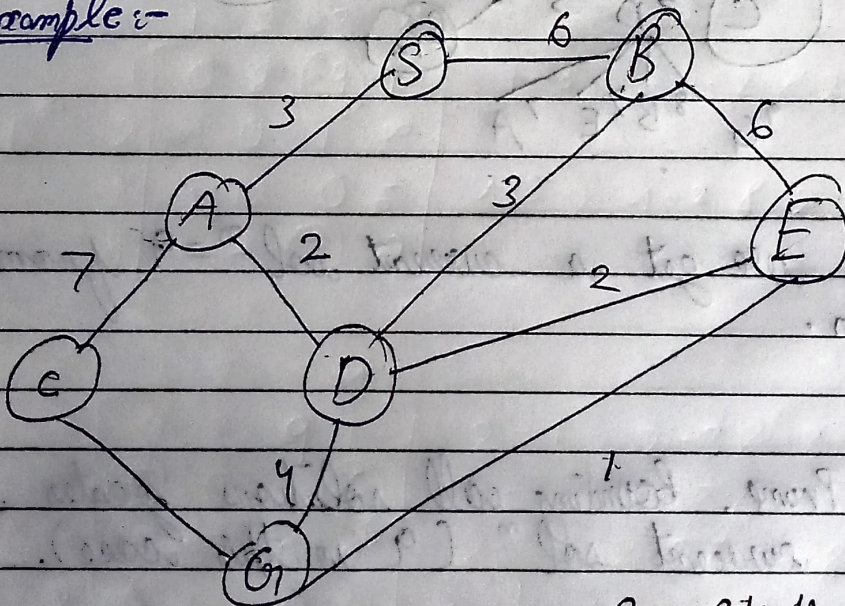


* BRANCH & BOUND

- Procedural to find optimal solution.
- Branching is the process of generating subproblems.
- Bounding refers to ignoring partial solutions that cannot be better than the current best solution.
- Basically extend the cheapest partial path.

Example:-



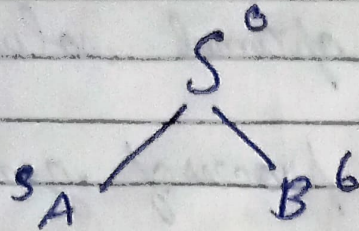
S - Starting State
G - Goal State

O - Prune

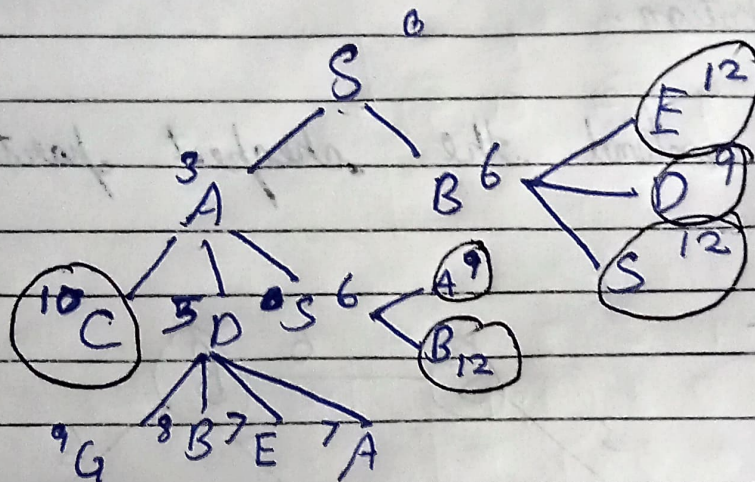
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1) Explore S. Initial Cost 0.

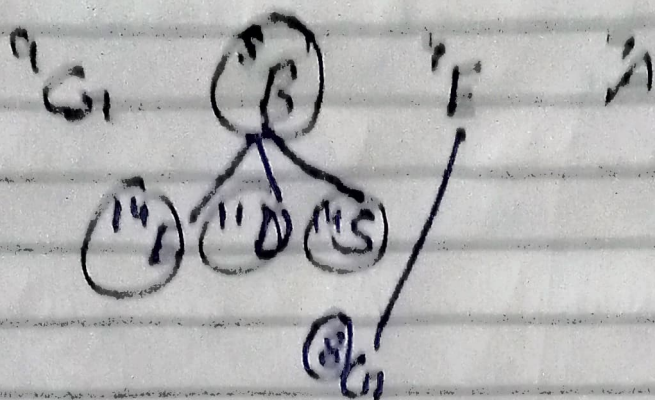


2) Min. Cost of A (which is 3), so we'll extend A.



3) Now, we get a current solⁿ = 9 from S to G.

4) O - Prune. Bounding all solutions greater than or = the current solⁿ (9 in this case).



6) Now we get current solⁿ = 8 from S

∴ The traversed path is :-

$$\begin{aligned}
 &S \rightarrow A \rightarrow D \rightarrow E \rightarrow G \\
 &3 + 2 + 1 + 1 \\
 &= \boxed{7}
 \end{aligned}$$