BACS-hw15-107070004

```
sd <- read.csv("./security_data_sem.csv")
```

Question 1) Composite Path Models using PLS-PM

(a) Create a PLS path model using SEMinR, with all the following characteristics:

(i) Measurement model – all constructs are measured as composites:

1. Trust in website (TRUST): items TRST1 - TRST4
2. Perceived security of website (SEC): items PSEC1 - PSEC4
3. Reputation of website (REP): items PREP1 - PREP4
4. Investment in website (INV): items PINV1 - PINV3
5. Perception of privacy policies (POL): items PPSS1 - PPSS3
6. Familiarity with website (FAML): item FAML1 (see the documentation of SEMinR for making single item constructs)
7. Interaction between REP and POL (use orthogonalized product terms)

```
# Measurement Models
sd_mm <- constructs(
  composite("TRUST",multi_items("TRST", 1:4)),
  composite("SEC",multi_items("PSEC", 1:4)),
  composite("REP",multi_items("PREP", 1:4)),
  composite("INV",multi_items("PINV", 1:3)),
  composite("POL",multi_items("PPSS", 1:3)),
  composite("FAML",multi_items("FAML", 1:1)),
  interaction_term(iv="REP", moderator="POL", method=orthogonal)
)
```

(ii) Structural Model – paths between constructs as shown in this causal model:

REP + INV + POL + FAML + (REPxPOL) -> SEC -> TRUST

```
#Structural Models
sd_sm <- relationships(
  paths(from= c("REP", "INV", "POL", "FAML", "REP*POL"),to= "SEC"),
  paths(from= "SEC",to= "TRUST")
)
```

(b) Show us the following results in table or figure formats:

```
sd_pls <- estimate_pls(
  data = sd,
  measurement_model = sd_mm,
  structural_model = sd_sm
)
```

```
## Generating the seminr model
```

```
## All 405 observations are valid.
```

```
sd_result <- summary(sd_pls)
sd_result
```

```
##
## Results from  package seminr (2.3.0)
##
## Path Coefficients:
##            SEC TRUST
## R^2      0.420 0.367
## AdjR^2   0.412 0.365
## REP      0.247     .
## INV      0.181     .
## POL      0.339     .
## FAML     0.011     .
## REP*POL -0.105     .
## SEC          . 0.606
##
## Reliability:
##         alpha  rhoC   AVE  rhoA
## REP     0.857 0.904 0.704 0.882
## INV     0.875 0.923 0.801 0.879
## POL     0.870 0.920 0.794 0.872
## FAML    1.000 1.000 1.000 1.000
## REP*POL 0.938 0.853 0.352 1.000
## SEC     0.859 0.905 0.704 0.862
## TRUST   0.911 0.937 0.789 0.911
##
## Alpha, rhoC, and rhoA should exceed 0.7 while AVE should exceed 0.5
```

(i) Plot a figure of the estimated model

```
plot(sd_pls)
```

```
## Warning in file.exists(diagram[1]): unable to translate 'digraph G {
##
## // ----------------------
## // General graph settings
```

```
## // ----------------------
## graph [
## charset = "UTF-8",
## layout = dot,
## label = "",
## fontsize = 24,
## fontcolor = black,
## fontname = helvetica,
## rankdir = LR,
## labelloc = t,
## splines = TRUE
## bgcolor = transparent
## ]
##
## // --------------------
## // The structural model
## // --------------------
## subgraph sm {
## rankdir = LR;
## node [
## shape = ellipse,
## color = black,
## fillcolor = white,
## style = filled,
## fontsize = 12,
## fontcolor = black,
## height = 1.03933333333333,
## width = 1.141,
## fontname = helvetica,
## fixedsize = true
## ]
## "REP" [label=<<B>REP </B>>, shape = hexagon]
## "INV" [label=<<B>INV </B>>, shape = hexagon]
## "POL" [label=<<B>POL </B>>, shape = hexagon]
## "FAML" [label=<<B>FAML </B>>, shape = hexagon]
## "REP*POL" [label=<<B>REP*POL </B>>, shape = ellipse]
## "SEC" [label=<<B>SEC </B><BR /><FONT POINT-SIZE='10'>r<U+00B2> = 0.42</FONT>>, shape = hexagon]
## "TRUST" [label=<<B>TRUST </B><BR /><FONT POINT-SIZE='10'>r<U+00B2> = 0.367</FONT>>, shape [... trunc
```

(ii) Weights and loadings of composites

```
sd_result$weights
```

```
##              REP   INV   POL  FAML REP*POL    SEC TRUST
## TRST1      0.000 0.000 0.000 0.000   0.000 0.000 0.282
## TRST2      0.000 0.000 0.000 0.000   0.000 0.000 0.280
## TRST3      0.000 0.000 0.000 0.000   0.000 0.000 0.286
## TRST4      0.000 0.000 0.000 0.000   0.000 0.000 0.278
## PSEC1      0.000 0.000 0.000 0.000   0.000 0.277 0.000
## PSEC2      0.000 0.000 0.000 0.000   0.000 0.315 0.000
## PSEC3      0.000 0.000 0.000 0.000   0.000 0.307 0.000
## PSEC4      0.000 0.000 0.000 0.000   0.000 0.292 0.000
```

```
## PREP1        0.215 0.000 0.000 0.000   0.000 0.000 0.000
## PREP2        0.334 0.000 0.000 0.000   0.000 0.000 0.000
## PREP3        0.349 0.000 0.000 0.000   0.000 0.000 0.000
## PREP4        0.287 0.000 0.000 0.000   0.000 0.000 0.000
## PINV1        0.000 0.363 0.000 0.000   0.000 0.000 0.000
## PINV2        0.000 0.395 0.000 0.000   0.000 0.000 0.000
## PINV3        0.000 0.358 0.000 0.000   0.000 0.000 0.000
## PPSS1        0.000 0.000 0.360 0.000   0.000 0.000 0.000
## PPSS2        0.000 0.000 0.395 0.000   0.000 0.000 0.000
## PPSS3        0.000 0.000 0.367 0.000   0.000 0.000 0.000
## FAML1        0.000 0.000 0.000 1.000   0.000 0.000 0.000
## PREP1*PPSS1 0.000 0.000 0.000 0.000   0.239 0.000 0.000
## PREP1*PPSS2 0.000 0.000 0.000 0.000   0.031 0.000 0.000
## PREP1*PPSS3 0.000 0.000 0.000 0.000   0.021 0.000 0.000
## PREP2*PPSS1 0.000 0.000 0.000 0.000   0.046 0.000 0.000
## PREP2*PPSS2 0.000 0.000 0.000 0.000  -0.104 0.000 0.000
## PREP2*PPSS3 0.000 0.000 0.000 0.000  -0.228 0.000 0.000
## PREP3*PPSS1 0.000 0.000 0.000 0.000  -0.341 0.000 0.000
## PREP3*PPSS2 0.000 0.000 0.000 0.000   0.095 0.000 0.000
## PREP3*PPSS3 0.000 0.000 0.000 0.000   0.108 0.000 0.000
## PREP4*PPSS1 0.000 0.000 0.000 0.000   0.443 0.000 0.000
## PREP4*PPSS2 0.000 0.000 0.000 0.000   0.382 0.000 0.000
## PREP4*PPSS3 0.000 0.000 0.000 0.000   0.271 0.000 0.000
```

```
sd_result$loadings
```

```
##                 REP    INV    POL   FAML REP*POL    SEC  TRUST
## TRST1         0.000  0.000  0.000  0.000  -0.000  0.000  0.900
## TRST2         0.000  0.000  0.000  0.000  -0.000  0.000  0.909
## TRST3         0.000  0.000  0.000  0.000  -0.000  0.000  0.905
## TRST4         0.000  0.000  0.000  0.000  -0.000  0.000  0.838
## PSEC1         0.000  0.000  0.000  0.000  -0.000  0.813  0.000
## PSEC2         0.000  0.000  0.000  0.000  -0.000  0.865  0.000
## PSEC3         0.000  0.000  0.000  0.000  -0.000  0.868  0.000
## PSEC4         0.000  0.000  0.000  0.000  -0.000  0.807  0.000
## PREP1         0.800  0.000  0.000  0.000   0.000  0.000  0.000
## PREP2         0.913  0.000  0.000  0.000   0.000  0.000  0.000
## PREP3         0.908  0.000  0.000  0.000   0.000  0.000  0.000
## PREP4         0.718  0.000  0.000  0.000   0.000  0.000  0.000
## PINV1         0.000  0.903  0.000  0.000  -0.000  0.000  0.000
## PINV2         0.000  0.925  0.000  0.000  -0.000  0.000  0.000
## PINV3         0.000  0.855  0.000  0.000  -0.000  0.000  0.000
## PPSS1         0.000  0.000  0.868  0.000   0.000  0.000  0.000
## PPSS2         0.000  0.000  0.893  0.000   0.000  0.000  0.000
## PPSS3         0.000  0.000  0.911  0.000   0.000  0.000  0.000
## FAML1         0.000  0.000  0.000  1.000  -0.000  0.000  0.000
## PREP1*PPSS1 -0.000 -0.000 -0.000 -0.000   0.581 -0.000 -0.000
## PREP1*PPSS2 -0.000 -0.000  0.000 -0.000   0.510 -0.000 -0.000
## PREP1*PPSS3 -0.000 -0.000 -0.000 -0.000   0.506 -0.000 -0.000
## PREP2*PPSS1 -0.000 -0.000 -0.000 -0.000   0.509 -0.000 -0.000
## PREP2*PPSS2 -0.000 -0.000  0.000 -0.000   0.421  0.000  0.000
## PREP2*PPSS3 -0.000 -0.000 -0.000  0.000   0.336  0.000  0.000
## PREP3*PPSS1 -0.000 -0.000 -0.000  0.000   0.236  0.000  0.000
## PREP3*PPSS2 -0.000 -0.000  0.000 -0.000   0.555 -0.000 -0.000
```

```
## PREP3*PPSS3 -0.000 -0.000 -0.000  0.000   0.466 -0.000 -0.000
## PREP4*PPSS1  0.000 -0.000  0.000  0.000   0.900 -0.000 -0.000
## PREP4*PPSS2 -0.000 -0.000 -0.000 -0.000   0.836 -0.000  0.000
## PREP4*PPSS3  0.000 -0.000  0.000  0.000   0.859 -0.000  0.000
```

(iii) Regression coefficients of paths between factors

```
sd_result$paths
```

```
##             SEC TRUST
## R^2       0.420 0.367
## AdjR^2    0.412 0.365
## REP       0.247     .
## INV       0.181     .
## POL       0.339     .
## FAML      0.011     .
## REP*POL  -0.105     .
## SEC           . 0.606
```

(iv) Bootstrapped path coefficients: t-values, 95% CI

```
boot_sd <- bootstrap_model(sd_pls,nboot= 1000)
```

```
## Bootstrapping model using seminr...
```

```
## SEMinR Model successfully bootstrapped
```

```
summary(boot_sd)
```

```
##
## Results from Bootstrap resamples:  1000
##
## Bootstrapped Structural Paths:
##                Original Est. Bootstrap Mean Bootstrap SD T Stat. 2.5% CI
## REP  ->  SEC          0.247          0.243        0.058   4.255   0.121
## INV  ->  SEC          0.181          0.186        0.057   3.150   0.075
## POL  ->  SEC          0.339          0.340        0.055   6.208   0.224
## FAML ->  SEC          0.011          0.010        0.058   0.182  -0.106
## REP*POL ->  SEC      -0.105         -0.018        0.125  -0.839  -0.192
## SEC  ->  TRUST        0.606          0.609        0.036  16.959   0.538
##              97.5% CI
## REP  ->  SEC    0.348
## INV  ->  SEC    0.293
## POL  ->  SEC    0.440
## FAML ->  SEC    0.124
## REP*POL ->  SEC  0.192
## SEC  ->  TRUST   0.679
##
```

```
## Bootstrapped Weights:
##                          Original Est. Bootstrap Mean Bootstrap SD T Stat.
## TRST1  ->  TRUST                 0.282          0.282        0.014 20.083
## TRST2  ->  TRUST                 0.280          0.280        0.015 18.277
## TRST3  ->  TRUST                 0.286          0.285        0.017 17.212
## TRST4  ->  TRUST                 0.278          0.278        0.020 14.248
## PSEC1  ->  SEC                   0.277          0.277        0.016 17.447
## PSEC2  ->  SEC                   0.315          0.314        0.017 19.000
## PSEC3  ->  SEC                   0.307          0.307        0.017 18.578
## PSEC4  ->  SEC                   0.292          0.291        0.018 16.060
## PREP1  ->  REP                   0.215          0.214        0.026  8.328
## PREP2  ->  REP                   0.334          0.334        0.019 17.797
## PREP3  ->  REP                   0.349          0.348        0.022 15.867
## PREP4  ->  REP                   0.287          0.287        0.025 11.369
## PINV1  ->  INV                   0.363          0.363        0.026 14.032
## PINV2  ->  INV                   0.395          0.393        0.025 15.920
## PINV3  ->  INV                   0.358          0.359        0.028 12.678
## PPSS1  ->  POL                   0.360          0.358        0.022 16.036
## PPSS2  ->  POL                   0.395          0.395        0.022 17.648
## PPSS3  ->  POL                   0.367          0.369        0.018 20.398
## FAML1  ->  FAML                  1.000          1.000        0.000      .
## PREP1*PPSS1  ->  REP*POL         0.239          0.096        0.151  1.587
## PREP1*PPSS2  ->  REP*POL         0.031          0.065        0.090  0.347
## PREP1*PPSS3  ->  REP*POL         0.021          0.066        0.111  0.190
## PREP2*PPSS1  ->  REP*POL         0.046          0.077        0.105  0.439
## PREP2*PPSS2  ->  REP*POL        -0.104          0.059        0.151 -0.691
## PREP2*PPSS3  ->  REP*POL        -0.228          0.041        0.243 -0.941
## PREP3*PPSS1  ->  REP*POL        -0.341          0.010        0.313 -1.087
## PREP3*PPSS2  ->  REP*POL         0.095          0.092        0.132  0.719
## PREP3*PPSS3  ->  REP*POL         0.108          0.087        0.128  0.848
## PREP4*PPSS1  ->  REP*POL         0.443          0.122        0.281  1.576
## PREP4*PPSS2  ->  REP*POL         0.382          0.106        0.270  1.416
## PREP4*PPSS3  ->  REP*POL         0.271          0.098        0.185  1.465
##                          2.5% CI 97.5% CI
## TRST1  ->  TRUST           0.255    0.309
## TRST2  ->  TRUST           0.252    0.310
## TRST3  ->  TRUST           0.253    0.318
## TRST4  ->  TRUST           0.237    0.314
## PSEC1  ->  SEC             0.248    0.308
## PSEC2  ->  SEC             0.282    0.349
## PSEC3  ->  SEC             0.277    0.341
## PSEC4  ->  SEC             0.256    0.327
## PREP1  ->  REP             0.156    0.257
## PREP2  ->  REP             0.302    0.373
## PREP3  ->  REP             0.306    0.395
## PREP4  ->  REP             0.241    0.339
## PINV1  ->  INV             0.312    0.416
## PINV2  ->  INV             0.341    0.441
## PINV3  ->  INV             0.306    0.414
## PPSS1  ->  POL             0.313    0.399
## PPSS2  ->  POL             0.355    0.445
## PPSS3  ->  POL             0.333    0.405
## FAML1  ->  FAML            1.000    1.000
## PREP1*PPSS1  ->  REP*POL  -0.243    0.363
```

```
## PREP1*PPSS2  ->  REP*POL  -0.143    0.240
## PREP1*PPSS3  ->  REP*POL  -0.190    0.280
## PREP2*PPSS1  ->  REP*POL  -0.174    0.260
## PREP2*PPSS2  ->  REP*POL  -0.236    0.330
## PREP2*PPSS3  ->  REP*POL  -0.401    0.449
## PREP3*PPSS1  ->  REP*POL  -0.635    0.640
## PREP3*PPSS2  ->  REP*POL  -0.204    0.329
## PREP3*PPSS3  ->  REP*POL  -0.209    0.319
## PREP4*PPSS1  ->  REP*POL  -0.416    0.560
## PREP4*PPSS2  ->  REP*POL  -0.447    0.555
## PREP4*PPSS3  ->  REP*POL  -0.280    0.434
##
## Bootstrapped Loadings:
##                        Original Est. Bootstrap Mean Bootstrap SD T Stat.
## TRST1  ->  TRUST               0.900          0.901        0.015  60.518
## TRST2  ->  TRUST               0.909          0.910        0.020  45.226
## TRST3  ->  TRUST               0.905          0.905        0.021  42.931
## TRST4  ->  TRUST               0.838          0.838        0.032  26.527
## PSEC1  ->  SEC                 0.813          0.814        0.025  32.094
## PSEC2  ->  SEC                 0.865          0.867        0.025  35.147
## PSEC3  ->  SEC                 0.868          0.870        0.021  40.832
## PSEC4  ->  SEC                 0.807          0.808        0.024  33.068
## PREP1  ->  REP                 0.800          0.797        0.041  19.482
## PREP2  ->  REP                 0.913          0.913        0.016  56.997
## PREP3  ->  REP                 0.908          0.908        0.020  46.511
## PREP4  ->  REP                 0.718          0.719        0.033  21.457
## PINV1  ->  INV                 0.903          0.903        0.025  35.594
## PINV2  ->  INV                 0.925          0.924        0.022  42.839
## PINV3  ->  INV                 0.855          0.856        0.026  32.626
## PPSS1  ->  POL                 0.868          0.866        0.024  36.217
## PPSS2  ->  POL                 0.893          0.894        0.014  62.279
## PPSS3  ->  POL                 0.911          0.911        0.016  56.235
## FAML1  ->  FAML                1.000          1.000        0.000       .
## PREP1*PPSS1  ->  REP*POL       0.581          0.588        0.263   2.203
## PREP1*PPSS2  ->  REP*POL       0.510          0.570        0.247   2.063
## PREP1*PPSS3  ->  REP*POL       0.506          0.583        0.266   1.905
## PREP2*PPSS1  ->  REP*POL       0.509          0.621        0.276   1.843
## PREP2*PPSS2  ->  REP*POL       0.421          0.591        0.280   1.501
## PREP2*PPSS3  ->  REP*POL       0.336          0.591        0.338   0.994
## PREP3*PPSS1  ->  REP*POL       0.236          0.499        0.343   0.688
## PREP3*PPSS2  ->  REP*POL       0.555          0.617        0.270   2.056
## PREP3*PPSS3  ->  REP*POL       0.466          0.593        0.293   1.589
## PREP4*PPSS1  ->  REP*POL       0.900          0.590        0.355   2.531
## PREP4*PPSS2  ->  REP*POL       0.836          0.514        0.355   2.354
## PREP4*PPSS3  ->  REP*POL       0.859          0.565        0.331   2.594
##                        2.5% CI 97.5% CI
## TRST1  ->  TRUST         0.870    0.928
## TRST2  ->  TRUST         0.864    0.942
## TRST3  ->  TRUST         0.859    0.941
## TRST4  ->  TRUST         0.775    0.895
## PSEC1  ->  SEC           0.761    0.859
## PSEC2  ->  SEC           0.812    0.907
## PSEC3  ->  SEC           0.823    0.910
## PSEC4  ->  SEC           0.760    0.854
```

```
## PREP1   ->   REP                    0.707    0.865
## PREP2   ->   REP                    0.879    0.942
## PREP3   ->   REP                    0.866    0.940
## PREP4   ->   REP                    0.649    0.780
## PINV1   ->   INV                    0.845    0.943
## PINV2   ->   INV                    0.874    0.958
## PINV3   ->   INV                    0.801    0.901
## PPSS1   ->   POL                    0.812    0.905
## PPSS2   ->   POL                    0.863    0.920
## PPSS3   ->   POL                    0.876    0.937
## FAML1   ->   FAML                   1.000    1.000
## PREP1*PPSS1   ->   REP*POL   -0.066    0.932
## PREP1*PPSS2   ->   REP*POL   -0.054    0.898
## PREP1*PPSS3   ->   REP*POL   -0.109    0.926
## PREP2*PPSS1   ->   REP*POL   -0.092    0.961
## PREP2*PPSS2   ->   REP*POL   -0.132    0.938
## PREP2*PPSS3   ->   REP*POL   -0.263    0.976
## PREP3*PPSS1   ->   REP*POL   -0.359    0.949
## PREP3*PPSS2   ->   REP*POL   -0.055    0.945
## PREP3*PPSS3   ->   REP*POL   -0.178    0.950
## PREP4*PPSS1   ->   REP*POL   -0.245    0.985
## PREP4*PPSS2   ->   REP*POL   -0.329    0.912
## PREP4*PPSS3   ->   REP*POL   -0.241    0.949
##
## Bootstrapped HTMT:
##                   Original Est. Bootstrap Mean Bootstrap SD 2.5% CI 97.5% CI
## REP   ->   INV        0.705          0.707         0.051     0.599   0.800
## REP   ->   POL        0.543          0.542         0.057     0.426   0.650
## REP   ->   FAML       0.599          0.599         0.054     0.492   0.696
## REP   ->   REP*POL    0.000          0.000         0.000     0.000   0.000
## REP   ->   SEC        0.595          0.592         0.046     0.490   0.673
## REP   ->   TRUST      0.682          0.681         0.042     0.594   0.757
## INV   ->   POL        0.498          0.499         0.058     0.382   0.605
## INV   ->   FAML       0.494          0.496         0.055     0.384   0.601
## INV   ->   REP*POL    0.085          0.105         0.034     0.053   0.181
## INV   ->   SEC        0.568          0.568         0.049     0.471   0.661
## INV   ->   TRUST      0.563          0.565         0.052     0.459   0.658
## POL   ->   FAML       0.596          0.595         0.051     0.490   0.686
## POL   ->   REP*POL    0.000          0.000         0.000     0.000   0.000
## POL   ->   SEC        0.622          0.620         0.051     0.516   0.716
## POL   ->   TRUST      0.458          0.458         0.060     0.336   0.575
## FAML  ->   REP*POL    0.046          0.065         0.025     0.030   0.124
## FAML  ->   SEC        0.455          0.453         0.052     0.351   0.556
## FAML  ->   TRUST      0.471          0.472         0.052     0.369   0.572
## REP*POL   ->   SEC    0.059          0.082         0.020     0.050   0.128
## REP*POL   ->   TRUST  0.044          0.071         0.017     0.044   0.109
## SEC   ->   TRUST      0.685          0.685         0.038     0.609   0.757
##
## Bootstrapped Total Paths:
##                   Original Est. Bootstrap Mean Bootstrap SD 2.5% CI 97.5% CI
## REP   ->   SEC        0.247          0.243         0.058     0.121   0.348
## REP   ->   TRUST      0.150          0.148         0.037     0.073   0.219
## INV   ->   SEC        0.181          0.186         0.057     0.075   0.293
## INV   ->   TRUST      0.109          0.114         0.036     0.045   0.183
```

```
## POL   ->  SEC                0.339           0.340          0.055   0.224   0.440
## POL   ->  TRUST              0.205           0.207          0.035   0.134   0.278
## FAML  ->  SEC                0.011           0.010          0.058  -0.106   0.124
## FAML  ->  TRUST              0.006           0.006          0.035  -0.065   0.077
## REP*POL  ->  SEC           -0.105          -0.018          0.125  -0.192   0.192
## REP*POL  ->  TRUST         -0.063          -0.011          0.076  -0.120   0.118
## SEC   ->  TRUST              0.606           0.609          0.036   0.538   0.679
```

Question 2) Common-Factor Models using CB-SEM

(a) Create a common factor model using SEMinR, with the following characteristics:

(i) Either respecify all the constructs as being reflective(), or use the as.reflective() function to convert your earlier measurement model to being entirely reflective.

```
sd_cf_mm <- as.reflective(sd_mm)
```

(ii) Use the same structural model as before (you can just reuse it again)

```
sd_cf_pls <- estimate_cbsem(
  data = sd,
  measurement_model = sd_cf_mm,
  structural_model = sd_sm
)
```

```
## Generating the seminr model for CBSEM
```

```
sd_cf_report <- summary(sd_cf_pls)
sd_cf_report
```

```
##
## Results from  package seminr (2.3.0)
## Estimation used  package seminr (2.3.0)
##
## Fit metrics:
##        npar        fmin        pnfi        logl        aic        bic      ntotal
##      77.000       3.529       0.663  -17296.241  34746.482  35054.781     405.000
##        bic2         rmr        srmr        crmr        gfi       agfi        pgfi
##   34810.451       0.116       0.063       0.065      0.742      0.694       0.627
##         mfi        ecvi
##       0.049       7.439
##
##                   metric    scaled robust
## cfi                0.764     0.772  0.799
## tli                0.738     0.747  0.777
## nnfi               0.738     0.747  0.777
## rni                0.764     0.772  0.799
```

```
## rmsea                     0.120    0.072 0.107
## rmsea.ci.lower            0.116    0.069 0.100
## rmsea.ci.upper            0.124    0.075 0.114
## rmsea.pvalue              0.000    0.000    .
## chisq              2858.871 1303.538    .
## df                  419.000  419.000    .
## pvalue                0.000    0.000    .
## baseline.chisq    10812.133 4340.588    .
## baseline.df         465.000  465.000    .
## baseline.pvalue       0.000    0.000    .
## rfi                   0.707    0.667    .
## nfi                   0.736    0.700    .
## ifi                   0.765    0.774    .
##
## Reliability:
##        rhoC  AVE
## TRUST 0.91 0.72
## SEC   0.86 0.60
## REP   0.87 0.63
## INV   0.88 0.71
## POL   0.87 0.70
## FAML  1.00 1.00
##
## Path Coefficients:
##              SEC TRUST
## R^2         0.54  0.50
## REP         0.30     .
## INV         0.21     .
## POL         0.38     .
## FAML       -0.01     .
## REP_x_POL   0.01     .
## SEC            .  0.70
```
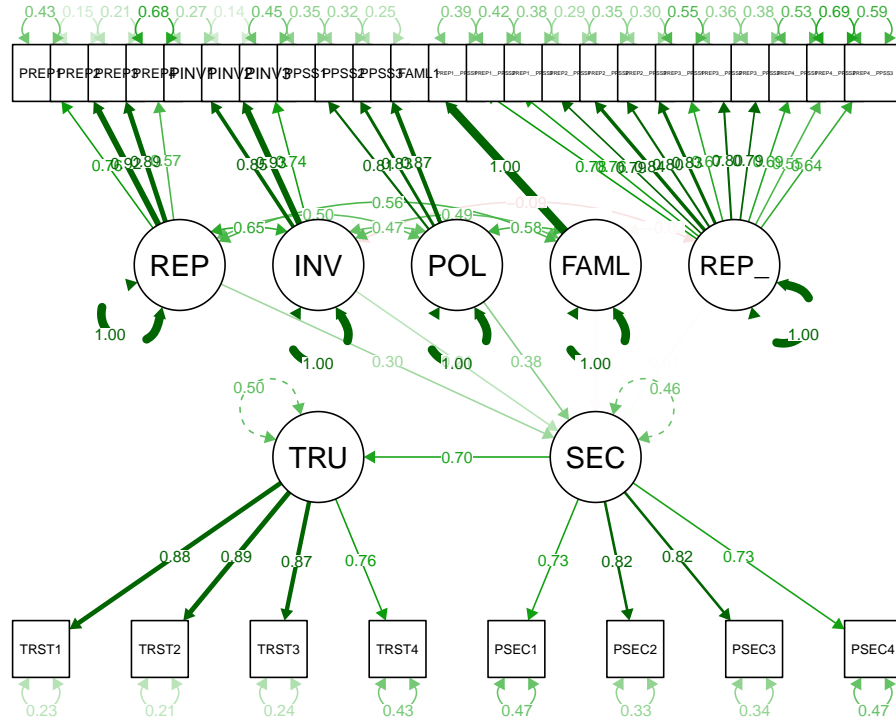
(b) Show us the following results in table or figure formats

(i) Plot a figure of the estimated model (it will look different from your PLS model)

```
plot(sd_cf_pls)
```

```
## Plotting of lavaan models using semPlot.
```

NULL

(ii) Loadings of composites

```
sd_cf_report$loadings
```

```
## $coefficients
##           TRUST       SEC       REP       INV POL FAML
## TRST1 0.8800240        NA        NA        NA  NA   NA
## TRST2 0.8886342        NA        NA        NA  NA   NA
## TRST3 0.8690644        NA        NA        NA  NA   NA
## TRST4 0.7575988        NA        NA        NA  NA   NA
## PSEC1        NA 0.7308766        NA        NA  NA   NA
## PSEC2        NA 0.8173481        NA        NA  NA   NA
## PSEC3        NA 0.8151708        NA        NA  NA   NA
## PSEC4        NA 0.7260444        NA        NA  NA   NA
## PREP1        NA        NA 0.7551328        NA  NA   NA
## PREP2        NA        NA 0.9199208        NA  NA   NA
## PREP3        NA        NA 0.8871362        NA  NA   NA
## PREP4        NA        NA 0.5650059        NA  NA   NA
## PINV1        NA        NA        NA 0.8520004  NA   NA
## PINV2        NA        NA        NA 0.9257476  NA   NA
## PINV3        NA        NA        NA 0.7388750  NA   NA
```

```
## PPSS1           NA        NA         NA         NA 0.8051533    NA
## PPSS2           NA        NA         NA         NA 0.8272576    NA
## PPSS3           NA        NA         NA         NA 0.8674335    NA
## FAML1           NA        NA         NA         NA        NA     1
##
## $significance
##                                Std Estimate          SE       t-Value    2.5% CI
## TRUST -> TRST1                    0.8800240 0.02272091 0.000000e+00 0.8354919
## TRUST -> TRST2                    0.8886342 0.03330783 0.000000e+00 0.8233521
## TRUST -> TRST3                    0.8690644 0.03749444 0.000000e+00 0.7955767
## TRUST -> TRST4                    0.7575988 0.04846748 0.000000e+00 0.6626042
## SEC -> PSEC1                      0.7308766 0.03679205 0.000000e+00 0.6587655
## SEC -> PSEC2                      0.8173481 0.04480183 0.000000e+00 0.7295381
## SEC -> PSEC3                      0.8151708 0.03728082 0.000000e+00 0.7421017
## SEC -> PSEC4                      0.7260444 0.03811841 0.000000e+00 0.6513337
## REP -> PREP1                      0.7551328 0.04464916 0.000000e+00 0.6676220
## REP -> PREP2                      0.9199208 0.02635333 0.000000e+00 0.8682692
## REP -> PREP3                      0.8871362 0.04015103 0.000000e+00 0.8084416
## REP -> PREP4                      0.5650059 0.04585583 0.000000e+00 0.4751302
## INV -> PINV1                      0.8520004 0.04489927 0.000000e+00 0.7639994
## INV -> PINV2                      0.9257476 0.04556425 0.000000e+00 0.8364433
## INV -> PINV3                      0.7388750 0.04511601 0.000000e+00 0.6504492
## POL -> PPSS1                      0.8051533 0.04355300 0.000000e+00 0.7197910
## POL -> PPSS2                      0.8272576 0.02807169 0.000000e+00 0.7722381
## POL -> PPSS3                      0.8674335 0.03273664 0.000000e+00 0.8032708
## FAML -> FAML1                     1.0000000 0.00000000           NA 1.0000000
## REP_x_POL -> PREP1_x_PPSS1        0.7781584 0.05799871 0.000000e+00 0.6644831
## REP_x_POL -> PREP1_x_PPSS2        0.7597768 0.05931838 0.000000e+00 0.6435149
## REP_x_POL -> PREP1_x_PPSS3        0.7879106 0.05013554 0.000000e+00 0.6896467
## REP_x_POL -> PREP2_x_PPSS1        0.8447368 0.03649041 0.000000e+00 0.7732169
## REP_x_POL -> PREP2_x_PPSS2        0.8034561 0.03639411 0.000000e+00 0.7321250
## REP_x_POL -> PREP2_x_PPSS3        0.8342444 0.03536430 0.000000e+00 0.7649317
## REP_x_POL -> PREP3_x_PPSS1        0.6736451 0.12948899 1.967998e-07 0.4198514
## REP_x_POL -> PREP3_x_PPSS2        0.8011944 0.03780427 0.000000e+00 0.7270994
## REP_x_POL -> PREP3_x_PPSS3        0.7902063 0.06416741 0.000000e+00 0.6644405
## REP_x_POL -> PREP4_x_PPSS1        0.6854770 0.06906812 0.000000e+00 0.5501059
## REP_x_POL -> PREP4_x_PPSS2        0.5531922 0.06212434 0.000000e+00 0.4314307
## REP_x_POL -> PREP4_x_PPSS3        0.6405843 0.05794028 0.000000e+00 0.5270235
##                               97.5% CI
## TRUST -> TRST1                0.9245562
## TRUST -> TRST2                0.9539164
## TRUST -> TRST3                0.9425522
## TRUST -> TRST4                0.8525933
## SEC -> PSEC1                  0.8029877
## SEC -> PSEC2                  0.9051581
## SEC -> PSEC3                  0.8882399
## SEC -> PSEC4                  0.8007551
## REP -> PREP1                  0.8426435
## REP -> PREP2                  0.9715724
## REP -> PREP3                  0.9658307
## REP -> PREP4                  0.6548817
## INV -> PINV1                  0.9400013
## INV -> PINV2                  1.0150518
## INV -> PINV3                  0.8273007
```

```
## POL -> PPSS1                 0.8905156
## POL -> PPSS2                 0.8822771
## POL -> PPSS3                 0.9315961
## FAML -> FAML1                1.0000000
## REP_x_POL -> PREP1_x_PPSS1 0.8918338
## REP_x_POL -> PREP1_x_PPSS2 0.8760387
## REP_x_POL -> PREP1_x_PPSS3 0.8861744
## REP_x_POL -> PREP2_x_PPSS1 0.9162567
## REP_x_POL -> PREP2_x_PPSS2 0.8747873
## REP_x_POL -> PREP2_x_PPSS3 0.9035572
## REP_x_POL -> PREP3_x_PPSS1 0.9274389
## REP_x_POL -> PREP3_x_PPSS2 0.8752894
## REP_x_POL -> PREP3_x_PPSS3 0.9159721
## REP_x_POL -> PREP4_x_PPSS1 0.8208480
## REP_x_POL -> PREP4_x_PPSS2 0.6749536
## REP_x_POL -> PREP4_x_PPSS3 0.7541452
```

(iii) Regression coefficients of paths between factors, and their p-values

`sd_cf_report$paths$coefficients`

```
##                      SEC     TRUST
## R^2          0.540381651 0.4951084
## REP          0.299536782        NA
## INV          0.214253245        NA
## POL          0.376401499        NA
## FAML        -0.008837653        NA
## REP_x_POL    0.008355287        NA
## SEC                   NA 0.7036394
```

`sd_cf_report$paths$pvalues`

```
##                    SEC TRUST
## REP       3.817182e-05    NA
## INV       3.534482e-03    NA
## POL       4.380975e-09    NA
## FAML      8.996836e-01    NA
## REP_x_POL 8.516847e-01    NA
## SEC                 NA     0
```