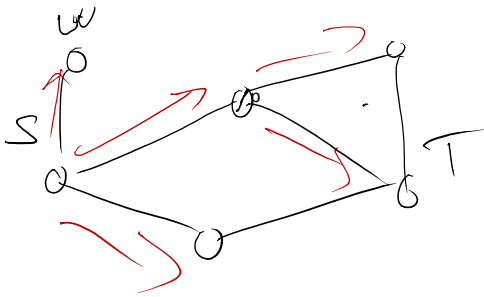
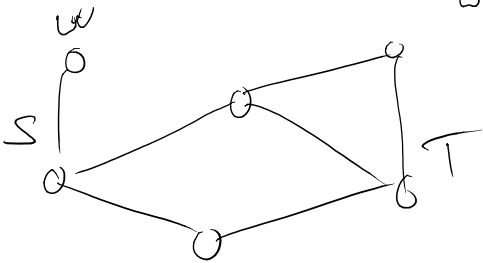
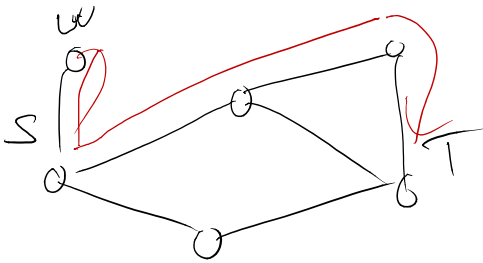


Graphs none interested in
HWY everyone interested
~ Mitterly
Graphs Wednesday

Interview Q
we are @ a party

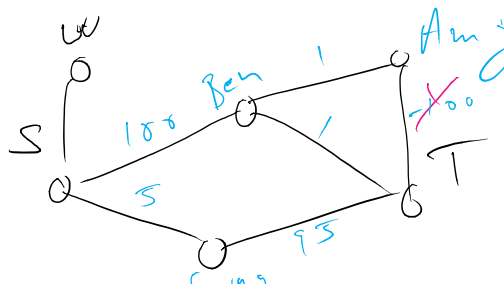


BFS

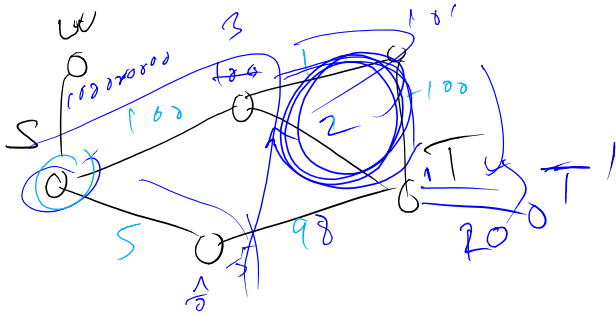
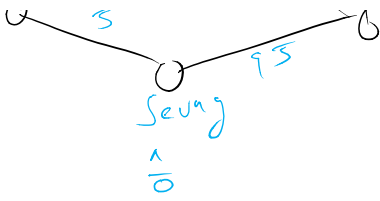


DFS

Dijkstra's Algorithm



to graph exist & negative cycles with every thing
doesn't
optimize costs of path



Negative cycles
make me sad ;)

Homework 4

"the" $\Rightarrow h("the") = \text{Idea \#1}$
 Sum up ASCII values
 $116 + 104 + 101 \rightarrow 321 \% \text{prime} = 321$
 "eth" $\rightarrow 321$;)

Idea #2
 Weight the values by their position

the $116 \cdot 1 + 104 \cdot 2 + 101 \cdot 3 = 627 \% \text{prime} = 627$
 vge $118 \cdot 1 + 103 \cdot 2 + 101 \cdot 3 = 627$
 oh no, repeated

Idea #3
 Linear values
 $116 \cdot \alpha^0 + 104 \cdot \alpha^1 + 101 \cdot \alpha^2$

powers of 2

$$116 \rightarrow 6 \cdot 1 + 1 \cdot 10 + 1 \cdot 100$$

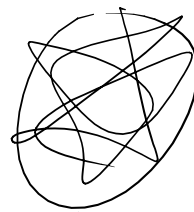
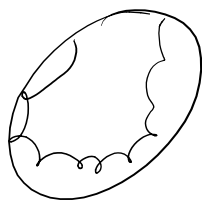
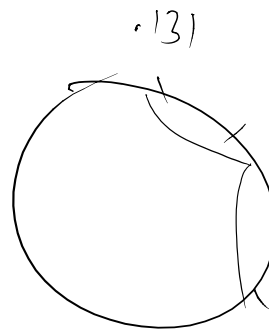
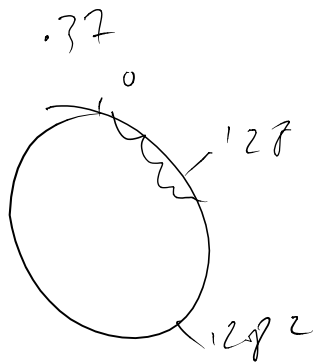
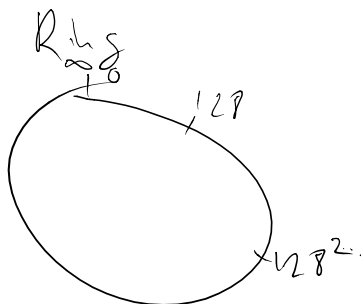
$10^0 \quad 10^1 \quad 10^2$

$$116 \cdot 128^0 + 104 \cdot 128^1 + 101 \cdot 128^2$$

guaranteed unique # for each string

128 is good, but not prime, 131
integer overflow %

$$-1 \% 5 = 4$$



.4 all lowercase

a → 0

b → 1

⋮

z → 25

(char - 'a')
→ convert
lowercase to
0...25

Upper to
Lower
use string.toLowerCase

for this use multiplier 31

$32 = 2^5 - 1$
 multiplication by 31 is
 5 bit shifts & one
 subtraction

$h = 0$

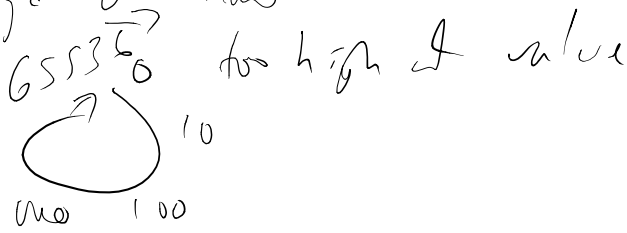
h - position 0 to $n-1$

$h * 31$

$h += \text{strng.charAt}(position) - 'a'$

$h \% 32 = \text{some prime}$ ← may not be necessary

integer overflow



late days are completed @ end of Quarter

the

$h = 0$

$h * 31 \rightarrow 0$

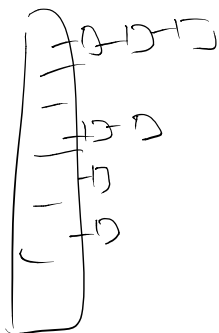
$h += f - 'a' \rightarrow 20$

$h * 31 \rightarrow 620$

$h += h - 'a' \rightarrow 8 + 620 = 628$

$h * 31 \rightarrow 19468$

$h += 'e' - 'a' \rightarrow 5 + 19468 = 19473$



has Next looks with bucket
 @ end of bucket, go to next
 bucket.

you can use the count field

table size?

of words in Eng is so long ...

find how many words you have in corpus
