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2. Application and Jobs.

Applicants → $a_1, a_2, a_3 \ldots a_n$

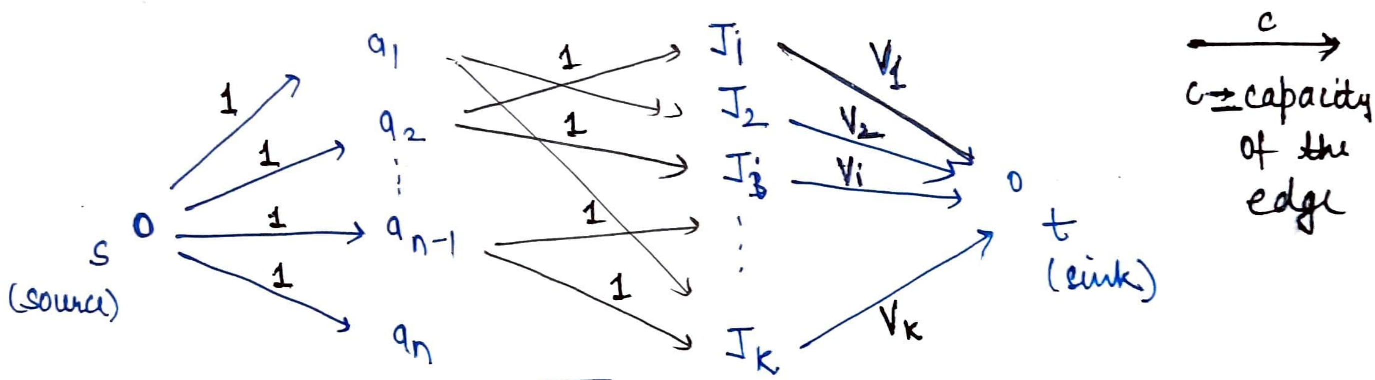
Jobs → $J_1, J_2, J_3, \ldots J_k$

Vacancies → $V_1, V_2, V_3, \ldots V_k$ where J_i job has V_i vacancies

Given Matrix M such that

a_i is applicable for J_p job if $M[i][p] = 1$.

Now, corresponding graph can be made as.



$\boxed{G}$

The above graph G contains $(n+k+2)$ vertices. 2 of them are s and t. n vertices represent the applicants $a_1, \ldots a_n$, and other k vertices represent the job. Now each applicant vertex is conned with source with an edge capacity of 1. Now, applicant a_i is directed (with cap=1) to job vertex J_p if $M[a_i][J_p] = 1$. Each job J_i is connect with sink(t) with the edge capacity of V_i.

Max-Flow network of above graph G assign the jobs in required way.

Theorem :- Say B → ~~bipartite~~ Matching of applicant with the jobs.

There is a matching of size z in B if and only if there is a s-t flow of value z in G.

Matching of size p in B denotes p no. of applicants that got accepted for job.