

# Formula

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$$\text{QUCA: } \Phi_e(Q, D) = \frac{1}{n} * \Delta * \kappa(Q, D) * \Phi(Q, D)$$

$\Phi_e(Q, D)$ : Price

$Q$ : query

$D$ : Dataset

$n$ : Size of Result Tuples

$\Delta$ : Price Coefficient

$$\text{UP: } \Phi_e(Q, D) = \sum_{t_i \in M(Q, D)} * \rho(t_i)$$

$\Phi_e(Q, D)$ : Price

$Q$ : query

$D$ : Dataset

$\rho(t_i)$ : Base Price

$M(Q, D)$ : A Lineage Set of Query  $Q$

$$\text{UCP: } \Phi_e(Q, D) = \sum_{t_i \in M(Q, D)} \eta_i * \rho(t_i)$$

$\Phi_e(Q, D)$ : Price

$Q$ : query

$D$ : Dataset

$\eta_i$ : Complete Rate

$\rho(t_i)$ : Base Price

$M(Q, D)$ : A Lineage Set of Query  $Q$