

Q1 Median: $\frac{72.65}{85}$

Q2 Median: $\frac{70}{76}$

HW3: - Submit by Dec 9 to get sample solns
on Dec 10

- Hard deadline: Dec 12

Submit grades
by Dec 15

Final: Dec 11

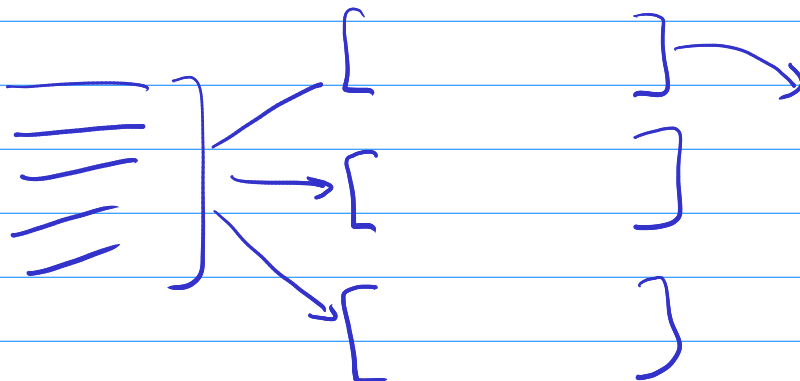
- SQL select ~~~
from ~~~
where ~~~

- SPJ - select $\sigma_p(T)$
project $\pi_{37}(T)$
joins $T_1 \times T_2$
 $T_1 \bowtie T_2$

$$T_1 \bowtie_c T_2 = \sigma_{T_1.c = T_2.c}(T_1 \times T_2)$$

Set theoretic
ops: $T_1 \cup T_2$
 $T_1 \cap T_2$
 $T_1 \setminus T_2$

group by



B⁺ trees

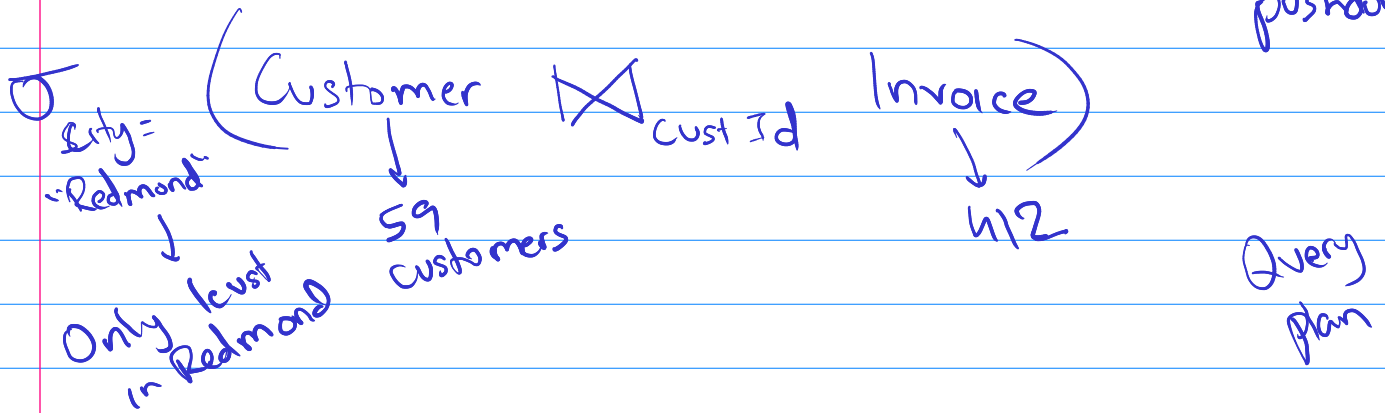
But only when p can be calc. based on columns of T₁.

$$\sigma_p (T_1 \bowtie_c T_2) = (\sigma_p T_1) \bowtie_c T_2$$

select (pointing to σ_p)

join (pointing to $\bowtie_c$)

selection pushdown (pointing to the right side of the equation)



$$\sigma_{CustCity \neq BillingCity} (Customer \bowtie_{CustId} Invoice)$$

$$\pi_{12} (T_1 \bowtie_c T_2) = (\pi_{12c} T_1) \bowtie_c T_2$$

Projection pushdown

Extend with additional fields so join can be performed