Summary

- Interval estimation is a process of obtaining an interval in which the parameter value is expected to lie
- A confidence interval gives an estimated range of values which is likely to include an unknown population parameter, the estimated range being calculated from a given set of sample data
- The width of the confidence interval gives us some idea about how uncertain we are about the unknown parameter
- The confidence level is the probability value (1-α) associated with a confidence interval which is often expressed as a percentage
- 95% Confidence Interval for the population mean μ for the known population variance is given by

$$[\bar{y} - 1.96 \sqrt{\sigma^2/n}, \bar{y} + 1.96 \sqrt{\sigma^2/n}]$$

- 100(1- α)% Confidence Interval for the population mean μ for an unknown population variance is given by

$$[\bar{y} - t\alpha(n-1)] \frac{s}{\sqrt{n}}$$
, $\bar{y} + t\alpha(n-1) \frac{s}{\sqrt{n}}$