R-Practical Sheet

1. Let X equals the number of telephone call per hour that are received by 911 between midnight and noon and reported in the Holland Sentinel. On October 29 and October 30, the following numbers of calls were reported:

October 29:	0	1	1	1	0	1	2	1	4	1	2	3
October 30:	0	3	0	1	0	1	1	2	3	0	2	2

(a) Calculate the sample mean and sample variance for these data? Are they approximately equal to each other?

(b) With $\lambda = 1.3$ draw a probability histogram for the Poisson distribution and a relative frequency histogram of the data on the same graph.

(c) Could Poisson distribution with $\lambda = 1.3$ be a reasonable probability model based on these limited data?

2. Let X equals the number of flips of a fair coin that are required to observe head-tails on consecutive flips.

(a) Write down the p.m.f of X.

(b) Determine mean, variance and standard deviation of X.

(c) Find P(X<=3), P(X>=6) ad P(X=5).

3. Consider a bowl containing 10 chips of the same size such that two are marked "ONE", three are marked "TWO", three are marked "THREE" and two are marked "FOUR". Select a chip at random and read the number.

(a) Assign a reasonable p.m.f f(x) to the outcome space.

(b) Simulate the experiment n=100 times and find the relative frequency histogram h(x).

(c) Plot f(x) and h(x) on the same graph and analyze.

4. Write down your own function in R for calculating mode of any given arbitrary discrete data of any size. In case your data is not uni-modal, your function should display all the modal values.