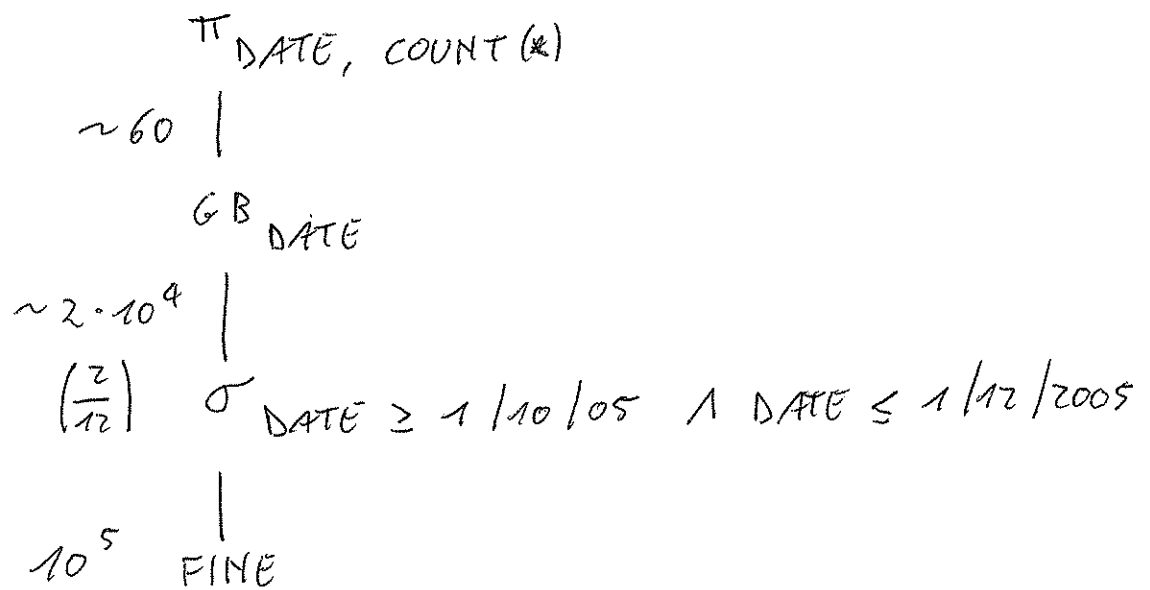


QUERY 1 - FINE EXERCISE



ACCESS PATH

FINE : TABLE ACCESS FULL + FILTER

GB HASH

INDEX

FINE : - SECONDARY B⁺TREE ON DATE

⇒ NO BECAUSE SELECTIVITY IS LOW FOR WHERE CLAUSE

⇒ YES BECAUSE IS A COVERING INDEX

- PRIMARY B⁺TREE CLUSTERED ON DATE

⇒ YES IF IT IS THE NATURAL ORDER OF DATA

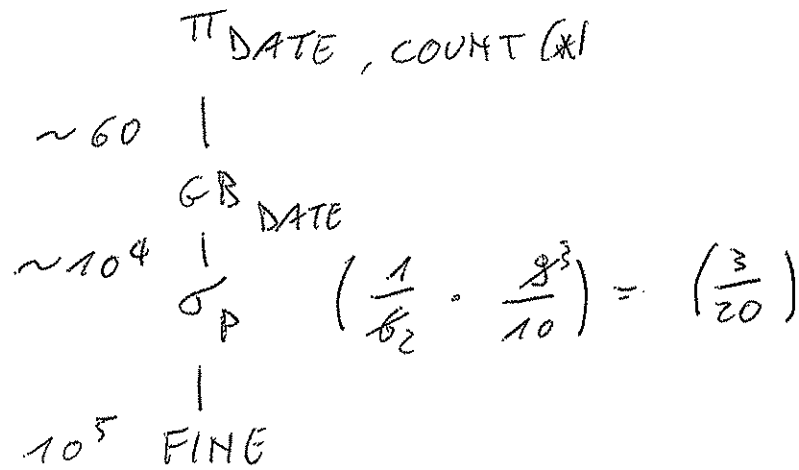
ACCESS PATH WITH INDEXES

1) FINE : INDEX RANGE SCAN
GB NO HASH

2) FINE : INDEX FULL SCAN
GB NO HASH

3) FINE : FAST FULL INDEX SCAN
GB HASH

QUERY 2



$P = \text{DATE} \geq 1/10/2005 \wedge \text{DATE} \leq 1/12/2005 \wedge$
 $\text{VIOLATIONTYPE} = \text{'TYPESO'}$

ACCESS PATH

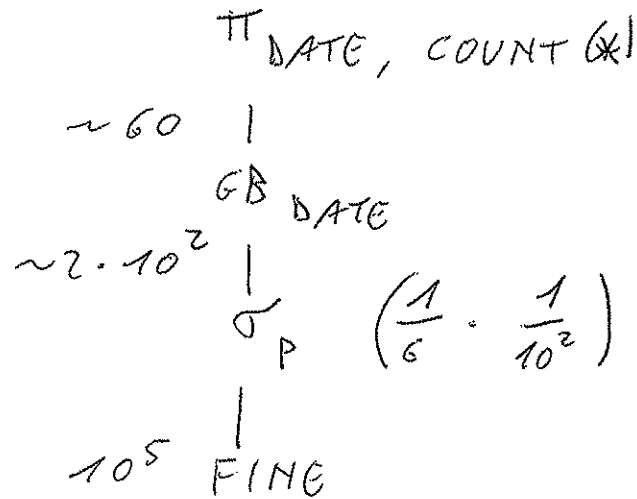
FINE: TABLE ACCESS FULL + FILTER

INDEX

FINE: SECONDARY INDEX B⁺TREE ON DATE
 \Rightarrow NO BECAUSE SELECTIVITY IS LOW
FOR WHERE CLAUSE
IT IS NOT A COVERING INDEX

GB: HASH

QUERY 3



$P = \text{DATE} \geq 1/10/2005 \wedge \text{DATE} \leq 1/12/2005 \wedge \text{VIOLATIONTYPE} = \text{'TYPE 10'}$

ACCESS PATH

FINE: TABLE ACCESS FULL + FILTER

INDEX

FINE: - SECONDARY INDEX B⁺TREE ON DATE

⇒ NO BECAUSE SELECTIVITY IS LOW
AND IT IS NOT A COVERING INDEX

- SECONDARY INDEX HASH ON VIOLATIONTYPE

⇒ YES BECAUSE SELECTIVITY IS HIGH $\left(\frac{1}{10^2}\right)$

- SECONDARY INDEX HASH/B⁺TREE ON
(VIOLATIONTYPE, DATE)

⇒ YES BECAUSE IT IS A COVERING INDEX

⇒ NO BECAUSE MAINTENANCE COST IS HIGH

GB: SORT

ACCESS PATH WITH INDEX

FINE: INDEX RANGE SCAN + ACCESS BY ROWID

IF I USE INDEX ON VIOLATIONTYPE