

DSE250 Final

1. GSQL Query:

```
create query final() for graph FinalGraph {
    typedef tuple<vertex src_node, vertex tar_node> tup;
    SetAccum<tup> @@source_target;
    ListAccum<VERTEX> @@vertexList;
    SetAccum<VERTEX> @@target_nodes, @@target_nodes_E, @@avoid_loops;
    SumAccum<INT> @@stop;

    source_vertex = {ANY};
    source_node = SELECT v FROM source_vertex:v ACCUM @@vertexList += v;
    target_node (ANY) = source_node;

    FOREACH src in @@vertexList DO
        @@stop=0;
        source_node = {src};
        target_node_A_to_E = SELECT t FROM source_node-(A)->ANY:t;
        target_node = SELECT t FROM source_node-(A)->ANY:t;

        WHILE @@stop==0 DO
            tempB = SELECT t FROM target_node:s-(B)->ANY:t WHERE s NOT IN
@@avoid_loops ACCUM @@target_nodes += t, @@avoid_loops += s;

            tempC = SELECT t FROM target_node-(C)->ANY:t;
            tempD = SELECT t FROM tempC:s-(D)->ANY:t WHERE s NOT IN @@avoid_loops
ACCUM @@target_nodes += t, @@avoid_loops += s;

            tempE = SELECT t FROM tempB-(E)->ANY:t ACCUM @@target_nodes_E += t;
            tempE = SELECT t FROM tempD-(E)->ANY:t ACCUM @@target_nodes_E += t;

            IF tempB.size()==0 AND tempD.size()==0 THEN @@stop=1;
            ELSE target_node = @@target_nodes;
            END;
            @@target_nodes.clear();
        END;

        tar = SELECT t FROM target_node_A_to_E-(E)->ANY:t ACCUM @@target_nodes += t;
        tar = SELECT t FROM target_node-(E)->ANY:t ACCUM @@target_nodes += t;

        FOREACH tar_node in @@target_nodes_E DO
            @@target_nodes += tar_node;
        END;
        @@target_nodes_E.clear();

        FOREACH tar_node in @@target_nodes DO
            @@source_target += tup(src, tar_node);
        END;
        @@target_nodes.clear();

        @@avoid_loops.clear();
    END;
    PRINT @@source_target;
}
```

2. GREMLIN Query:

```
g.V().union(g.V().as("src").both("A").repeat(union(both("B"),
both("C").both("D")).simplePath()).emit().both("E").as("tar").select("src",
"tar").by("name"), g.V().as("src").both("A").both("E").as("tar").select("src",
"tar").by("name")).dedup()
```