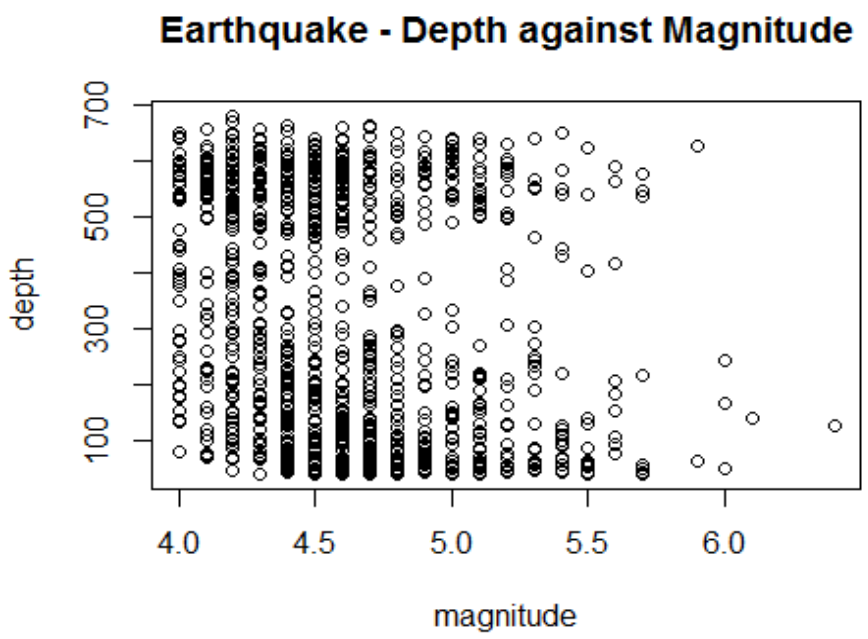
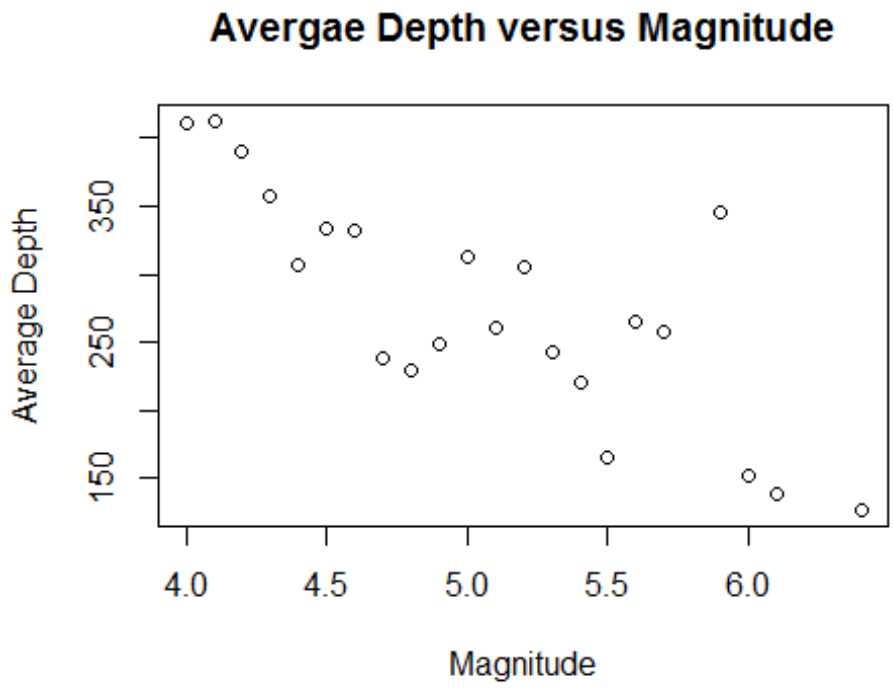
```r
#=============================================================================
#                          Using R: aggregate() function
#=============================================================================
#The aggregate function is very useful method in R and allows you to easily compute
statistics (such as the mean) for different groupings, e.g. if you have a set of data
for students which contains both demographic and grade information; to compute the
mean class grade by gender, you could use the aggregate command. To complete this
problem, you will need to look up information on how to use aggregate. You can use the
built-in R documentation, look for help online, or both.

#(a) Load the quakes data from the datasets package.
data("quakes")

#=============================================================================
#(b) Plot the recorded earthquake magnitude against the earthquake depth using the
plot command.
attach(quakes)
plot(mag,depth,main="Earthquake - Depth against Magnitude",xlab="magnitude",
ylab="depth")
```

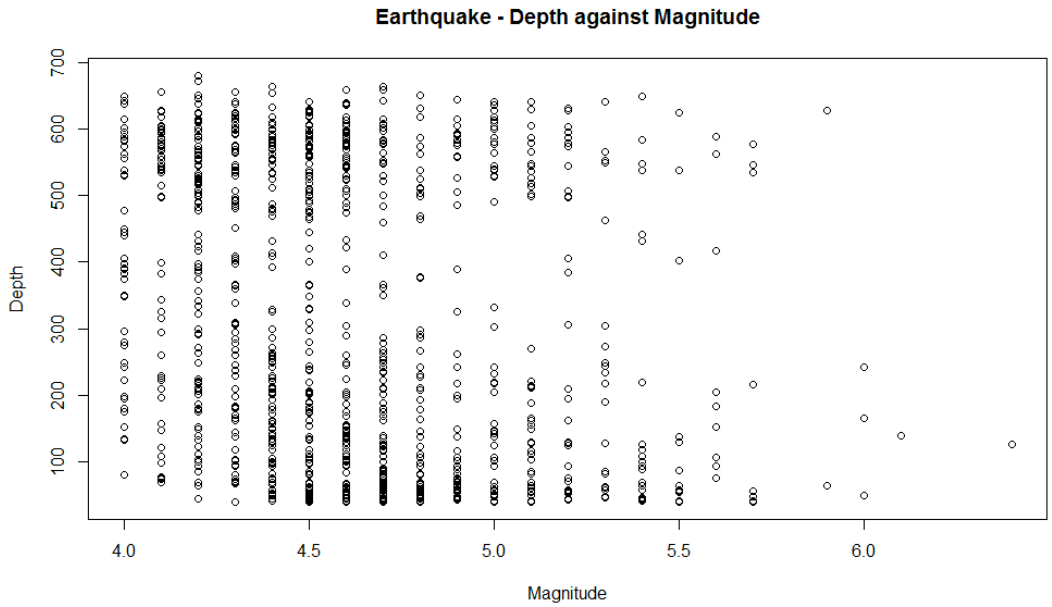


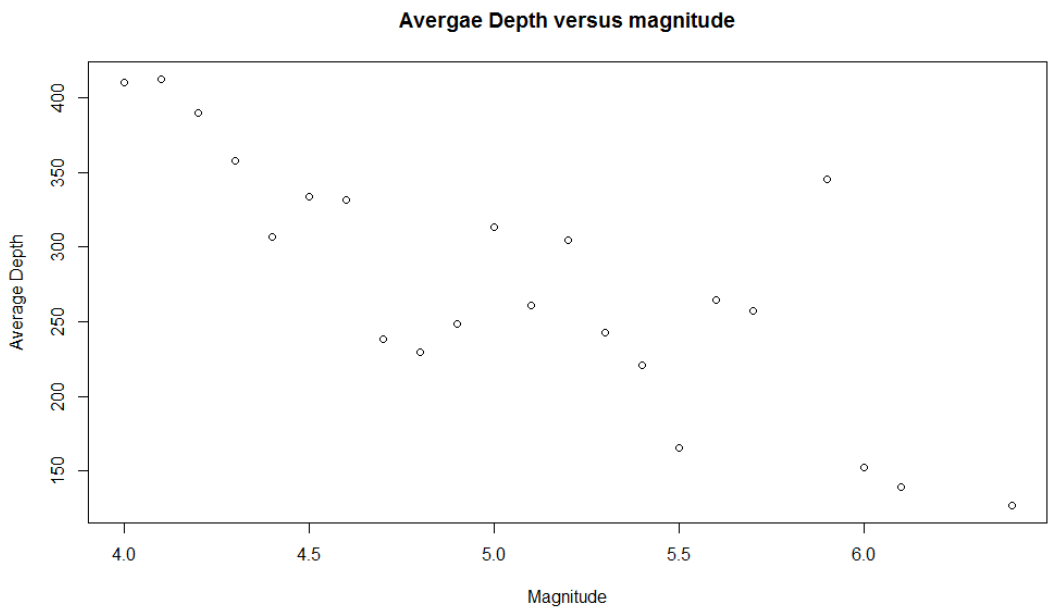

```r
#=============================================================================
#(c) Use aggregate to compute the average earthquake depth for each magnitude level.
Store these results in a new data frame named quakeAvgDepth.
quakeAvgDepth=aggregate(depth,by=list(Magnitude=mag), FUN="mean")

#=============================================================================
#(d) Rename the variables in quakeAvgDepth to something meaningful.
library(reshape)

##
## Attaching package: 'reshape'
##
## The following objects are masked from 'package:plyr':
##
##     rename, round_any

quakeAvgDepth=rename(quakeAvgDepth, c(x = "DepthAverage"))
```

```r
#================================================================================
#(e) Plot the magnitude vs. the average depth.
attach(quakeAvgDepth)
plot(Magnitude,DepthAverage,main="Avergae Depth versus Magnitude",xlab="Magnitude",
ylab="Average Depth")
```




```r
#================================================================================
#(f) From the two plots, do you think there is a relationship between earthquake depth
and magnitude?
par(mfrow=c(1,2))
plot(mag,depth,main="Earthquake - Depth against Magnitude",xlab="Magnitude",
ylab="Depth")
plot(Magnitude,DepthAverage,main="Avergae Depth versus magnitude",xlab="Magnitude",
ylab="Average Depth")
```






```
#As can be understood from the graphs, the earthquakes with higher magnitude is more
probable in lower depth
```