For a non nuclear reaction process ,the mass going inside the inlet in a process should be the mass coming out of the outlet as mass can neither be created nor be destroyed. Material balance

Process classification

1. Batch process :
- Transient process
- Drawing a flowchart, naming the variables
- Basis of calculation,
  - Input + generation-output-consumption=accumulation (balance)
    - If the balanced substance is non reactive species, generation=0, consumption=0
    - If the balanced quantity is total mass then, generation=consumption=0

- **2.**Continuous process
- Steady process
- Drawing a flowchart, naming the variables
- Basis of calculation,
- Input + generation-output-consumption=accumulation (balance)
  - If the balanced quantity is total mass then, generation=consumption=0, accumulation=0
  - If the balanced substance is non reactive species, generation=0, consumption=0, accumulation=0
- Transient Process
- Drawing a flowchart
  - Basis of calculation,
  - Input + generation-output-consumption=accumulation (balance)
  - If the balanced quantity is total mass then, generation=consumption=0
  - If the balanced substance is non reactive species, generation=0, consumption=0

- # 3.Semi batch process(can't be in a steady state)
- Transient process
    - Drawing a flowchart
    - Basis of calculation,
    - Input +generation-output-consumption=accumulation (balance)
        - If the balanced substance is non reactive species, generation=0, consumption=0
        - If the balanced quantity is total mass then, generation=consumption=0

- Integral balances :the balances which describes what happens at two instants at time , usually used for unsteady , batch processes .
- Differential balances: the balances which describes what is happening at a particular instant of time.