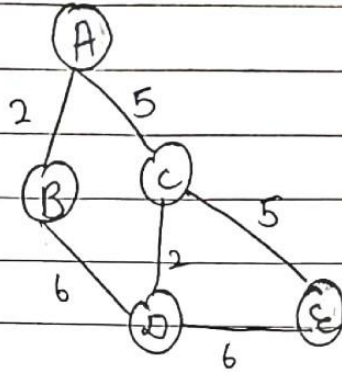## Greedy best-first Search

o Greedy best-first search algorithm always select the path which appears best at that moment.

o It is the combination of depth-first search and breadth-first search.

o It uses the heuristic function and search.

[working]

o The algorithm works by evaluating the cost of each possible path and then expanding the path with the lowest cost. This process is repeated until the goal is reached.

o If the cost of current path is lower than the estimated cost of the remaining paths, then the current path is chosen. This process is repeated until the goal is reached.

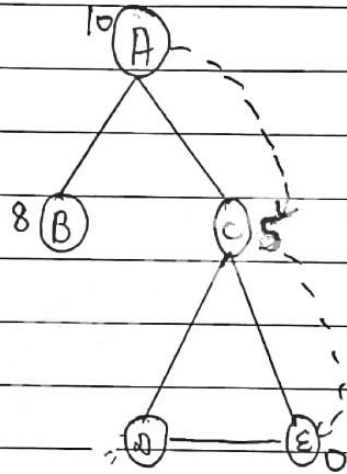Heuristic function:-

$$f(n) = g(n)$$

$h(n)$ = estimate cost from node n to goal.

Example

node	H(n)
A	10
B	8
D	3
C	5
E	0

Sol:-

Actual Cost → 10
heuristic Cost → 10
$f(n) = h(n)$
No extra nodes are
expanded

A --> C ---> E

Time Complexity :- $O(b^m)$ Space Complexity :- $O(b^m)$

Advantages

More efficient than BFS and DFS algorithms

Disadvantages

→ It can get stuck in a loop.
→ Algorithm is not optimal.