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## AGYEMANG ERIC
## MAT 450 HOMEWORK 7
library(survey)
syc$numarr[syc$numarr==99] <- NA
syc$probtn[syc$probtn==99] <- NA
syc$corrinst[syc$corrinst==99] <- NA
syc$agefirst[syc$agefirst==99] <- NA
syc$livewith[syc$livewith==99] <- NA
syc$age[syc$age==99] <- NA
syc$crimtype[syc$crimtype==99] <- NA
syc$sex[syc$sex==99] <- NA
syc<-na.omit(syc)

##QUESTION 13
##ESTIMATING WITH WEIGHT##
stat_stra<- svydesign(id=~1, strata=~stratum, weights =~finalwt, data=syc)

##The Histogram
svyhist(~syc$agefirst,stat_stra)

##The average age of first arrest
svymean(~syc$agefirst,stat_stra)

##The median and 25th percentile
svyquantile(~agefirst, stat_stra, c(.25,0.5), ci=TRUE)

#Therefore the required quantities are: Mean = 13.08, Median = 13, 25th percentile = 12

##ESTIMATING WITHOUT WEIGHT
stat_stra1<- svydesign(id=~1, strata=~stratum, data=syc)

##The Histogram
svyhist(~syc$agefirst,stat_stra1)

##The average age of first arrest
svymean(~syc$agefirst,stat_stra1)

##The median and 25th percentile
svyquantile(~agefirst, stat_stra1, c(.25,0.5), ci=TRUE)

## The quantities are Mean = 13.01, Median = 13, 25th percentile = 12

##The weights change the estimates very little so there is no much difference between estimating with weight and
estimating without weights.

##QUESTION 14
#a)
#young<-syc[syc$age <= "14",]
young=ifelse(syc$age<=14,1,0)

##############proportion#####################
svymean(~young,stat_stra)
confint(svymean(~young,stat_stra))

#b)
violence=ifelse(syc$crimtype ==1, 1 ,0)

##############proportion#####################
svymean(~violence,stat_stra)
confint(svymean(~violence,stat_stra))

#c)
live=ifelse(syc$livewith ==3,1,0)

##############proportion#####################
svymean(~live,stat_stra)
confint(svymean(~live,stat_stra))

#d)
male=ifelse(syc$sex== 1,1,0)

##############proportion#####################
svymean(~male,stat_stra)
confint(svymean(~male,stat_stra))

#e)
hispanic=ifelse(syc$ethnicty ==1,1,0)

##############proportion#####################
svymean(~hispanic,stat_stra)
confint(svymean(~hispanic,stat_stra))

#f)
single=ifelse(syc$livewith<=2,1,0)
```

```
##############proportion#####################
svymean(~single,stat_stra)
confint(svymean(~single,stat_stra))

#g)
drug=ifelse(syc$everdrug==1,1,0)

##############proportion#####################
svymean(~drug,stat_stra)
confint(svymean(~drug,stat_stra))
```