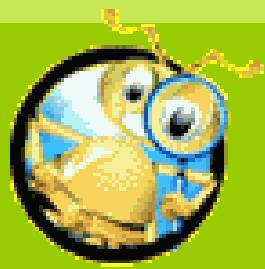
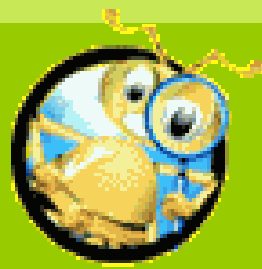
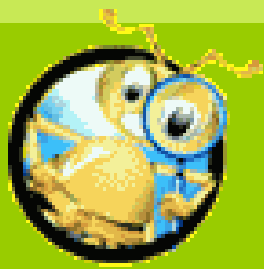
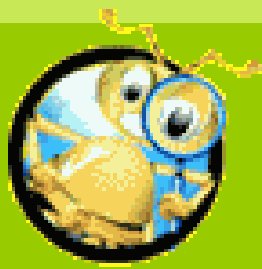
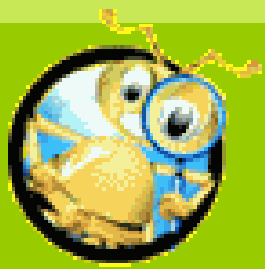


Introduction to data

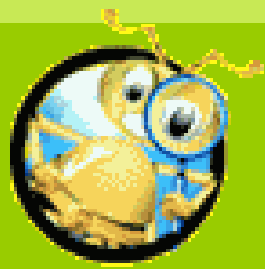
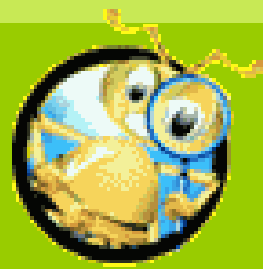
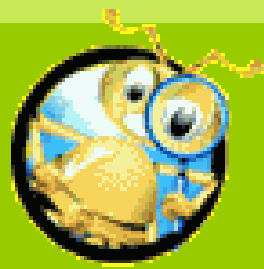
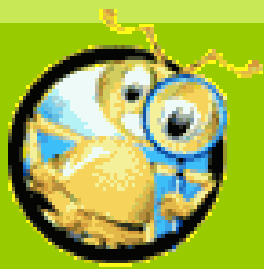
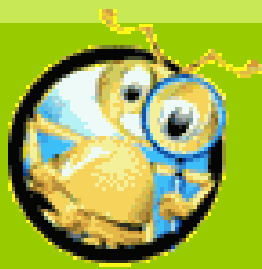
Assoc.prof. Phisanu Chiawkhun
Department of Statistics ,Faculty of Science





Data Type
Quantitative data
Qualitative data



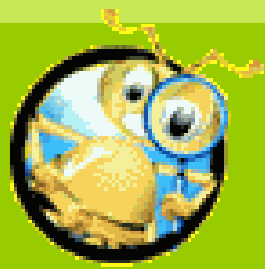
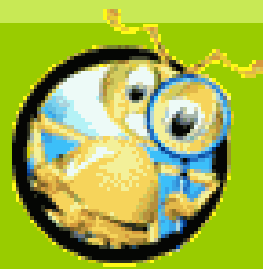
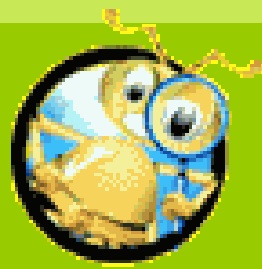
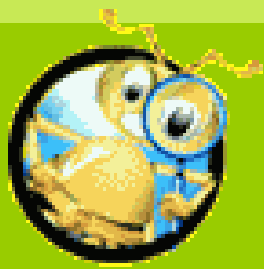
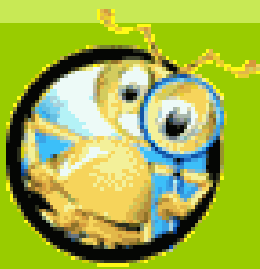
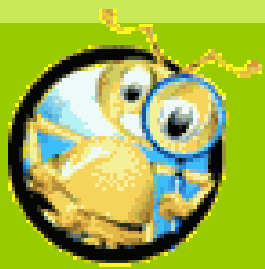


Data Type

Discrete data

Continuous data





Level (scale) of Measurement

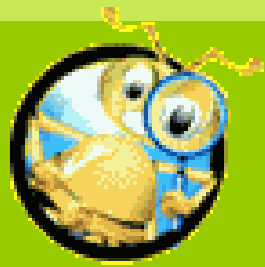
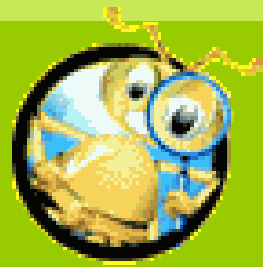
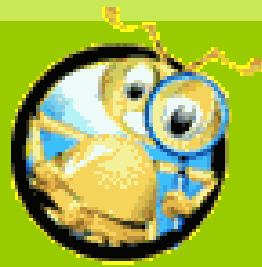
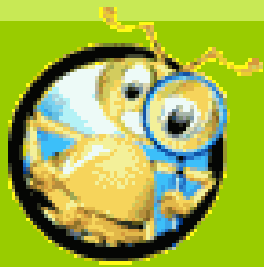
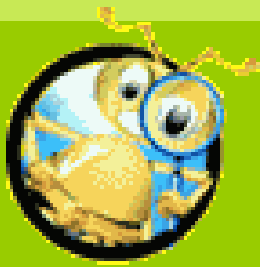
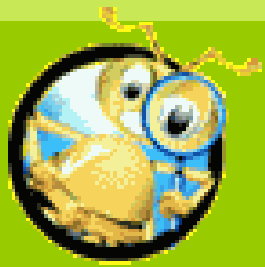
Nominal

Ordinal

Interval

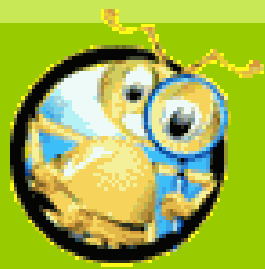
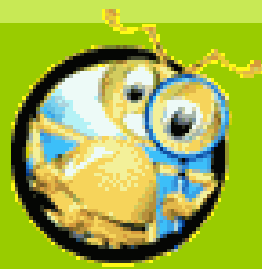
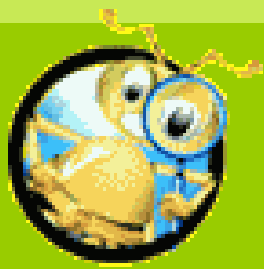
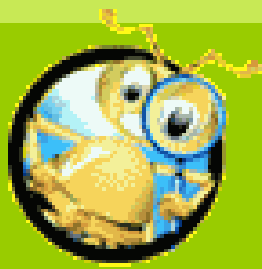
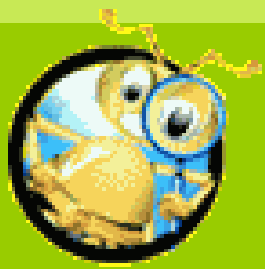
Ratio





Sampling Methods





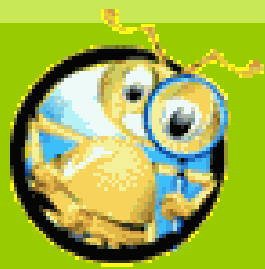
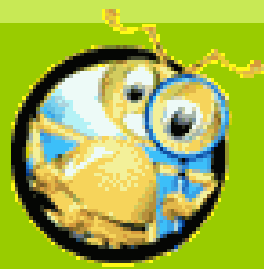
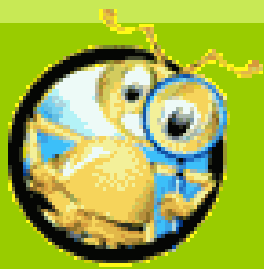
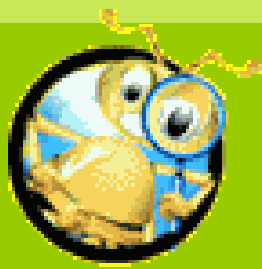
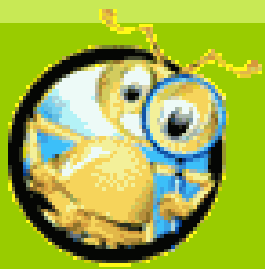
- Simple random sampling (SRS)

- Stratified random sampling

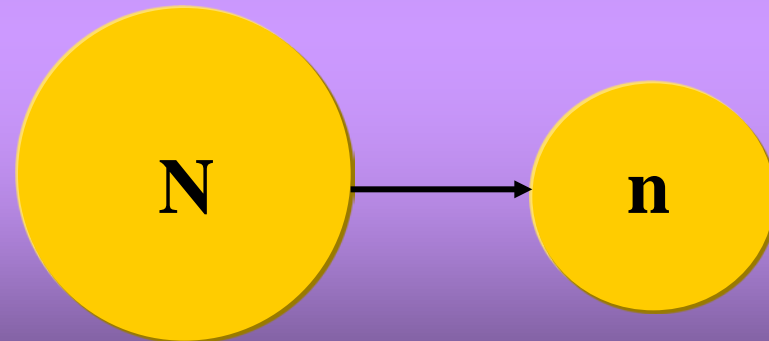
- Systematic sampling

- Cluster sampling





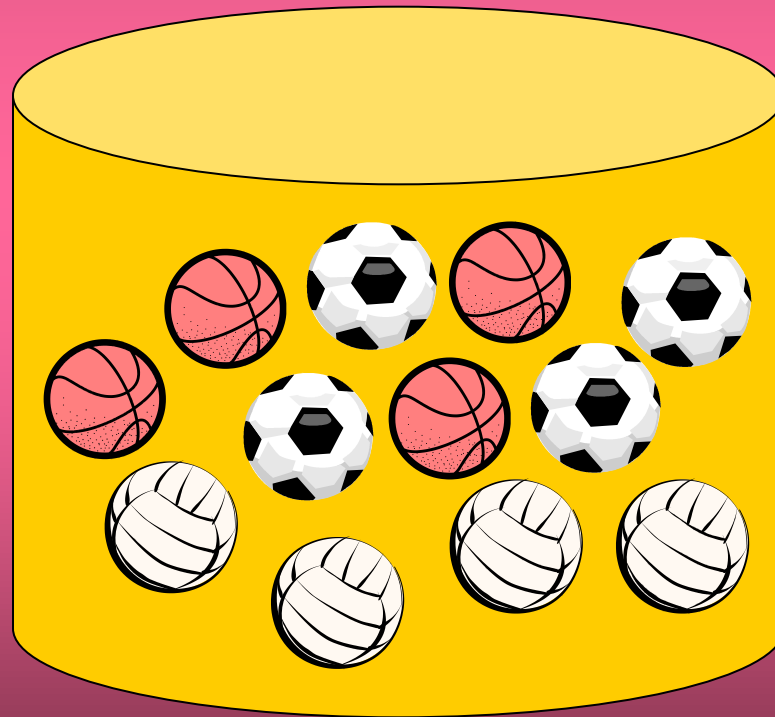
A simple random sampling of sample size n is a sample of n units selected in such a way that every possible sample of given size n has the same chance.



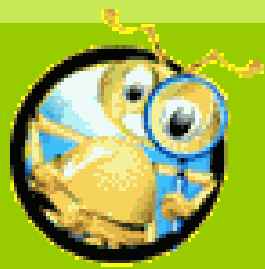
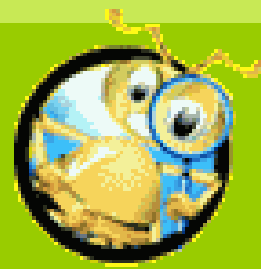
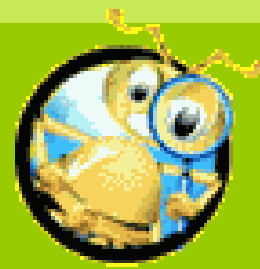
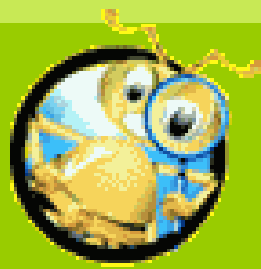
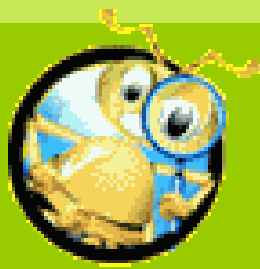
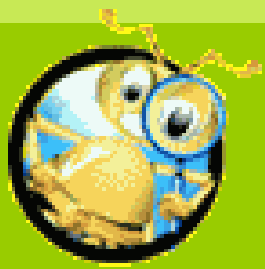
Population

Sample



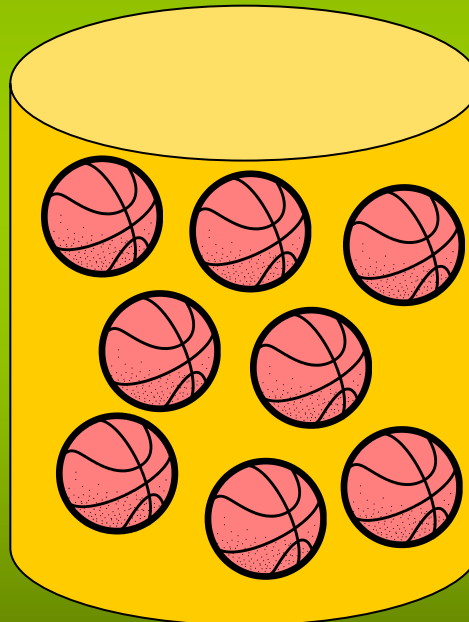
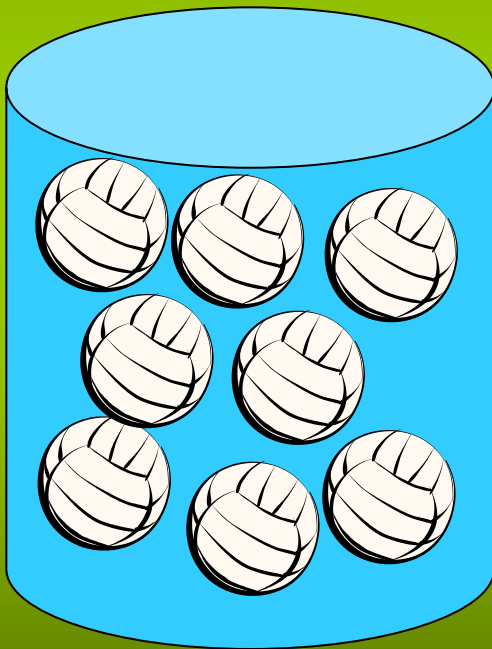


Simple random sampling

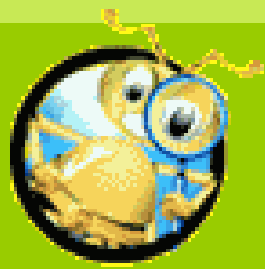
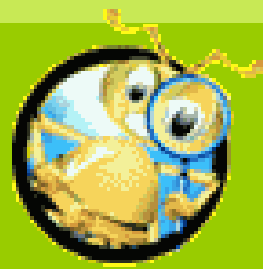
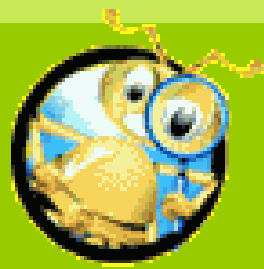
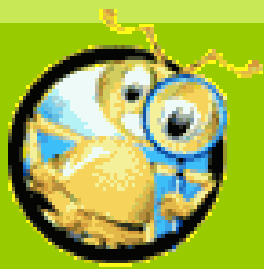
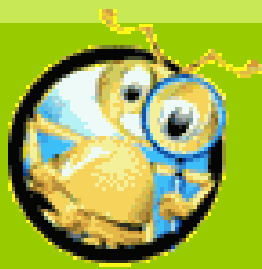


A stratified random sampling is selected by deviding the population in mutually exclusive subgroups and taking a simple random sample of units from each stratum.





Stratified random sampling

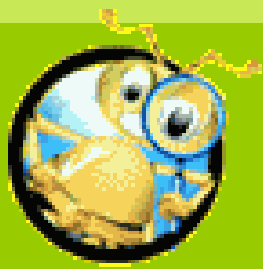
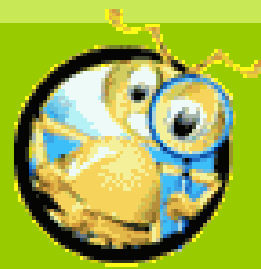
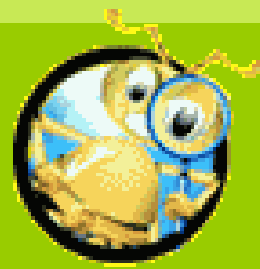
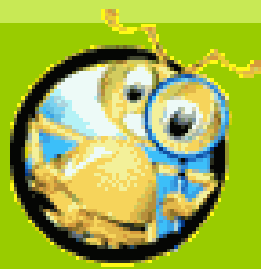
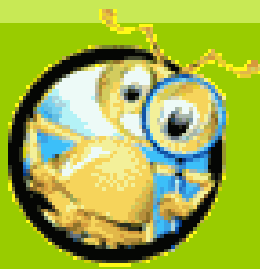
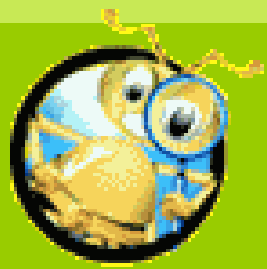


A systematic sampling

We order the unit of the population and randomly select one of the first k units in the ordered list.

This selected unit is the first unit to be include in the sample and we select every k^{th} unit from them on.

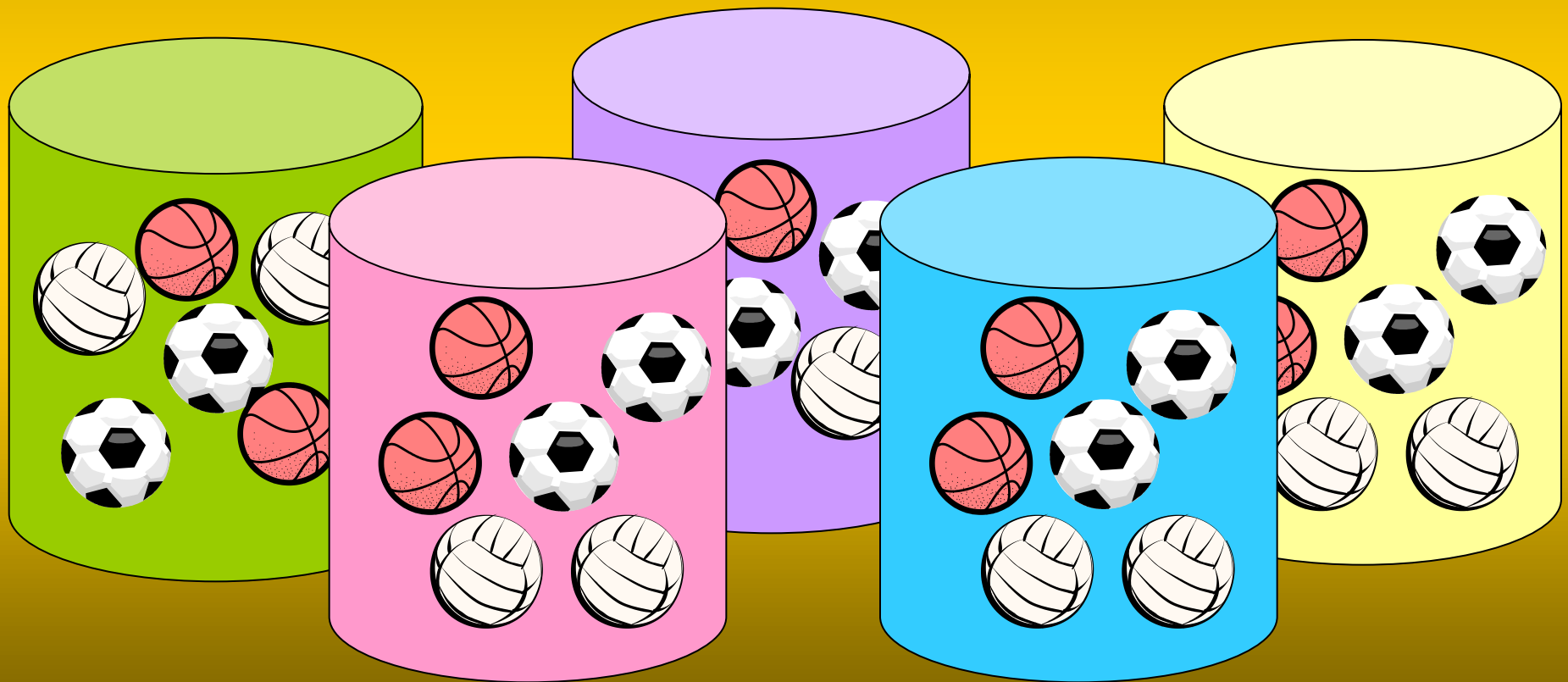




A cluster sampling

The units of the population are grouped into clusters. On or more clusters are selected at random. If a cluster is selected, all of the units that from that cluster are include in the sample.





Cluster sampling

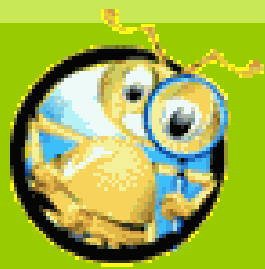
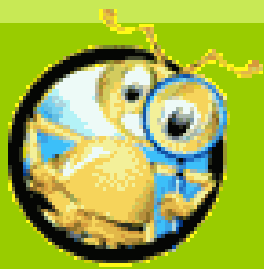
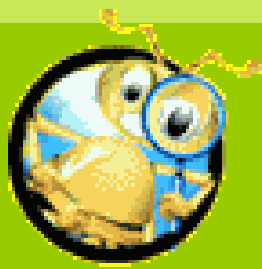
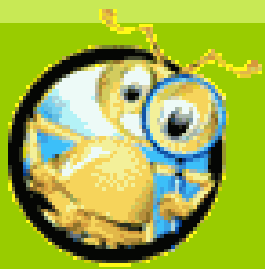
Distribution of variable

can be summarized graphically, numerically and model.

We can display distribution of qualitative in common types of graphs

- Pie chart
- Bar chart

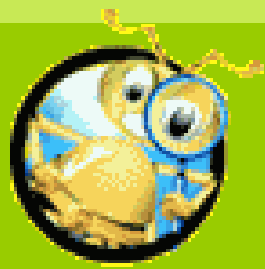
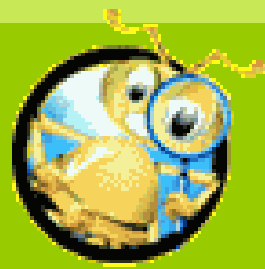
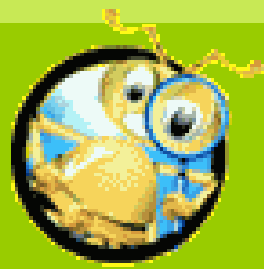
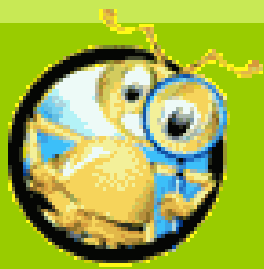
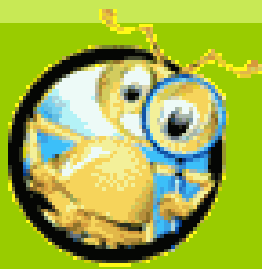
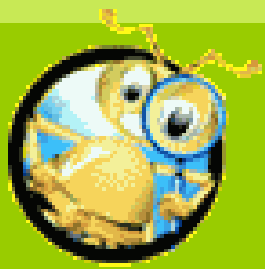




We can display distribution of quantitative variables in common types of graphs for quantitative variables

- frequency plots
- stem and leaf plots
- histograms





- A frequency plot is a useful graphical display to show how often data values occur.

- Outliers is the observations that are far from the most of data

