CS345 Theoretical Assignment 4

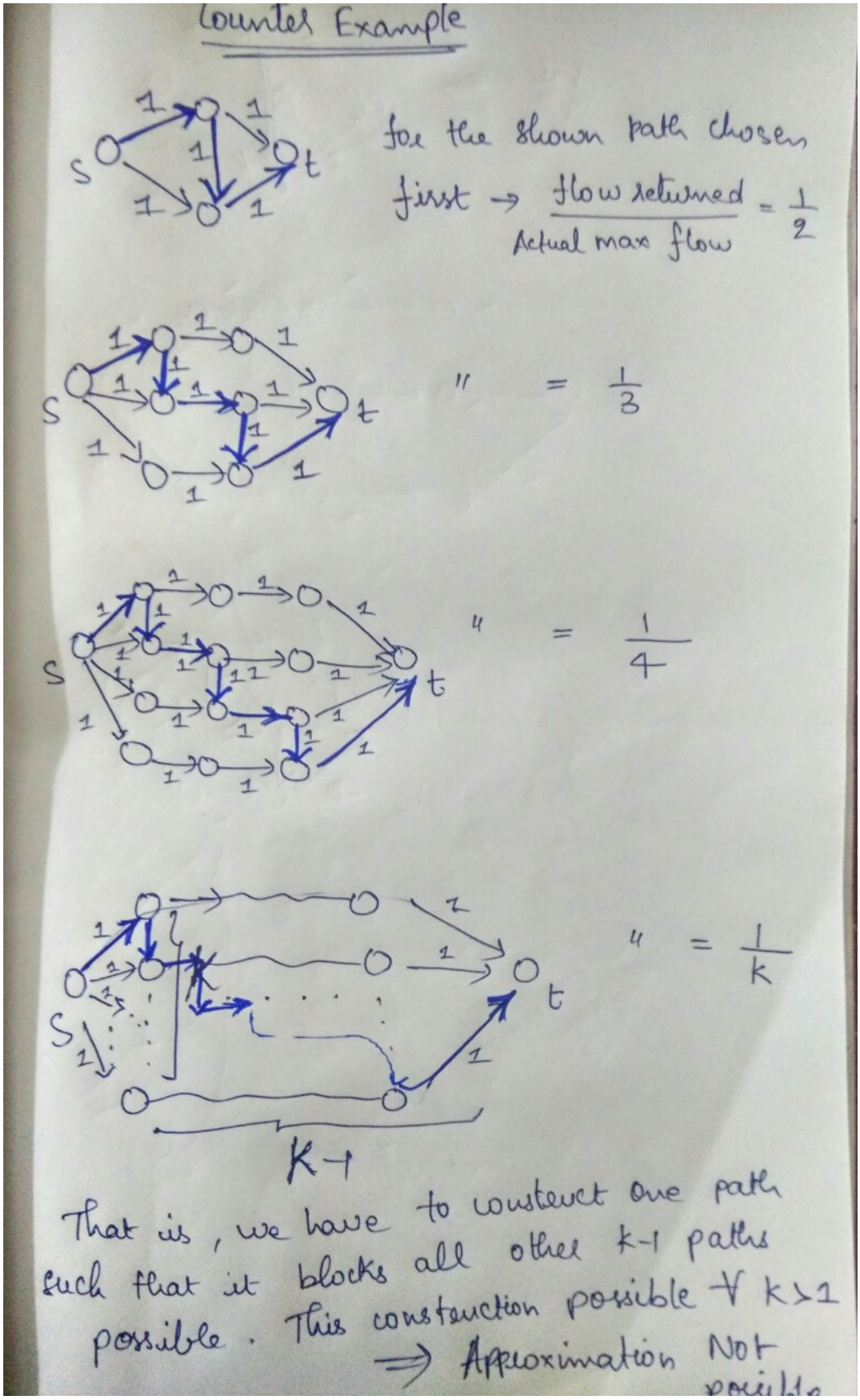
Ayush Agarwal, 13180

M.Arunothia, 13378

Contents

1 Any Guarantee of our First-Attempt Algorithm

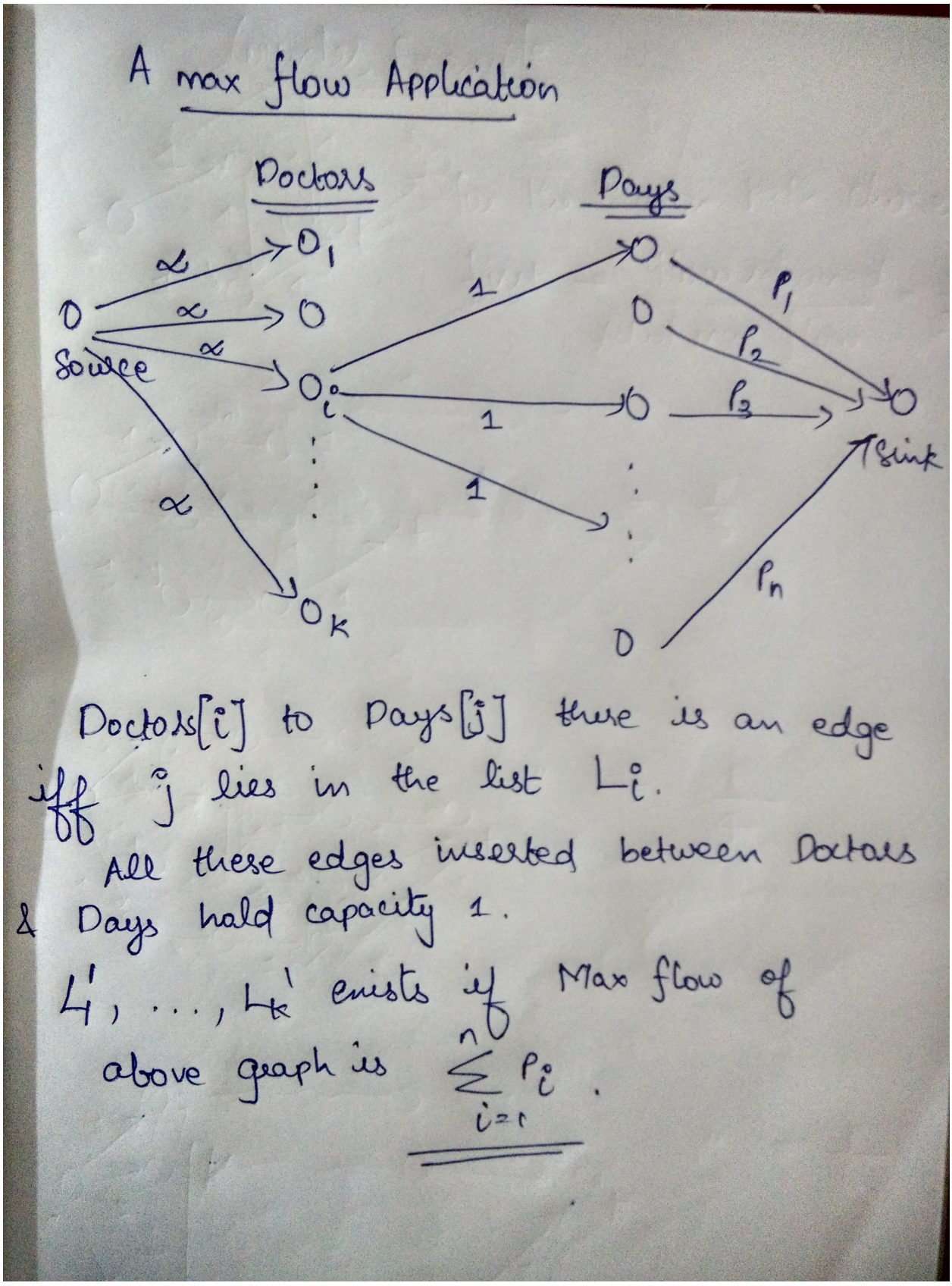
1.1 Counter Example



2 A max flow application

2.1 Without Extra Constraint

2.1.1 Overview



Doctors[i] to Days[j] there is an edge iff j lies in the list L_i.

All these edges inserted between Doctors & Days hold capacity 1.

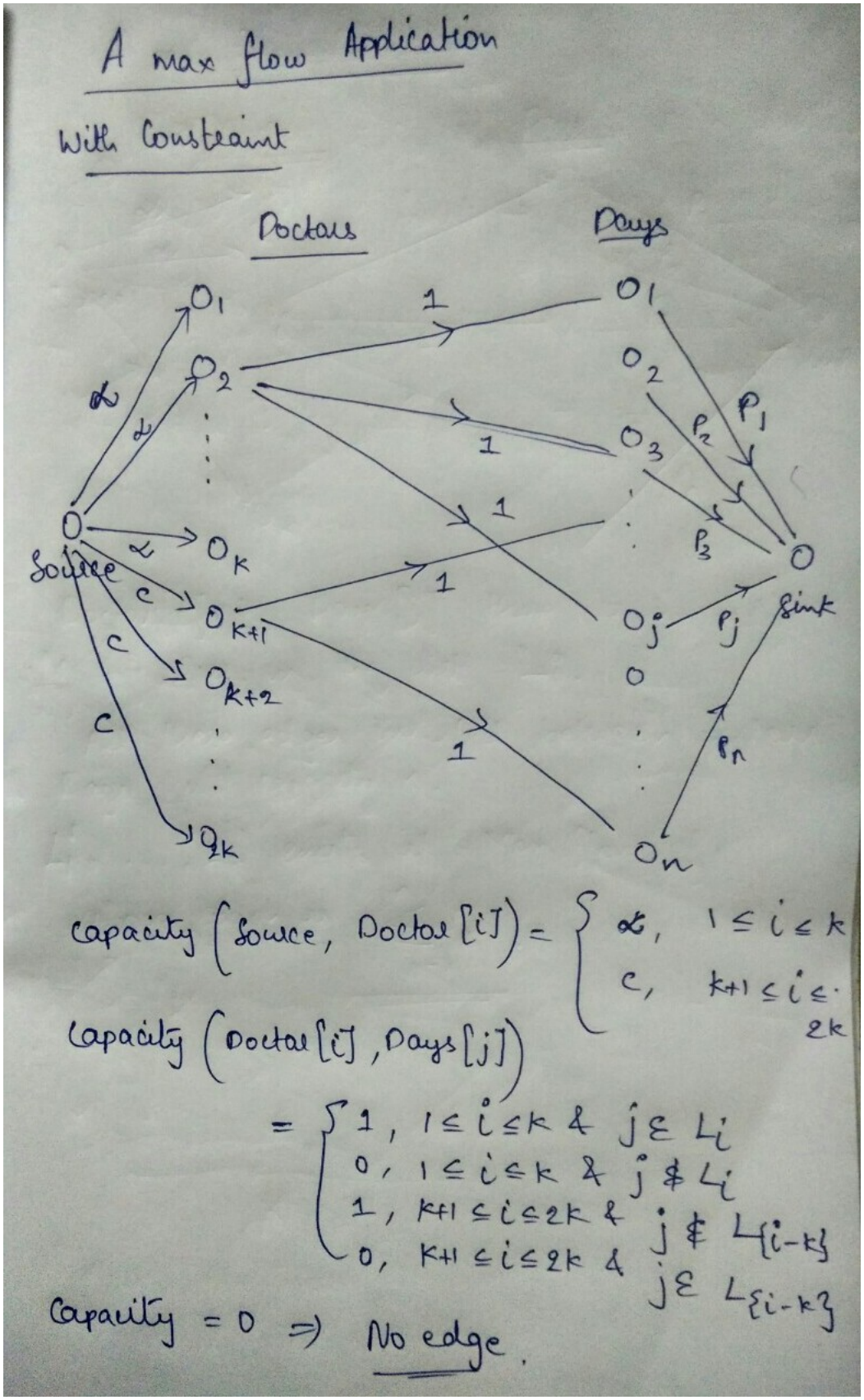
$L_1', \ldots, L_k'$ exists if Max flow of above graph is $\sum_{i=1}^{n} p_i$.

2.1.2 Claim

2.1.3 Proof

2.2 With Extra Constraint

2.2.1 Overview



2.2.2 Claim

2.2.3 Proof