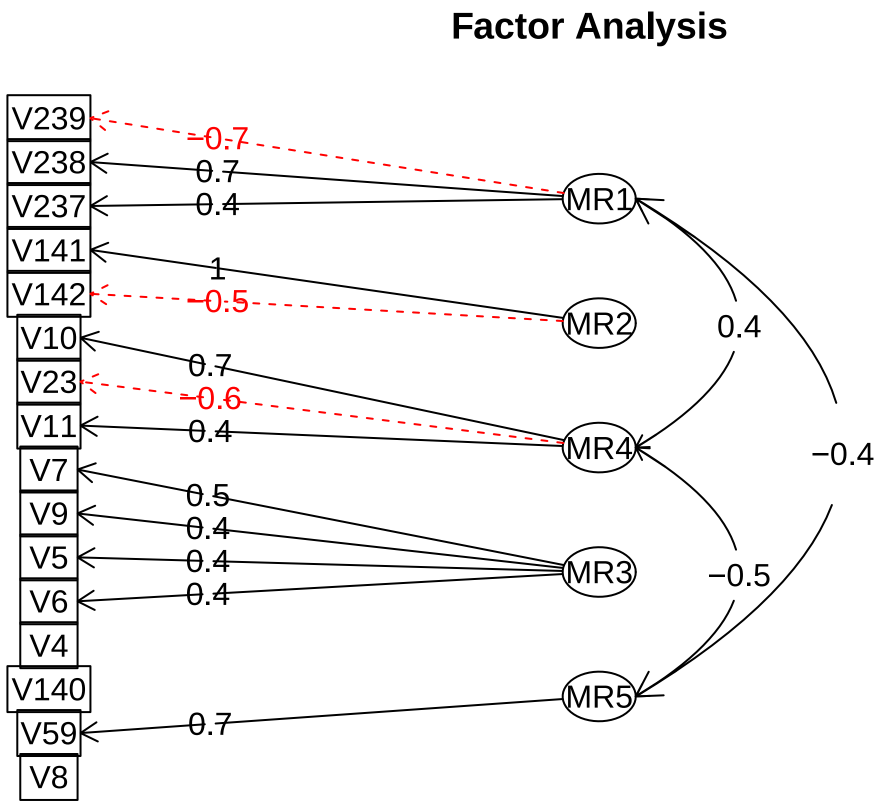
```
##
## Mean item complexity =  1.6
## Test of the hypothesis that 5 factors are sufficient.
##
## The degrees of freedom for the null model are  120  and the objective function was  2.6 with Chi Squa
## The degrees of freedom for the model are 50  and the objective function was  0.14
##
## The root mean square of the residuals (RMSR) is  0.02
## The df corrected root mean square of the residuals is  0.04
##
## The harmonic number of observations is  1059 with the empirical chi square  151.94  with prob <  3.2
## The total number of observations was  1059  with Likelihood Chi Square =  147.92  with prob <  1.3e-
##
## Tucker Lewis Index of factoring reliability =  0.91
## RMSEA index =  0.043  and the 90 % confidence intervals are  0.035 0.051
## BIC =  -200.34
## Fit based upon off diagonal values = 0.98
## Measures of factor score adequacy
##                                                    MR1  MR2  MR4  MR3  MR5
## Correlation of (regression) scores with factors   0.87 1.00 0.85 0.73 0.85
## Multiple R square of scores with factors          0.76 1.00 0.71 0.53 0.72
## Minimum correlation of possible factor scores     0.53 0.99 0.43 0.06 0.44
```

```
print(fivefactor$loadings,cutoff = 0.3)
```

```
##
## Loadings:
##      MR1    MR2    MR4    MR3    MR5
## V4
## V5                         0.366
## V6                         0.354
## V7                         0.542
## V8
## V9                         0.421
## V10                 0.693
## V11                 0.446
## V23                -0.591
## V59                               0.700
## V140
## V141         1.003
## V142        -0.486
## V237  0.384
## V238  0.706
## V239 -0.736
##
##                  MR1   MR2   MR4   MR3   MR5
## SS loadings    1.343 1.303 1.131 0.860 0.763
## Proportion Var 0.084 0.081 0.071 0.054 0.048
## Cumulative Var 0.084 0.165 0.236 0.290 0.337
```

```
# The root mean square of residuals (RMSR) is 0.04. This is acceptable as this value should be closer t
# Next we should check RMSEA (root mean square error of approximation) index. Its value, 0.043 shows
# good model fit as it's below 0.05. Finally, the Tucker-Lewis Index (TLI) is 0.91 - an acceptable valu
# considering it's over 0.9.
```

```r
fa.diagram(fivefactor)
```




```r
alpha(x=tw_select_fa,check.keys=TRUE)
```

```
## Warning in alpha(x = tw_select_fa, check.keys = TRUE): Some items were negatively correlated with to
## This is indicated by a negative sign for the variable name.

##
## Reliability analysis
## Call: alpha(x = tw_select_fa, check.keys = TRUE)
##
##   raw_alpha std.alpha G6(smc) average_r S/N   ase mean   sd median_r
##       0.67      0.67    0.72      0.11 2.1 0.013  3.1 0.52    0.093
##
##  lower alpha upper     95% confidence boundaries
## 0.65 0.67 0.7
##
##  Reliability if an item is dropped:
##       raw_alpha std.alpha G6(smc) average_r S/N alpha se var.r med.r
## V4         0.67      0.67    0.71      0.12 2.0    0.013 0.019 0.094
## V5         0.66      0.66    0.71      0.12 2.0    0.013 0.019 0.090
## V6         0.67      0.67    0.71      0.12 2.0    0.013 0.019 0.094
## V7         0.68      0.69    0.72      0.13 2.2    0.012 0.017 0.099
## V8         0.68      0.69    0.73      0.13 2.2    0.012 0.018 0.103
## V9-        0.68      0.70    0.73      0.13 2.3    0.012 0.016 0.099
## V10        0.66      0.65    0.69      0.11 1.9    0.013 0.017 0.090
## V11        0.66      0.66    0.70      0.11 1.9    0.013 0.019 0.093
## V23-       0.61      0.63    0.67      0.10 1.7    0.015 0.015 0.089
```

```
## V59-       0.61      0.63    0.68      0.10 1.7    0.015 0.015 0.090
## V140-      0.67      0.67    0.72      0.12 2.1    0.012 0.019 0.096
## V141-      0.66      0.65    0.69      0.11 1.9    0.013 0.018 0.089
## V142       0.66      0.66    0.70      0.11 1.9    0.013 0.018 0.089
## V237       0.64      0.65    0.69      0.11 1.8    0.014 0.017 0.087
## V238       0.64      0.64    0.68      0.11 1.8    0.014 0.017 0.087
## V239-      0.62      0.63    0.67      0.10 1.7    0.015 0.015 0.090
##
##  Item statistics
##          n raw.r std.r  r.cor r.drop mean   sd
## V4    1059 0.228  0.34  0.237  0.192  1.1 0.31
## V5    1059 0.283  0.40  0.312  0.208  1.6 0.65
## V6    1059 0.263  0.36  0.267  0.181  1.8 0.70
## V7    1059 0.137  0.20  0.086  0.040  2.8 0.81
## V8    1059 0.107  0.21  0.080  0.023  1.5 0.69
## V9-   1059 0.094  0.10 -0.032 -0.011  8.6 0.87
## V10   1059 0.429  0.47  0.427  0.366  1.8 0.61
## V11   1059 0.374  0.45  0.379  0.304  1.8 0.65
## V23-  1059 0.677  0.60  0.602  0.505  4.1 2.04
## V59-  1059 0.694  0.59  0.588  0.507  4.6 2.24
## V140- 1059 0.347  0.31  0.202  0.166  2.1 1.57
## V141- 1059 0.565  0.47  0.434  0.327  4.1 2.31
## V142  1059 0.409  0.42  0.371  0.335  2.1 0.69
## V237  1059 0.513  0.52  0.475  0.431  2.0 0.86
## V238  1059 0.550  0.57  0.554  0.469  3.1 0.89
## V239- 1059 0.646  0.60  0.604  0.503  6.2 1.66
##
## Non missing response frequency for each item
##         1    2    3    4    5    6    7    8    9   10 miss
## V4   0.92 0.07 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00    0
## V5   0.46 0.46 0.07 0.01 0.00 0.00 0.00 0.00 0.00 0.00    0
## V6   0.37 0.49 0.12 0.01 0.00 0.00 0.00 0.00 0.00 0.00    0
## V7   0.07 0.25 0.50 0.18 0.00 0.00 0.00 0.00 0.00 0.00    0
## V8   0.61 0.31 0.06 0.02 0.00 0.00 0.00 0.00 0.00 0.00    0
## V9   0.17 0.35 0.39 0.09 0.00 0.00 0.00 0.00 0.00 0.00    0
## V10  0.27 0.64 0.08 0.01 0.00 0.00 0.00 0.00 0.00 0.00    0
## V11  0.28 0.62 0.08 0.02 0.00 0.00 0.00 0.00 0.00 0.00    0
## V23  0.02 0.01 0.04 0.03 0.13 0.16 0.18 0.25 0.09 0.10    0
## V59  0.05 0.02 0.04 0.05 0.16 0.18 0.17 0.17 0.06 0.10    0
## V140 0.00 0.00 0.00 0.00 0.04 0.04 0.07 0.15 0.12 0.57    0
## V141 0.03 0.01 0.04 0.04 0.13 0.15 0.15 0.19 0.07 0.18    0
## V142 0.15 0.60 0.22 0.03 0.00 0.00 0.00 0.00 0.00 0.00    0
## V237 0.31 0.45 0.18 0.06 0.00 0.00 0.00 0.00 0.00 0.00    0
## V238 0.01 0.28 0.35 0.32 0.05 0.00 0.00 0.00 0.00 0.00    0
## V239 0.05 0.04 0.12 0.14 0.32 0.19 0.10 0.03 0.00 0.00    0
```

Plot

```r
###----Plot----###

tw_select_all <- select(tw_num,5:12,24,62,161:163,306:308,309)

colnames(tw_select_all) <- tw_select_col
```

```r
tw_select_all
```

```
## # A tibble: 1,238 x 17
##    V4_Important_in~ V5_Important_in~ V6_Important_in~ V7_Important_in~
##               <dbl>            <dbl>            <dbl>            <dbl>
##  1                1                1                1                3
##  2                1                2                2                2
##  3                1                2                2                3
##  4                1                1                1                2
##  5                1                2                2                3
##  6                1                1                1                3
##  7                1                1                2                3
##  8                1                1                2                2
##  9                1                2                2                2
## 10                1                1                1                1
## # ... with 1,228 more rows, and 13 more variables:
## #   V8_Important_in_life_Work <dbl>, V9_Important_in_life_Religion <dbl>,
## #   V10_Feeling_of_happiness <dbl>,
## #   `V11_State_of_health_(subjective)` <dbl>,
## #   V23_Satisfaction_with_your_life <dbl>,
## #   V59_Satisfaction_with_financial_situation_of_household <dbl>,
## #   V140_Importance_of_democracy <dbl>,
## #   V141_How_democratically_is_this_country_being_governed_today <dbl>,
## #   V142_How_much_respect_is_there_for_individual_human_rights_nowadays_in_this_country <dbl>,
## #   V237_Family_savings_during_past_year <dbl>,
## #   `V238_Social_class_(subjective)` <dbl>, V239_Scale_of_incomes <dbl>,
## #   V240_Sex <dbl>
```

```r
colnames(tw_select_all)
```

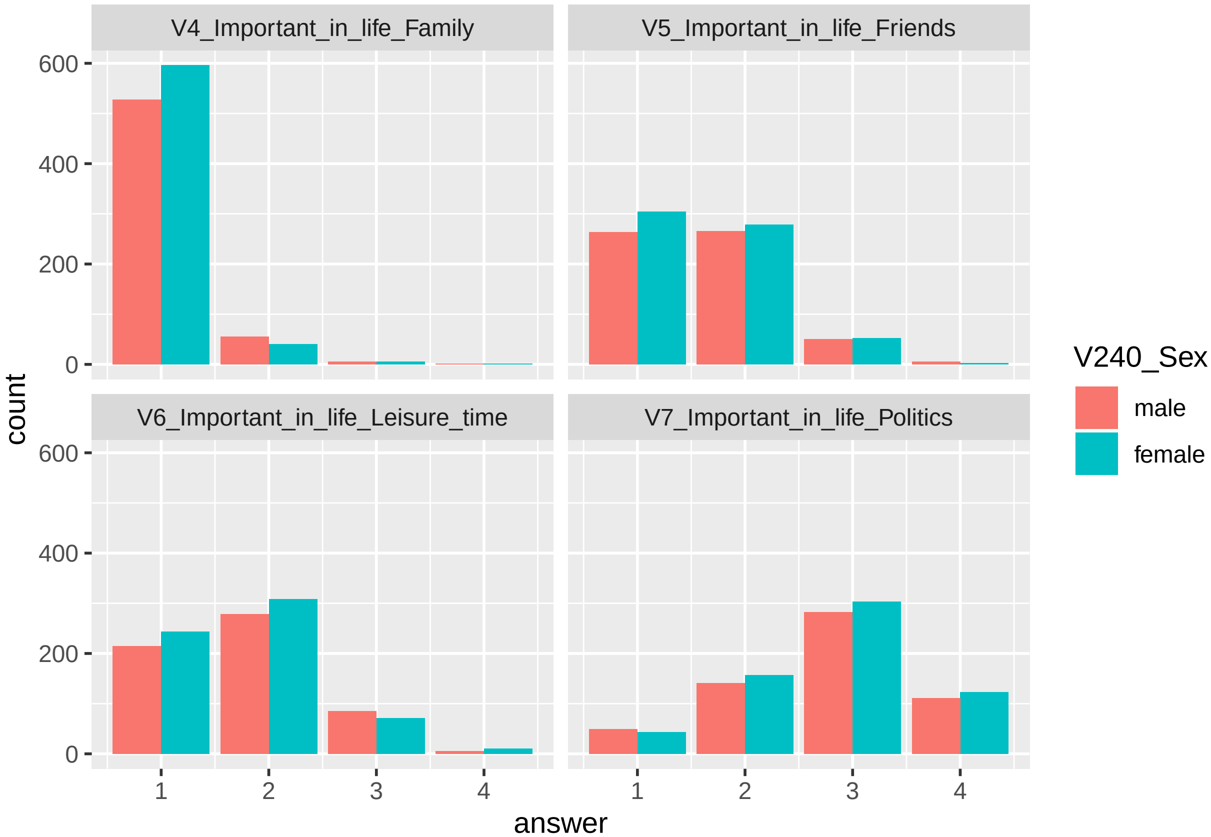
```
##  [1] "V4_Important_in_life_Family"
##  [2] "V5_Important_in_life_Friends"
##  [3] "V6_Important_in_life_Leisure_time"
##  [4] "V7_Important_in_life_Politics"
##  [5] "V8_Important_in_life_Work"
##  [6] "V9_Important_in_life_Religion"
##  [7] "V10_Feeling_of_happiness"
##  [8] "V11_State_of_health_(subjective)"
##  [9] "V23_Satisfaction_with_your_life"
## [10] "V59_Satisfaction_with_financial_situation_of_household"
## [11] "V140_Importance_of_democracy"
## [12] "V141_How_democratically_is_this_country_being_governed_today"
## [13] "V142_How_much_respect_is_there_for_individual_human_rights_nowadays_in_this_country"
## [14] "V237_Family_savings_during_past_year"
## [15] "V238_Social_class_(subjective)"
## [16] "V239_Scale_of_incomes"
## [17] "V240_Sex"
```

```r
##Plot 1 different gender response to V4-V9-significant of Important_in_life

tw_select_all$V240_Sex <- factor(tw_select_all$V240_Sex,levels = c(1,2),labels = c("male","female"))

testdf <- tw_select_all%>%select(1:4,V240_Sex)%>%
    pivot_longer(cols = 1:4,names_to = "Question",values_to = "answer") %>%
    filter(answer>=0)
```

```r
ggplot(testdf)+
    aes(x = answer,fill = V240_Sex)+
    geom_bar(position = "dodge")+facet_wrap(as.factor(testdf$Question),ncol = 2)
```



Note that the `echo = FALSE` parameter was added to the code chunk to prevent printing of the R code that generated the plot.