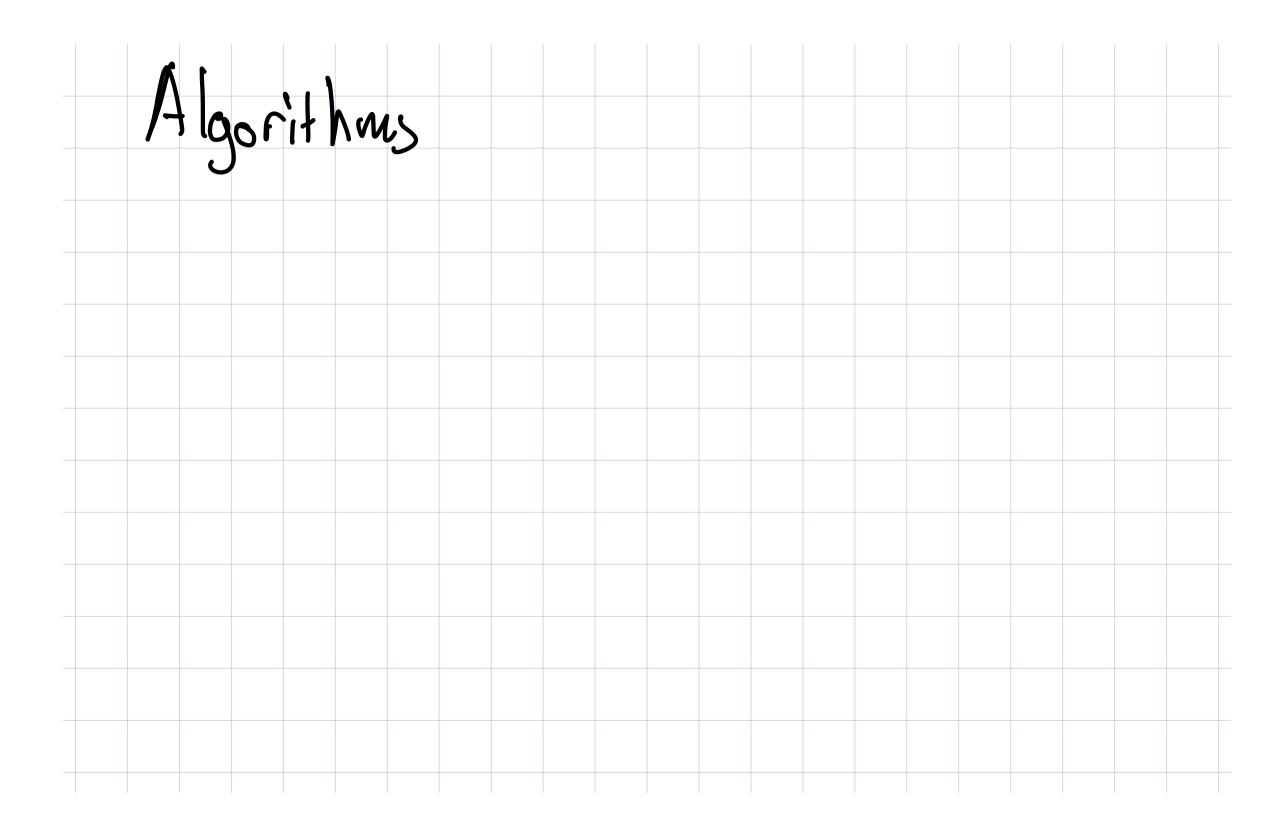


Algorithms (general, Stable Matchiuch Sourse Détails (Vous

	-ntro					
J	- MTY 6					



Stable Ma	talina P	3hlem	
Candidates	Universities	5	
Alax	Carrall		
Alex Jennifer Raj	Coruell Princeton Rytacos		
Raj	Rytges		

MI INDIA				
Stable M	grang Fr	3blem	teren Ces	
		1100	teren Ces	
Condidates	Universities	λ(,	7 10 -	O
1 1		AKS	Jennited	Ray
Jenniter	- Graell	Cornell	Princeton	Kutgus
Jenniter >	Prince for	Rutgers Princeton	Ruteus	Corvell Dr. L.
1 Raj	> Rutgers 1	41 INCE POUL	(I)	Princeton
Doc D L	110		Princeta	Dut or
Raj - Rutgers	is Called an	Tourist	Alex	Rutges
each other to	flaco matela	Jennyter Alex	Jenora	Hex
eary ofter to	10017 1009(120)	Raj		Teuditer
			149	JEUNITE

Stable Matchina Pr	36lem Préférences
	Cornell Princeton Rutaus
Caudidates Universities	Princeton Carnell Princeton
Alex	Cornell Princeton Rutgers Jennifer Alex Denontor Alex Raj Baj Jennifer
Tenniter Princeton Raj Rutgers	
Raj-Rutgers is called an	matching with no unstable pairs
unstable prin buth prets	
each other to their match.	How do you told one? Are they arrique?
	Are fley avigue?

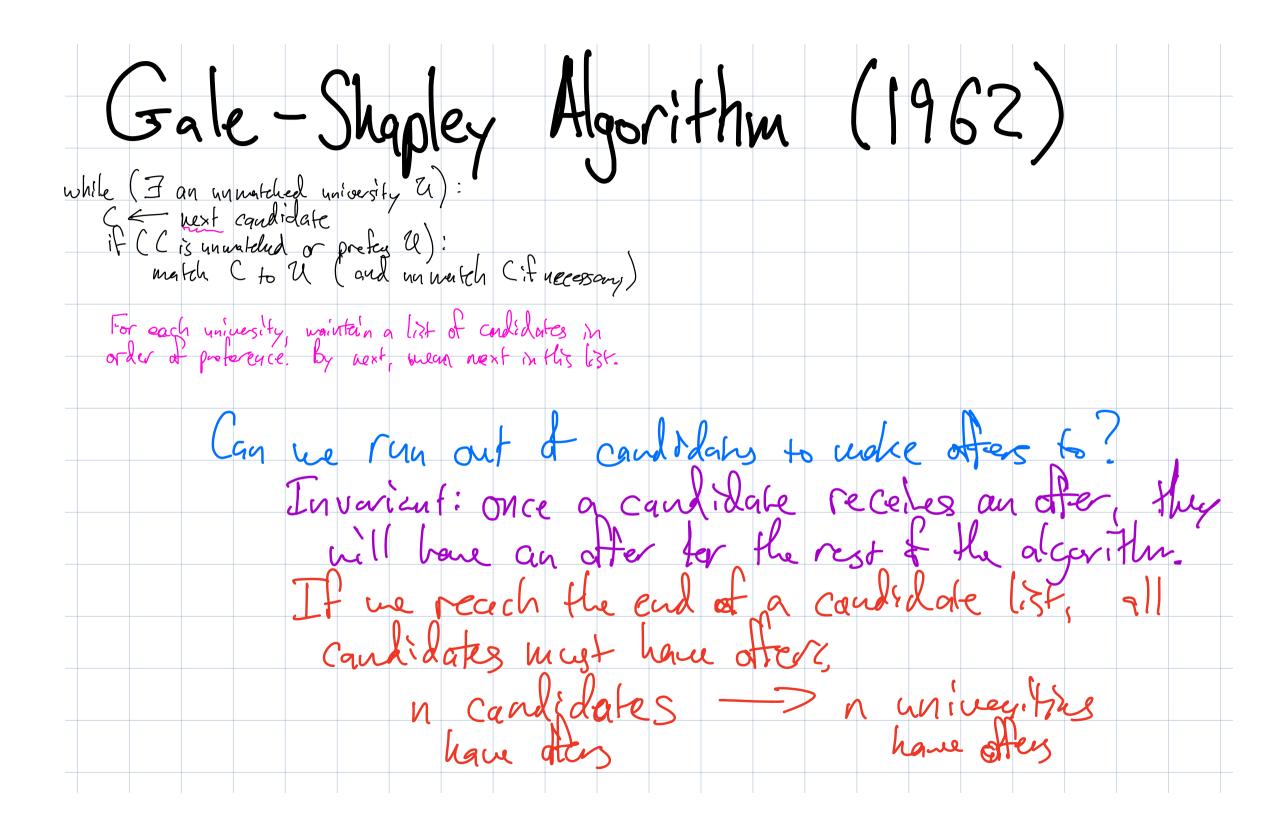
Gale-Shapley Algorithm (1962) while (7 an unmatched university U):

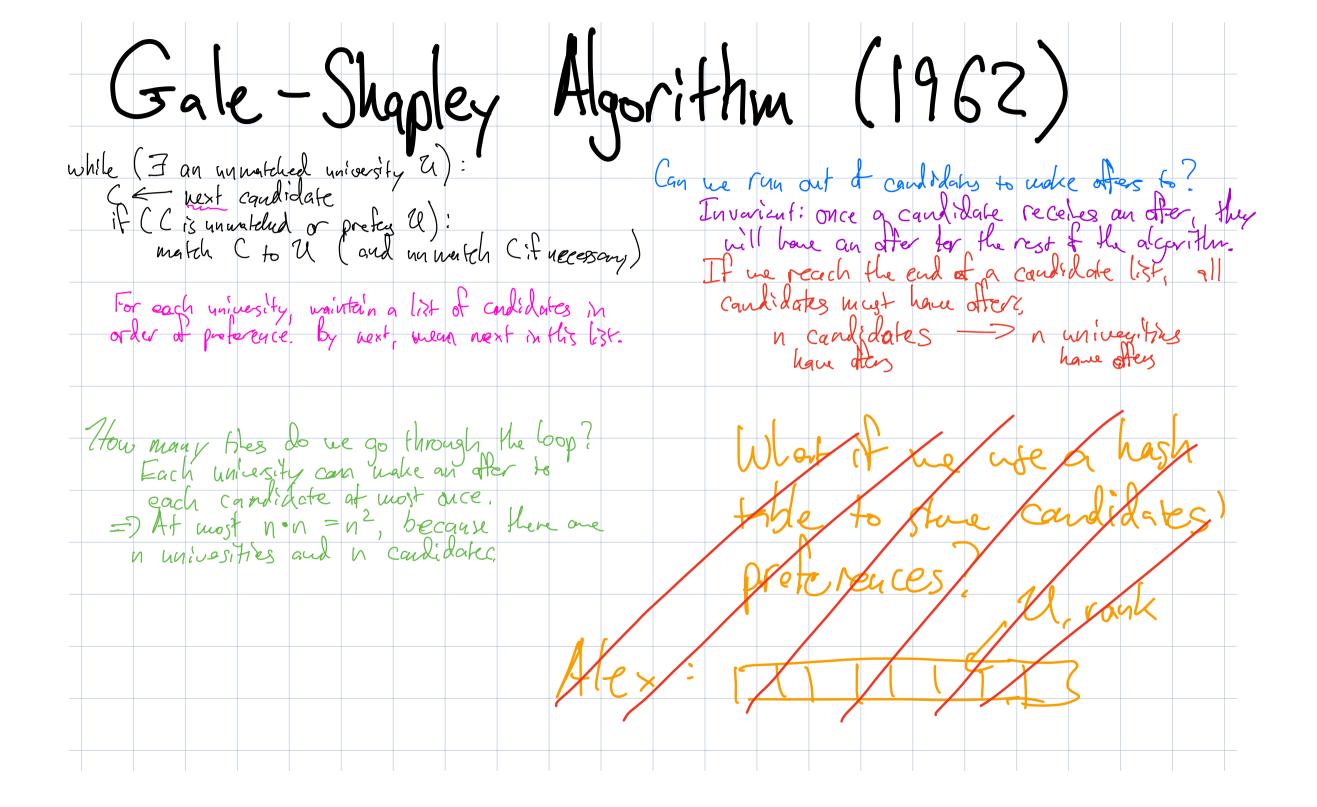
C = next condidate

if (C is unwatched or prefer U):

match C to U (and unmatch Cit necessary) For each university, waintein a list of condidates in order at preference. By next, weam next in this list.

Stable Matchina Problem	Pref	Jenniter Rej
	Cornell Rutzvs Princeton	Jennifer Raj Phateus Raters Carnell Carnell Princeton Princeton
	Cornell, Tennyfer	Princeta Butters Tenartar Chaj
Princeton Jenniter	A lex Raj	hay Mex
Kulgers Raj		
1. Correll ankes on after to Jennifer, accepts 2. Princefor makes on after to Alex, accepts		
3, Rutges nakes an other to Tenniker, accepts a 5. Princelon makes an other to Jenniker, rejects	s and un	une toles Cornell
5. Princeton makes an ofter to Tenniter, vejects	S. Prilice In	Hers Ray accepts





while (3 an unmatched university &):

Can be run out of conditations to under offer

Invariant: once a candidate receives an

match C to U (and un match Cit necessary)

The reach the end of a rounded also Can be run out of controlars to wake offers to? Invariant: once a candidate receives an offer, they will have an offer for the rest of the algorithm.

If we reach the end of a condidate list, all For each university, maintain a list of condidates in order of profesence. By next, mean next in this list. candidates must have offer. n candidates > n univerties have offers How many thes do we go through the loop? Each unlessty can wake an offer to each candidate at most once. =) At most non = n2, because there are n universities and n cardidates.

Gale-Shapley Algorithm (1962) while (3 an unmatched university U):

Chext condidate

if (C is unwatched or prefer U):

match C to U (and unmatch Cit necessary) Can be run out of controlars to wake offers to? Invariant: once a candidate receives an offer, they will have an offer for the rest of the algorithm.

If we reach the end of a condidate list, all candidates must have offers

n candidates of n universities
have offers For each university, univitain a list of condidates in order of preference. By next, where next in this list. What is the cost of each loop How many thes do we go through the loop? Each unlessity can wake an offer to iteration? each candidate at most once. =) At most non = n2, because there are n universities and n cardidates, - Need to find candidate preferences efficiently