```
## AGYEMANG ERIC
## MAT 450 HOMEWORK 3
library(survey)

##############data package from book######
library(SDaA)

###load stratified sample####
data(agstrat)

summary(agstrat$region)
levels(agstrat$region)

agstrat$fpc=c(rep(1054,103),rep(220,21),rep(1382,135),rep(422,41))


#################look at each stratum######
strat_design <- svydesign(id=~1, fpc=~fpc, data=agstrat[1:103,])
strat_design

svymean(~acres92,strat_design)
svytotal(~acres92,strat_design)


###################stratified estimate#######################
strat_design <- svydesign(id=~1, fpc=~fpc, strata=~region, data=agstrat)
strat_design

svymean(~acres92,strat_design)
svytotal(~acres92,strat_design)

confint(svymean(~acres92,strat_design),df=degf(strat_design))

####weights:example####
1054/103

#############################################################################################
library(readr)
vius <- read_csv("C:/Users/AGYEMANG ERIC/Desktop/vius.csv")
attach(vius)

vius$ones<-1
##QUESTION 34.
## PROBLEM A). total number of trucks

svytruck<-svydesign(id=~1,  data=vius, strata=~STRATUM, weights = ~TABTRUCKS)

svytruck


svytotal(~ones,svytruck)

confint(svytotal(~ones,svytruck),df=degf(svytruck))



##PROBLEM B). total number of truck miles driven in 2002



svytotal(~MILES_ANNL,svytruck)

confint(svytotal(~MILES_ANNL,svytruck),df=degf(svytruck))


#############################################################################################
#PROBLEM C)
##Number of truck miles driven in each of the five trucktype classes

c1<-svydesign(id=~1,  data=vius[vius$TRUCKTYPE==1,], strata=~STRATUM, weights = ~TABTRUCKS)

svytotal(~MILES_ANNL,c1)

confint(svytotal(~MILES_ANNL,c1),df=degf(c1))



c2<-svydesign(id=~1,  data=vius[vius$TRUCKTYPE==2,], strata=~STRATUM, weights = ~TABTRUCKS)

svytotal(~MILES_ANNL,c2)

confint(svytotal(~MILES_ANNL,c2),df=degf(c2))
```

```
c3<-svydesign(id=~1,  data=vius[vius$TRUCKTYPE==3,], strata=~STRATUM, weights = ~TABTRUCKS)

svytotal(~MILES_ANNL,c3)

confint(svytotal(~MILES_ANNL,c3),df=degf(c3))



c4<-svydesign(id=~1,  data=vius[vius$TRUCKTYPE==4,], strata=~STRATUM, weights = ~TABTRUCKS)

svytotal(~MILES_ANNL,c4)

confint(svytotal(~MILES_ANNL,c4),df=degf(c4))



c5<-svydesign(id=~1,  data=vius[vius$TRUCKTYPE==5,], strata=~STRATUM, weights = ~TABTRUCKS)

svytotal(~MILES_ANNL,c5)

confint(svytotal(~MILES_ANNL,c5),df=degf(c5))


#PROBLEM D)
# The average miles per gallon (MPG) for the trucks in the population
svymean(~MILES_ANNL,svytruck)

confint(svymean(~MILES_ANNL,svytruck))
```