30TH JAN (MEETING 3) Date

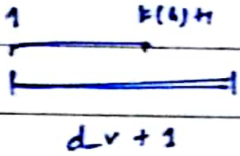
- Formulation of random ordering for degeneracy calculation.
  Shouldn't we have to ensure that there will atleast one right ordering such that $f(G) = k(G)$.
  $f(G)$ = max. back edges from a node in the ordering.
  $k(G)$ = max. k-core value of graph. = degeneracy

- Ask for break due to winter.

- Use of degeneracy of graph in our setting.

- Random Ordering with constraint such that there should be $\leq k(G)$ of neighbours whose index is less than the node.

$P_0 = \frac{k(G)+1}{d_v+1}$



$d_{v_{max}} = c \cdot k(G)$

$P_0 \geq \frac{k(G)+1}{ck(G)+1} \geq \frac{1}{c}$ This (independence) assumption is wrong. $\left(\because P_1 \leq \left(\frac{1}{c}\right)^n\right)$

$$P \geq \left(\frac{1}{c}\right)^n + \left(1 - \left(\frac{1}{c}\right)^n\right)\left(\frac{1}{c}\right)^n + \dots + \left(1 - \left(\frac{1}{c}\right)^n\right)^{m-1}\left(\frac{1}{c}\right)^n$$

$$P \geq \left(\frac{1}{c}\right)^n \left[\frac{1 - \left(1 - \frac{1}{c^n}\right)^m}{1 - \left(1 - \frac{1}{c^n}\right)} \right]$$

$$P \geq 1 - \left(1 - \left(\frac{1}{c^n}\right)\right)^m$$

$$\bar{P} \leq \left(1 - \frac{1}{c^n}\right)^m \leq e^{-\frac{m}{c^n}}$$

- Read Szekeres & Wilf Paper
- Implement my algorithm.
- Read Streaming algorithm paper.