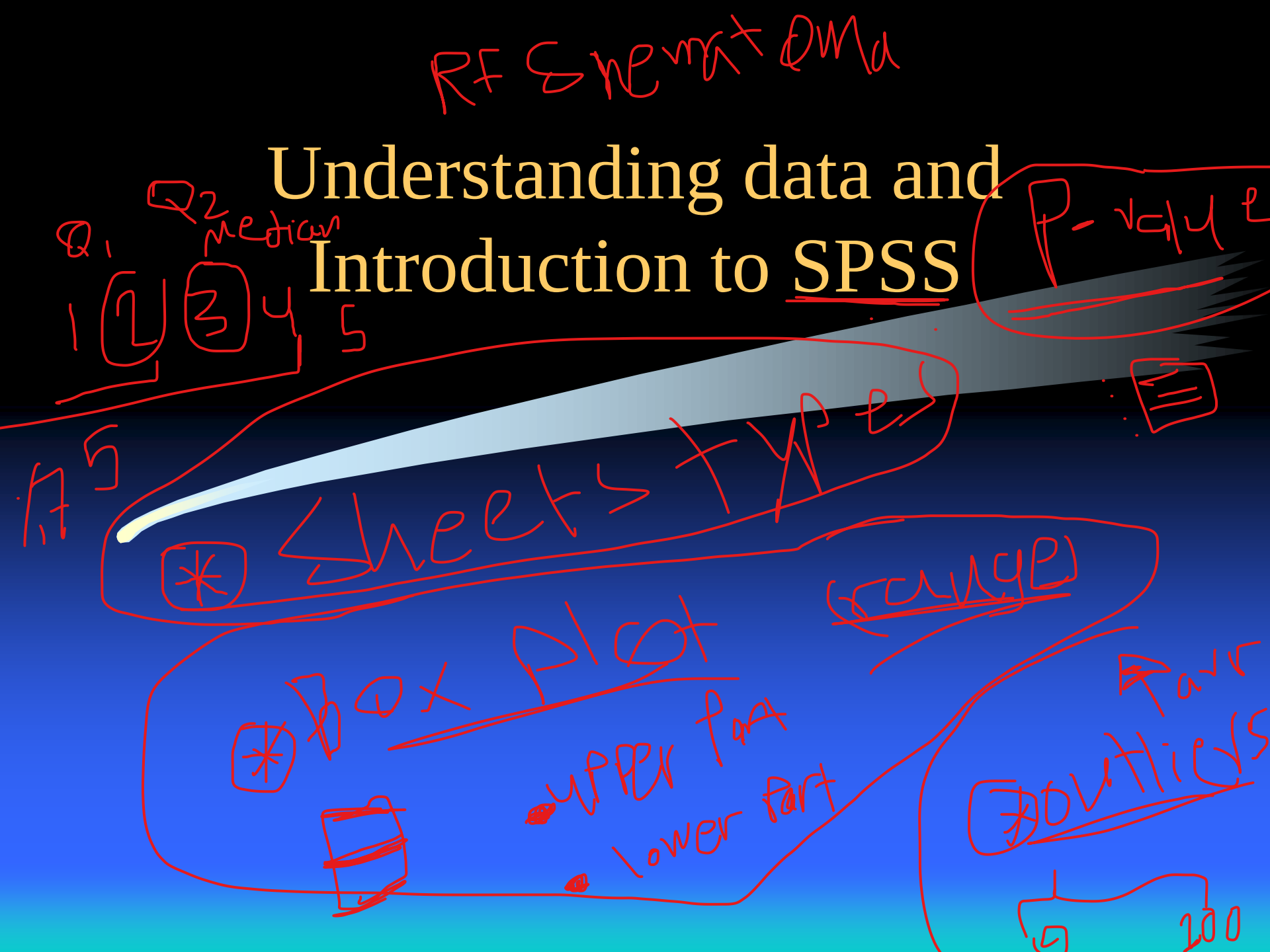
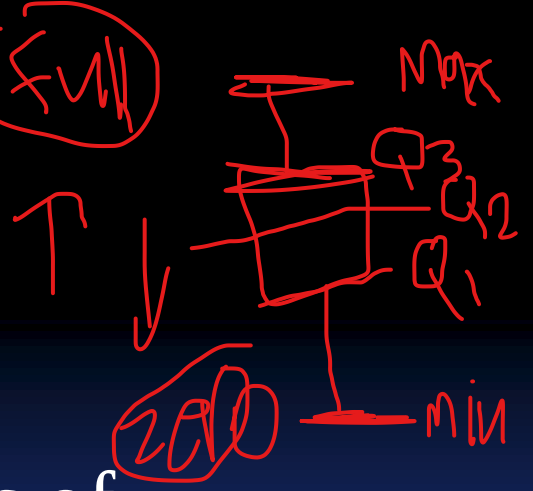
Understanding data and Introduction to SPSS



Useful tips



- It is not possible to show all types of statistical analysis for even one package
- You will want to look at recent texts
- Using clinical examples in learning
- More focus will be on producing the right analysis and how to interpret results
- You cannot do anything until you have entered the data

SPSS

- Statistical Package for Social Sciences
- Input data once
- You only need to know the tests you want to conduct, not how to compute them
- The software should not make errors in calculation
- New data, new input, data would be corrected
- Recalculations
- Inappropriate test used
- Many different approaches needed on data

Data and data entry

- Use spread sheets
- Rows are subjects and columns are variables
- Variable view: make sure about the coding of variables and levels of measurement
- **Manual Check**: Nothing can replace another pair of eyes to check over a data set. Either check your data entry, input & manipulation yourself, or get somebody else to do it. The more important the data, the more careful the check.

Univariate Analyses

Helpful in:

- cleaning & checking data quality
- examining data variability
- describing the sample
- checking statistical assumptions prior to performing more complex analyses

Presenting Data

- **Table**
  - Condenses data into a form that can make them easier to understand;
  - Shows many details in summary fashion;

BUT

  - Since table shows only numbers, it may not be readily understood without comparing it to other values.

Principles of Table Construction

- Don’t try to do too much in a table
- Use white space effectively to make table layout pleasing to the eye.
- Make sure tables & test refer to each other.
- Use some aspect of the table to order & group rows & columns.

Principles of Table Construction

- If appropriate, frame table with summary statistics in rows & columns to provide a standard of comparison.
- Round numbers in table to one or two decimal places to make them easily understood.
- When creating tables for publication in a manuscript, double-space them unless contraindicated by journal.

Presenting Data

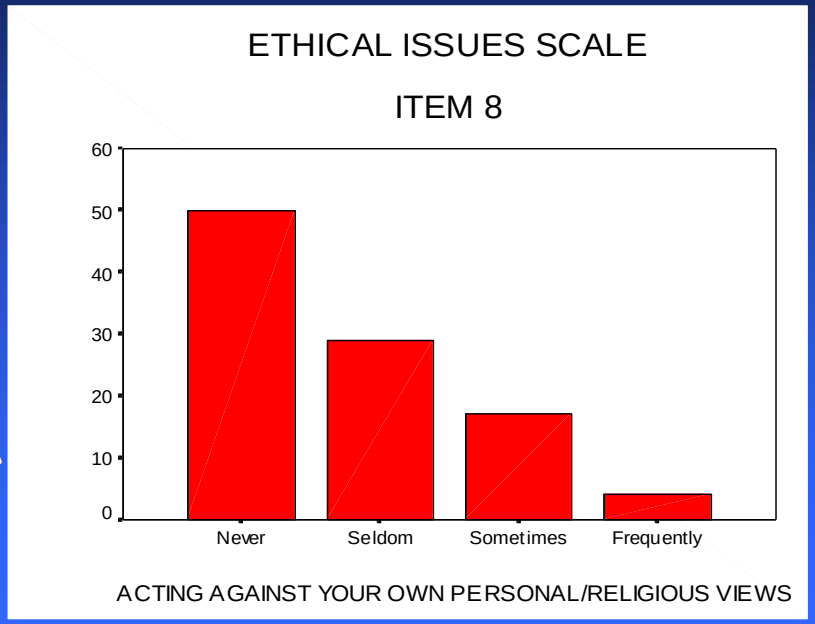
Chart

- Visual representation of a frequency distribution that helps to gain insight about what the data mean.
- Built with lines, area & text: bar charts

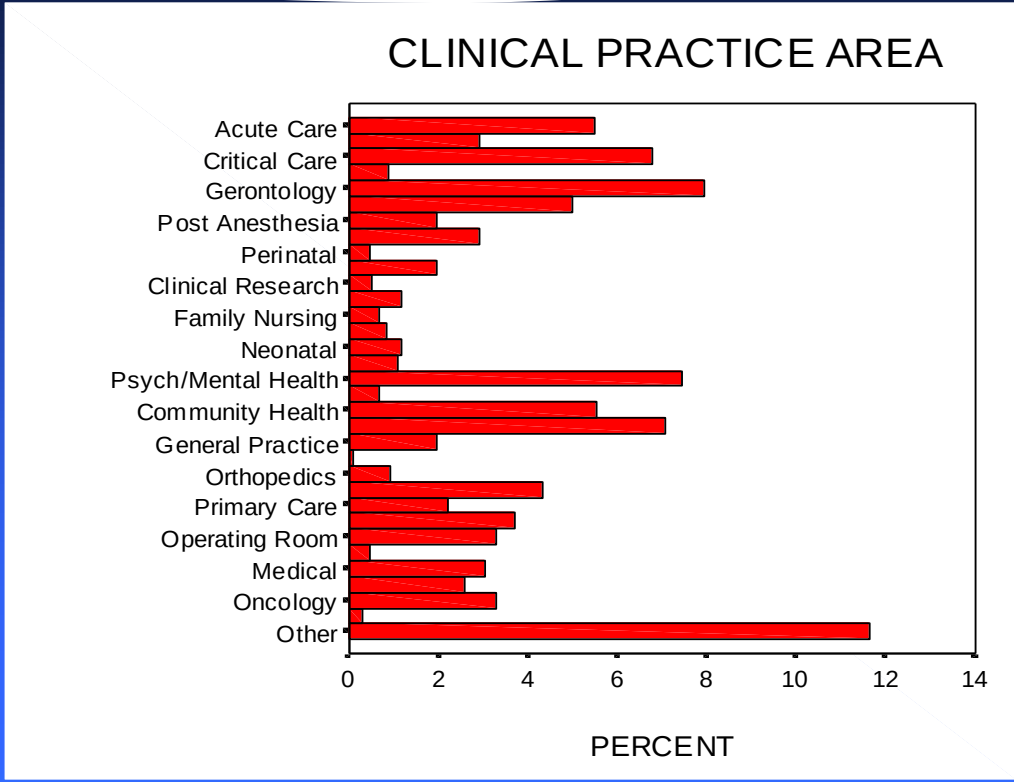
  Ex: bar chart, pie chart

Bar Chart

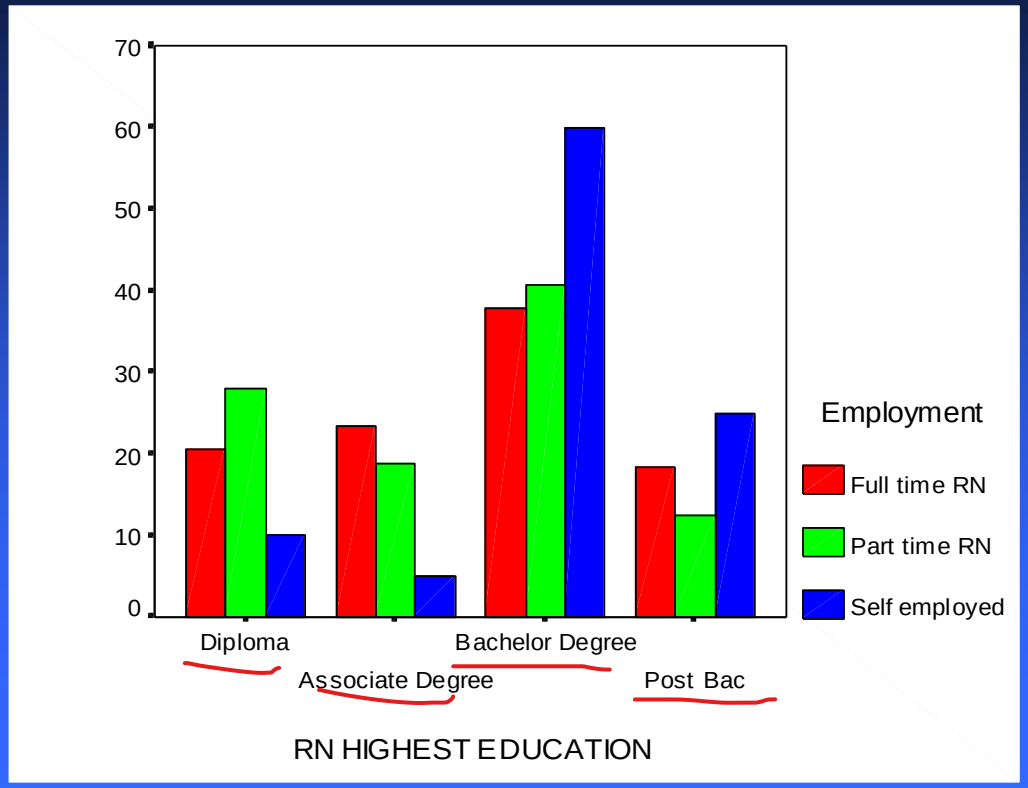
- Simplest form of chart
- Used to display nominal or ordinal data



Horizontal Bar Chart

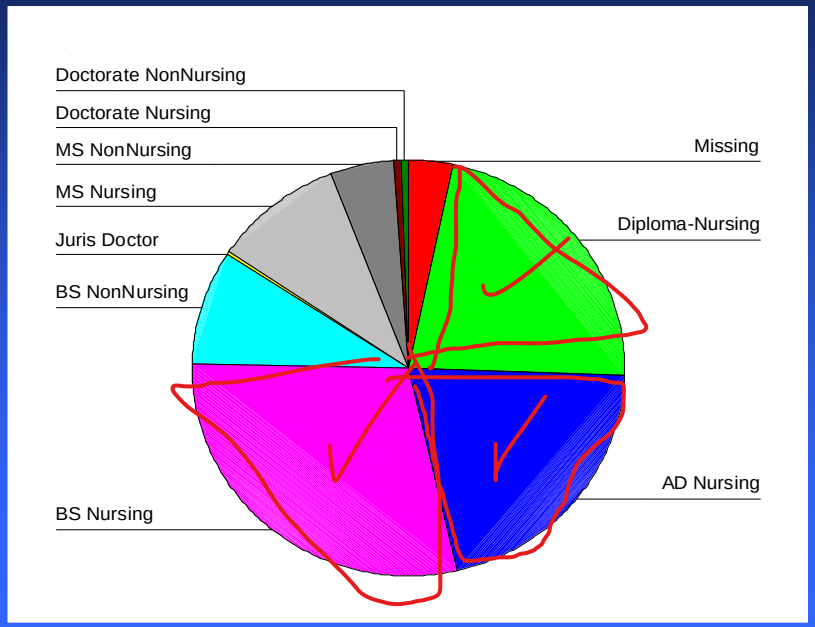


Cluster Bar Chart



Pie Chart

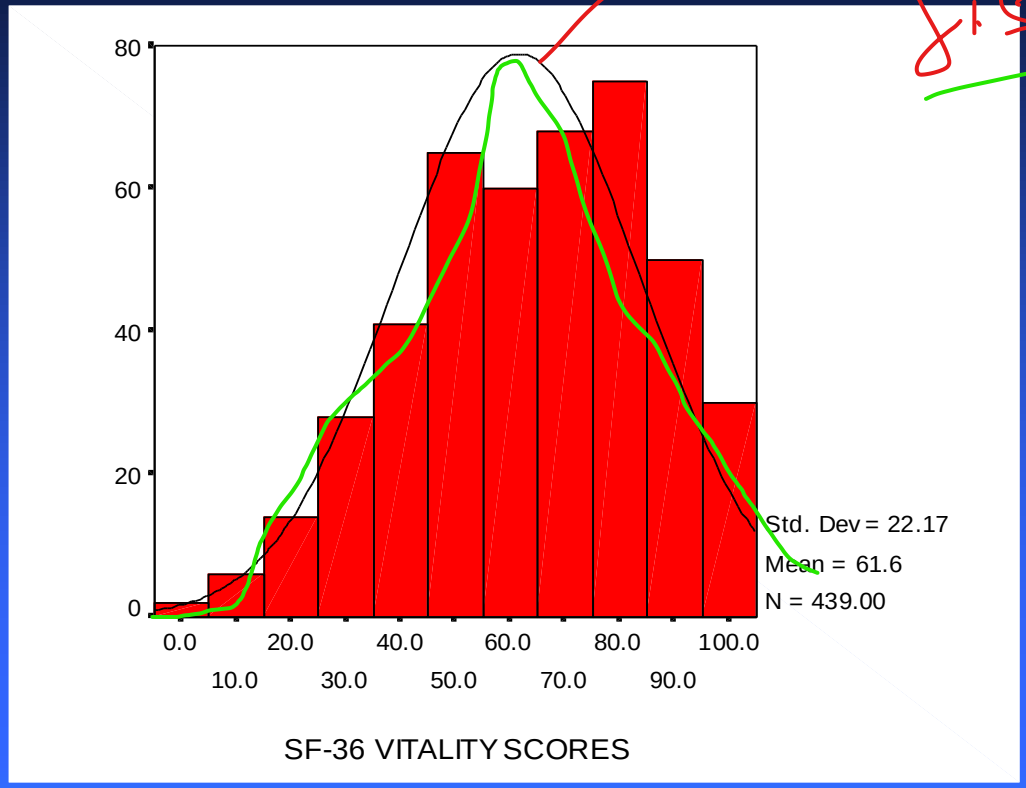
- Alternative to bar chart
- Circle partitioned into percentage distributions of qualitative variables with total area of 100%



Histogram

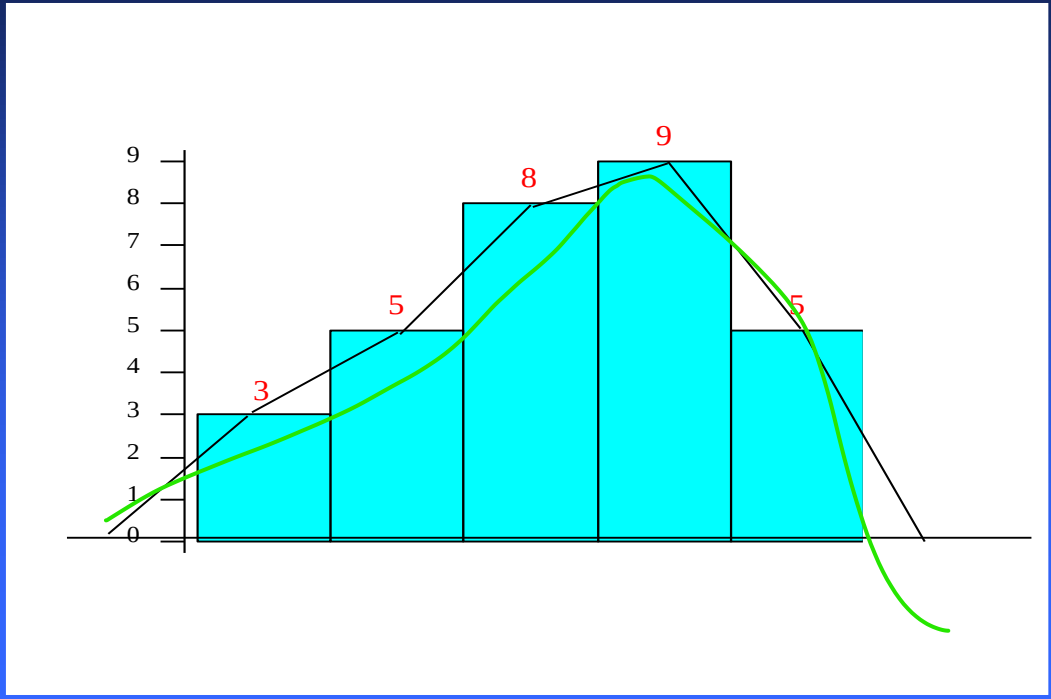
- Appropriate for interval, ratio and sometimes ordinal data
- Similar to bar charts but bars are placed side by side
- Often used to represent both frequencies and percentages
- Most histograms have from 5 to 20 bars

Histogram


80
60
40
20
0
0.0
10.0
20.0
30.0
40.0
50.0
60.0
70.0
80.0
90.0
100.0
Std. Dev = 22.17
Mean = 61.6
N = 439.00
SF-36 VITALITY SCORES

Polygon

Patients' Wait for Chest X-Ray



Hallmarks of a Good Chart

- Simple & easy to read
- Placed correctly within text
- Use color only when it has a purpose, not solely for decoration
- Make sure others can understand chart; try it out on somebody first
- Remember: A poor chart is worse than no chart at all.