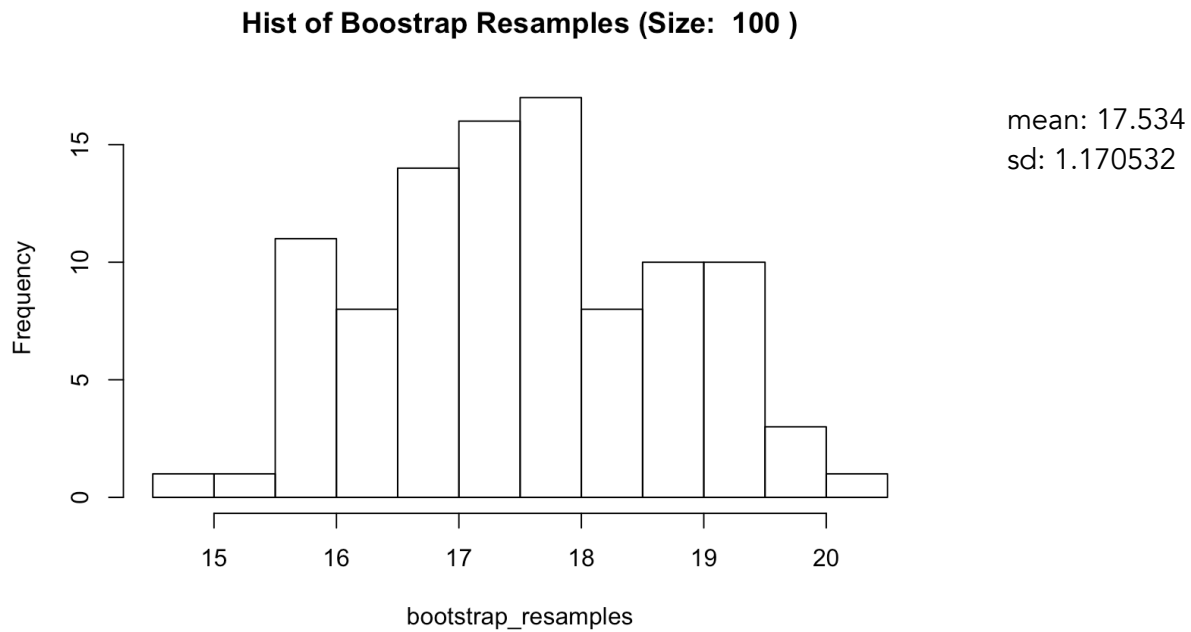Dave Ho
Advanced Data Analysis
R Lab #1
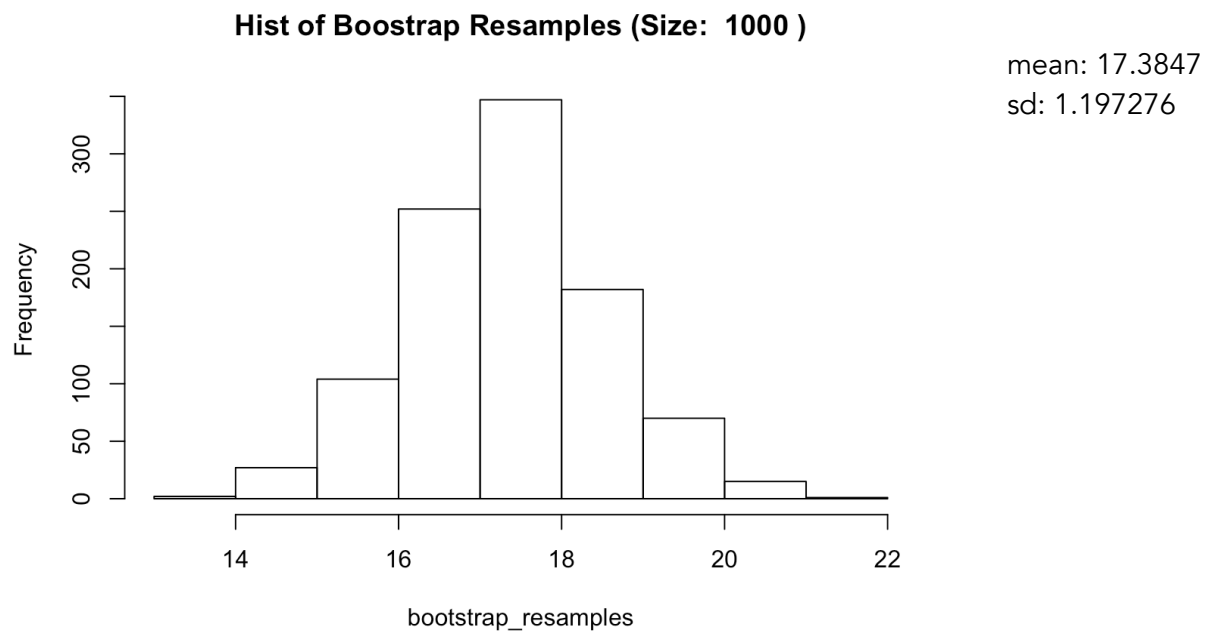
Housing Prices in Santa Barbara: Bootstrapping

Dataset Mean: 17.4
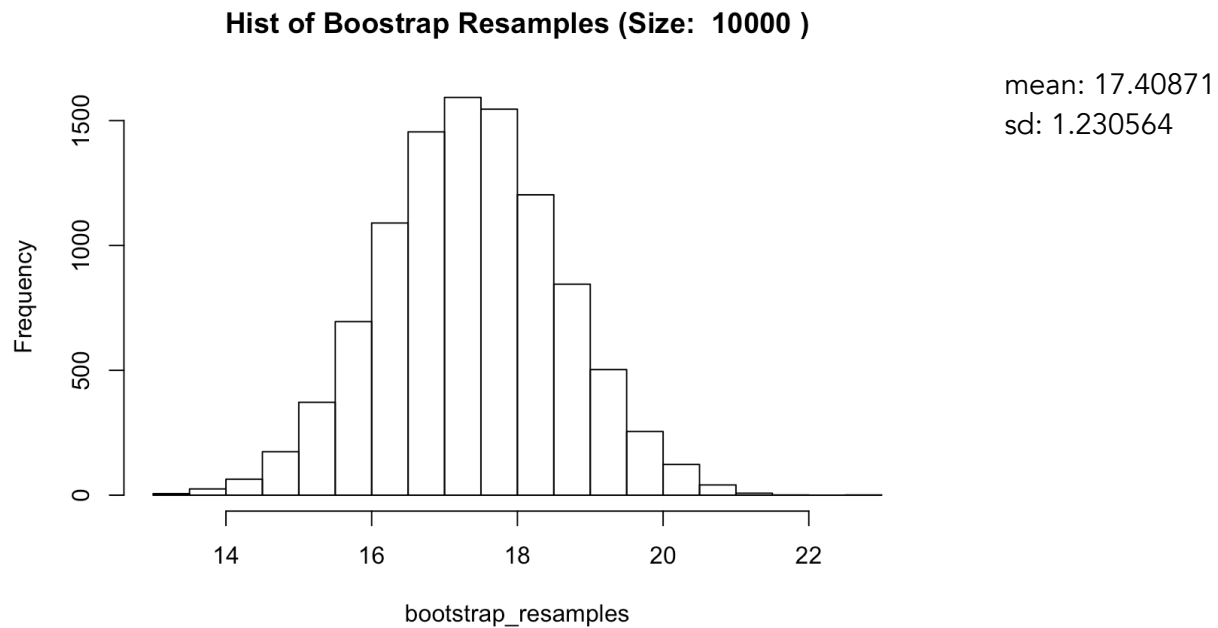
Bootstrap Resample of Size 100:

Hist of Boostrap Resamples (Size: 100)

mean: 17.534
sd: 1.170532

Bootstrap Resample of Size 1000:

Hist of Boostrap Resamples (Size: 1000)

mean: 17.3847
sd: 1.197276

Bootstrap Resample ofSize 10000:

Hist of Boostrap Resamples (Size: 10000)

mean: 17.40871
sd: 1.230564

As the bootstrap resample size was gradually increased, the mean of the bootstrap resamples approaches the dataset's mean of 17.4. In addition, the spread of the bootstrap resample distribution gets narrower and narrower. Furthermore the shape of the distribution becomes more and more normal as it approaches a more bell shaped figure.

```
> quantile(bootstrap_resamples, c(0.025, 0.975))
 2.5% 97.5%
 15.0  19.9
```

As seen through the quantile method above, the 2.5 and 97.5 percentile of the distribution is 15.0 and 19.9 respectively. We are 95% confident that the true mean home price in Santa Barbara is between 15 million to 19.9 million USD.