CSE 444: Homework 5

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1 Query Plan Cost Computation

1. **(a)** $\frac{9000-100}{9000-0} \cdot \frac{1000-0+1}{9000-0} = \frac{89089}{810000} \approx 0.110$

(b) $\frac{1}{V(S,e)} \cdot \frac{1}{V(S,f)} = \frac{1}{10} \cdot \frac{1}{100} = \frac{1}{1000}$

(c) $\frac{1}{\max\{V(R,c),V(S,d)\}} = \frac{1}{50}$

(d) $\frac{1}{V(R,b)} + \frac{1}{V(R,b)} = \frac{1}{50}$

(e) $\frac{1}{\max\{V(S,g),V(T,h)\}} = \frac{1}{100}$

2.
- $|R_1| = 10000 \cdot 0.11 = 1100$
- $|R_2| = 10000 \cdot \frac{1}{1000} = 10$
- $|R_3| = \frac{1100 \cdot 10}{50} = 220$
- $|R_4| = \frac{220}{50} = \lceil 4.4 \rceil = 5$
- $|R_5| = \frac{5 \cdot 10000}{100} = 500$
- $|R_6| = |R_5| = 500$

3. **(a)** Because of the clustered index on a, we have $B(R) \cdot 0.11 = 110$ IOs to read from R. And the unclustered index on (e, f) will help reduce the number of IOs to d

2 Query Optimization