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**EXP 27: Write a Prolog Program to implement Best First Search algorithm**

**AIM:**

To Write a Prolog Program to implement Best First Search algorithm.

**PROGRAM:**

% 27. Prolog Program for Best First Search

% Graph with heuristic values

edge(a,b,2).

edge(a,c,1).

edge(b,d,3).

edge(c,d,1).

edge(c,e,5).

edge(d,f,2).

edge(e,f,1).

heuristic(a,5).

heuristic(b,4).

heuristic(c,2).

heuristic(d,1).

heuristic(e,1).

heuristic(f,0).

bestfs(Node,Goal,Path) :-

bestfs\_helper([[Node]],Goal,RevPath),

reverse(RevPath,Path).

bestfs\_helper([[Goal|Path]|\_],Goal,[Goal|Path]).

bestfs\_helper([Path|Paths],Goal,Solution) :-

extend(Path,NewPaths),

append(Paths,NewPaths,AllPaths),

sort(2,@=<,AllPaths,Sorted),

bestfs\_helper(Sorted,Goal,Solution).

extend([Node|Path],NewPaths) :-

findall([NewNode,Node|Path],

(edge(Node,NewNode,\_), \+ member(NewNode,[Node|Path])),

NewPaths).

**Query:**

?- bestfs(a,f,Path).

OUTPUT:



**RESULT:**

Thus, the output is verified Prolog Program implement Best First Search algorithm.