

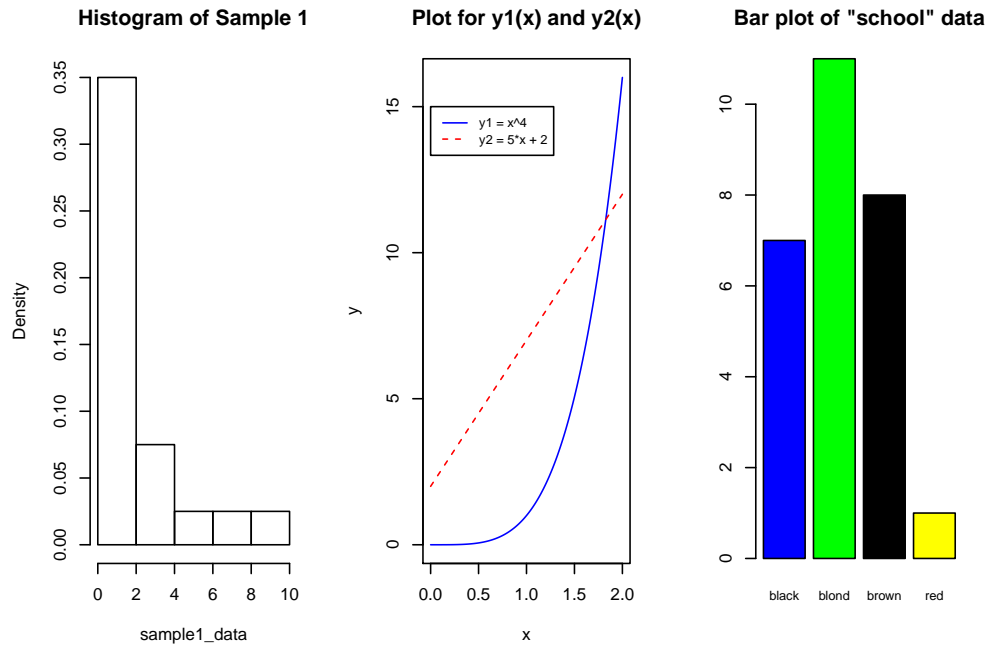
Assignment 0

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Group CS 6

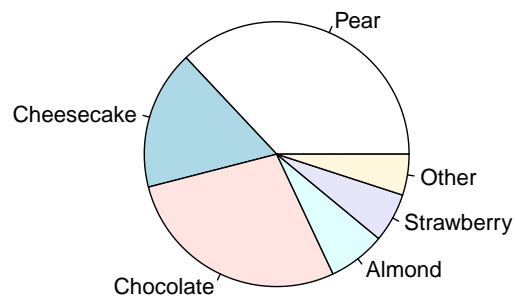
Exercise 0.6

1. Plots for (a), (b), (c)



2. Plot for (d)

Sales proportions of pie flavours



Exercise 0.7

```
// (a)
a07 = function(x){
  (x - 2)^2
}

// (b)
b07 = function(){
  takenSample = sample(1:100, 50, TRUE)
  nrPerColour = numeric(2)
  nrPerColour = c(sum(takenSample <= 30) / 50, sum(takenSample > 30) / 50)
  nrPerColour
}

// (c)
c07 = function(n = 10, mr = 30, mw = 70){
  totalNrBalls = mr+mw
  takenSample = sample(1:totalNrBalls, n, TRUE)
  fractionVector = numeric(2)
  fractionVector = c(sum(takenSample <= mr) / n,
                    sum(takenSample > mr) / n)
  fractionVector
}

// (d)
d07 = function(){
  u = numeric(200)
  for(i in 1:200) {
    u[i] = median(sample(1:90, 40, TRUE))
  }
  u
}
```

Appendix

```
// Exercise 0.6 (a)
par(mfrow=c(1,3))
sample1_data=as.matrix(read.table("sample1.txt"))
dimnames(sample1_data) <- list(list("a","b","c", "d"), list("I", "II", "III", "IV", "V"))
hist(sample1_data, probability = T, breaks = 5,main = "Histogram of Sample 1")

// Exercise 0.6 (b)
x = seq(0, 2, 0.001)
y1 = x^4; y2 = 5*x + 2
plot(x, y1, col = "blue", type = "l",main = "Plot for y1(x) and y2(x)",xlab = "x",ylab = "y")
lines(x, y2, col="red", type = "l", lty = 2)
legend(0, 15,legend=c("y1 = x^4", "y2 = 5*x + 2"),col=c("blue", "red"), lty=1:2, cex=0.8)

// Exercise 0.6 (c)
load("Ass0.RData")
barplot(table(school), col = c("blue","green","black","yellow"),main = "Bar plot of \"school\" data")

// Exercise 0.6 (d)
par(mfrow=c(1,1))
proportions <- c(0.37,0.17,0.28,0.07,0.06,0.05)
food_labels <- c("Pear", "Cheesecake", "Chocolate", "Almond", "Strawberry", "Other")
pie(proportions,labels = food_labels,main="Sales proportions of pie flavours")
```