**Part I: Anomaly Detection**

Approach A:

Approach B:

Approach C:

**Part II: Link Analysis**

Main codes:

Normalization:

matrix\_A = zeros(100,100);

sum\_col = sum(A')';

row\_ind\_list = find(sum\_col ~=0)';

for ind = row\_ind\_list

column\_ind = find(A(ind,:) ~=0);

matrix\_A(ind,column\_ind) = 1/sum\_col(ind,1);

end

normal\_A = sparse(matrix\_A);

A=normal\_A;

Compute PR:

pr=ones(length(U),1); % initial ranks

d =0.85;

constant\_v = ones(length(U),1)\*(1-d)';

for iter=1:200

pr = constant\_v + (A')\*pr.\*d;

end

Figure:

