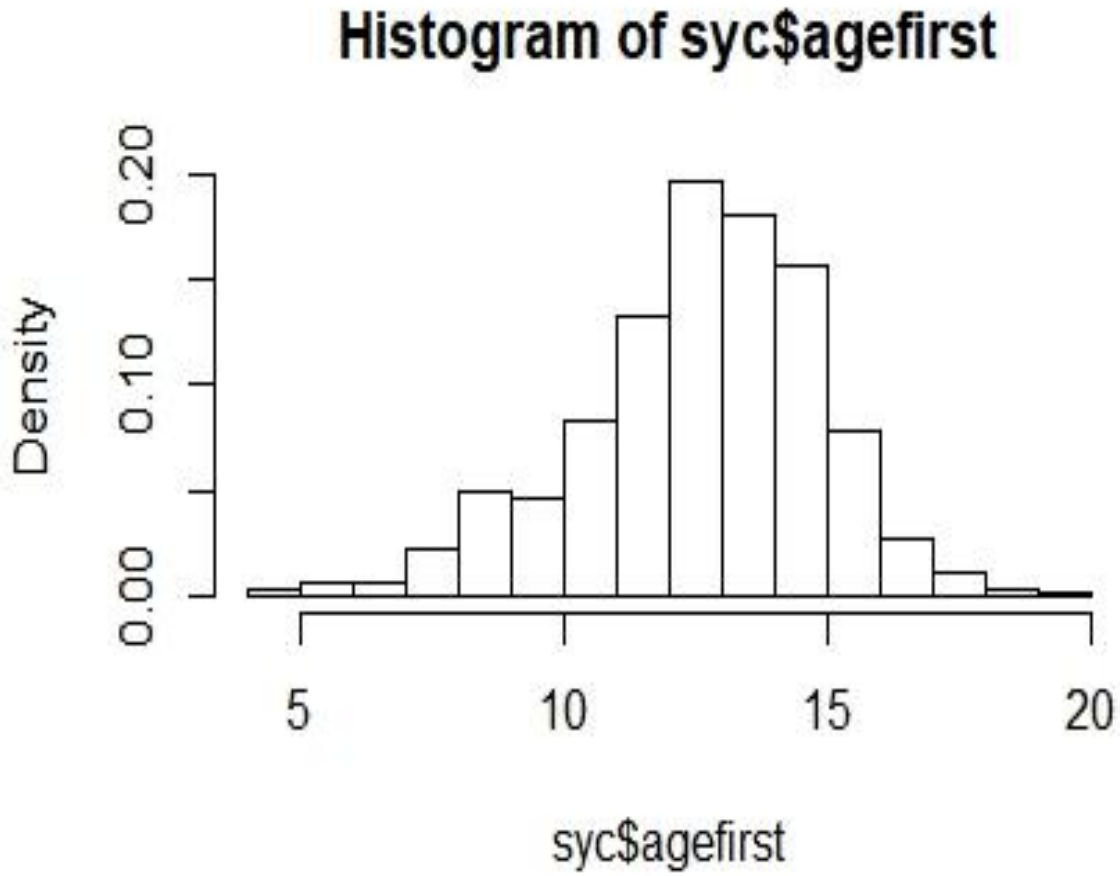
```
> ## AGYEMANG ERIC
> ## MAT 450 HOMEWORK 7
> library(survey)
> syc$numarr[syc$numarr==99] <- NA
> syc$probtn[syc$probtn==99] <- NA
> syc$corrinst[syc$corrinst==99] <- NA
> syc$agefirst[syc$agefirst==99] <- NA
> syc$livewith[syc$livewith==99] <- NA
> syc$age[syc$age==99] <- NA
> syc$crimtype[syc$crimtype==99]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



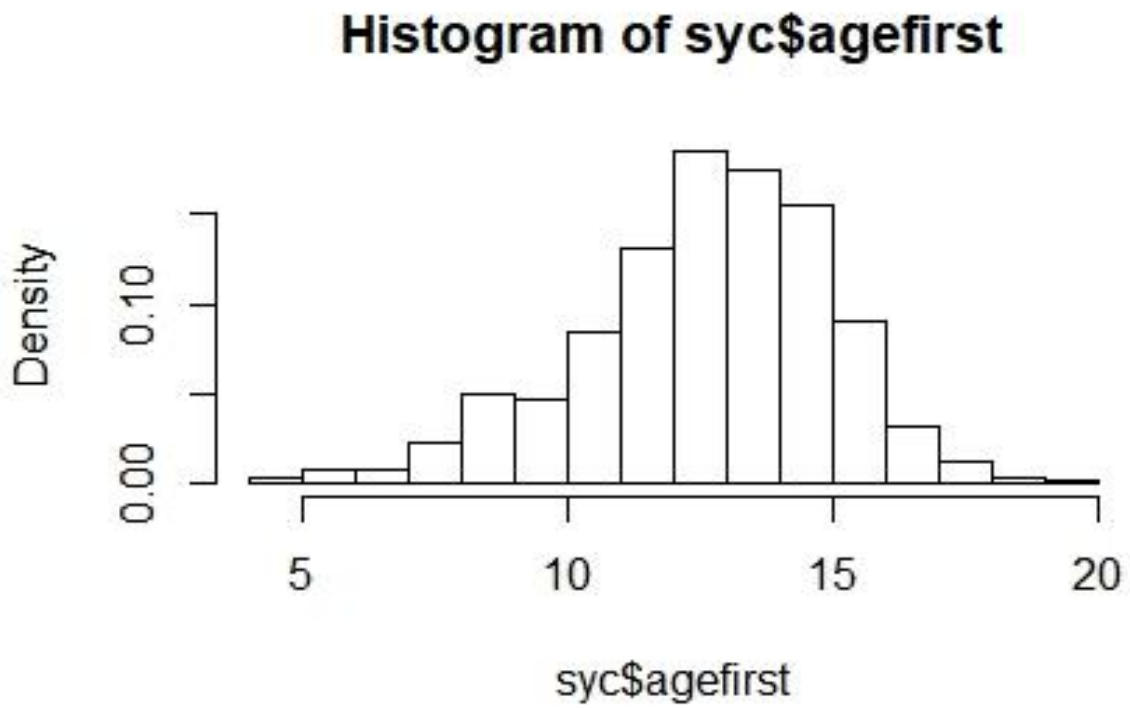
```
##The average age of first arrest
> svymean(~syc$agefirst,stat_stra)
                mean     SE
syc$agefirst 13.086 0.0496
>
> ##The median and 25th percentile
> svyquantile(~agefirst, stat_stra, c(.25,0.5), ci=TRUE)
$quantiles
         0.25 0.5
agefirst   12  13

$CIs
, , agefirst

       0.25 0.5
(lower   12  13
upper)   12  13


> #Therefore the required quantities are: Mean = 13.086,
   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$agefirst,stat_stra1)
                mean     SE
syc$agefirst 13.105 0.0464
>
> ##The median and 25th percentile
> svyquantile(~agefirst, stat_stra1, c(.25,0.5), ci=TRUE)
$quantiles
         0.25 0.5
agefirst   12  13

$CIs
, , agefirst

       0.25 0.5
(lower   12  13
upper)   12  13


> ## 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 wi
thout weights.

>
> ##QUESTION 14
> #a)
> #young<-syc[syc$age <= "14",]
> young=ifelse(syc$age<=14,1,0)
>
> ###############proportion######################
> svymean(~young,stat_stra)
        mean     SE
young 0.1237 0.0085
> confint(svymean(~young,stat_stra))
           2.5 %    97.5 %
young 0.1070824 0.1403186
>


> #b)
> violence=ifelse(syc$crimtype ==1, 1 ,0)
> ###############proportion######################
> svymean(~violence,stat_stra)
             mean     SE
violence 0.44707 0.0114
> confint(svymean(~violence,stat_stra))
              2.5 %   97.5 %
violence 0.4246664 0.469479
>
```

```
> #c)
> live=ifelse(syc$livewith ==3,1,0)
>
> ##############proportion######################
> svymean(~live,stat_stra)
        mean     SE
live 0.29631 0.0103
> confint(svymean(~live,stat_stra))
         2.5 %    97.5 %
live 0.2760864 0.3165312
>


> #d)
> male=ifelse(syc$sex== 1,1,0)
>
> ##############proportion######################
> svymean(~male,stat_stra)
        mean     SE
male 0.93379 0.0055
> confint(svymean(~male,stat_stra))
         2.5 %    97.5 %
male 0.9230448 0.9445423
>


> #e)
> hispanic=ifelse(syc$ethnicty ==1,1,0)
>
##############proportion#############
> svymean(~hispanic,stat_stra)
            mean     SE
hispanic 0.18717 0.0087
> confint(svymean(~hispanic,stat_stra
))
             2.5 %    97.5 %
hispanic 0.1700871 0.2042552
>


> #f)
> single=ifelse(syc$livewith<=2,1,0)
>
> ##############proportion###########
> svymean(~single,stat_stra)
          mean     SE
single 0.54506 0.0115
> confint(svymean(~single,stat_stra))
           2.5 %    97.5 %
single 0.5225757 0.5675375
>
```

```
> #g)
> drug=ifelse(syc$everdrug==1,1,0)
>
> ##############proportion###########
> svymean(~drug,stat_stra)
        mean     SE
drug 0.82415 0.0091
> confint(svymean(~drug,stat_stra))
         2.5 %    97.5 %
drug 0.8063159 0.8419858

>
```