Branch and Bound

By

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Definition

- E- node remains E-node until it is dead.

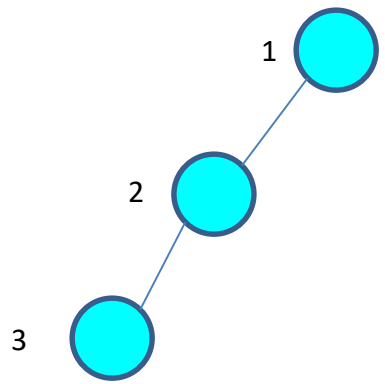
or

- Branch-an-bound refers to all state space search methods in which all children of an E-node are generated before any other live node can become the E-node.

- Intelligent search method

Eg

Backtracking



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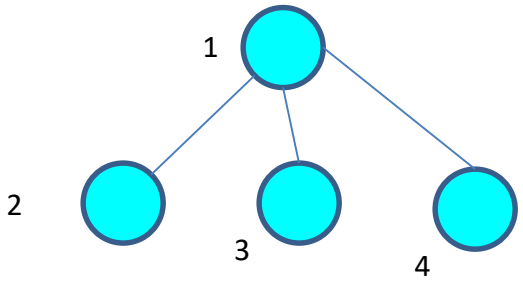

Methods

- First In First out BB
- Last in First Out BB
- Least cost BB

Key Terms

- $C(x)$ = cost of the node
- $\hat{C}(.)$ = Intelligent Ranking Function
  - Next e-node is selected on the basis of this ranking function
- $\hat{C}(x)=f(h(x))+\hat{g}(x)$
- Upper---Threshold

Details about Upper

- $whenever\ \hat{C}(x) > \text{Upper}$, x will be killed
- Each time new answer node is found upper can be updated.
- Nodes representing infeasible solution c(x)=∞