Many applications in reliability theory and biostatistics involve the modeling of lifetime data. In these applications we may denote the lifetime of a unit by , which is a positive-valued continuous random variable. This unit may be (component, system, device, death, the appearance of a tumor, the development of some disease, recurrence of a disease, conception, cessation of smoking, and so forth. Concepts of ageing describe how a population of units or systems improves or deteriorates with age. Many classes of life distributions are categorized and defined in the literature according to their ageing properties.

The concepts of aging are very important in reliability analysis. `No aging ‘means that the age of a component has no effect on the distribution of residual lifetime of the component. `Positive aging' describes the adverse effects of age on the lifetime of units. Various aspects of this concept are described in terms of failure rate, conditional probability distributions of residual lifetimes. On the other hand, `Negative aging' has an opposite effect on the residual lifetime. `Negative aging' is also known as `beneficial ageing'. To examine how the distribution of can be characterized. Various concepts of aging have been proposed to study lifetimes of system or components according to.

(1) The survival function of the system.
(2) The survival function of the residual lifetime of the system.
(3) The hazard failure rate function
(4) The mean residual lifetime function
(5) The mean inactivity time function