Concept of Computing

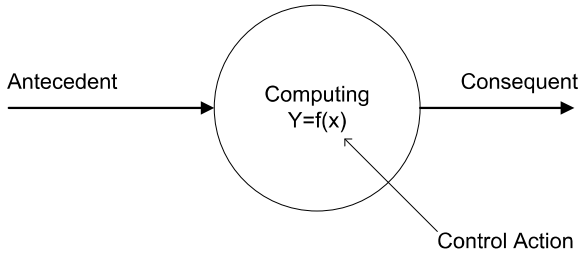

Figure : Basic of computing

$y = f(x)$, f is a mapping function
f is also called a formal method or an algorithm to solve a problem.

Important Characteristics

1. Should provide precise solution.
2. Control action should be unambiguous and accurate.
3. Suitable for problem, which is easy to model mathematically.

Hard Computing

In 1996, LA Zade (LAZ) introduced the term hard computing.

According to LAZ: We term a computing as "Hard" computing, if

- **Precise result is guaranteed**
- **Control action is unambiguous**
- **Control action is formally defined (i.e. with mathematical model**

Example:

- Solving numerical problems (e.g. Roots of polynomials, Integration etc.)
- Searching and sorting techniques
- Solving "Computational Geometry" problems (e.g. Shortest tour in Graph theory, Finding closest pair of points etc.)

Problems in some other areas of applications

- Medical diagnosis
- Person identification / Computer vision
- Hand written character recognition
- Pattern recognition and Machine Intelligence MI
- Weather forecasting
- VLSI design
- Network optimization