

```

:- use_module(library(pce)).

% Sample graph
edge(a, b).
edge(a, c).
edge(b, d).
edge(b, e).
edge(c, f).
edge(e, g).

% BFS algorithm
bfs(Start, Goal, Path) :-
    bfs_helper([[Start]], Goal, RevPath),
    reverse(RevPath, Path).

bfs_helper([[Goal|Rest]|_], Goal, [Goal|Rest]).
bfs_helper([CurrentPath|OtherPaths], Goal, Path) :-
    CurrentPath = [Node|_],
    findall([Next|CurrentPath],
           (edge(Node, Next), \+ member(Next, CurrentPath)),
           NewPaths),
    append(OtherPaths, NewPaths, UpdatedPaths),
    bfs_helper(UpdatedPaths, Goal, Path).

% GUI to show BFS path with clickable options
go :- 
    findall(Node, (edge(Node,_); edge(_,Node)), NodesDup),
    sort(NodesDup, Nodes), % Unique nodes
    new(Dialog, dialog('BFS GUI')),
    send(Dialog, append, new(StartMenu, menu(start_node, cycle))),
    send(Dialog, append, new(GoalMenu, menu(goal_node, cycle))),
    add_nodes_to_menu(Nodes, StartMenu),
    add_nodes_to_menu(Nodes, GoalMenu),
    send(Dialog, append, button(run, message(@prolog, run_bfs, StartMenu?selection,
GoalMenu?selection))),
    send(Dialog, open).

add_nodes_to_menu([], _).
add_nodes_to_menu([H|T], Menu) :-
    send(Menu, append, H),
    add_nodes_to_menu(T, Menu).

run_bfs(Start, Goal) :-
    (bfs(Start, Goal, Path) ->
        format('BFS Path: ~w~n', [Path]),
        display_result(Path)
    ;
        send(@display, inform, 'No path found')
    )

```

).

```
display_result(Path) :-
    (get(@display, exists) -> true ; new(@display, dialog('BFS Result'))),
    send(@display, clear),
    send(@display, append, text(Path)),
    send(@display, open).
```

File Edit Settings Run Debug Help
Welcome to SWI-Prolog (threaded, 64 bits, version 9.2.9)
SWI-Prolog comes with ABSOLUTELY NO WARRANTY. This is free software.
Please run ?- license. for legal details.

For online help and background, visit <https://www.swi-prolog.org>
For built-in help, use ?- help(Topic). or ?- apropos(Word).

```
?- working_directory(_, 'D:/Prolog').
true.
?- [bfs_gui].
true.
?- go.
true.
?- BFS Path: [a,b,d]
```

