Min Mean Cycle

\[ \mu(X) = \frac{\sum_{u \in X} c(u,w)}{|X|} \]

\[ \mu^* = \min_{X} \mu(X) \]

Assume G is strongly connected
$d^k(v) =$ length of a shortest directed walk containing exactly $k$ arcs from $v_i$ to $v$

$v_1: 0 \infty \infty 20 14 \frac{d^k(v) - d^k(v_i)}{n^k}$
$v_2: \infty 1 12 \infty \frac{5/3}{\ast}$
$v_3: \infty 10 4 9 15 \frac{11/2}{\ast}$
$v_4: \infty \infty 12 6 \infty \frac{d^0(v) + c(v,w)}{d^k(v_i)}$

$d^k(w) = \min_v \left\{ d^{k-1}(v) + c(v,w) \right\}$

for $k = 1$ to $n$ for all edges

for vertices $w$

once $O(nm)$ time
\[ N^* = \min_{v \in V} \max_{0 \leq k \leq n-1} \left\{ \frac{d^n(v) - d^k(v)}{n-k} \right\} \]