查询优化作业

```sql
SELECT s.spot_name, s.price, t.line_name
FROM scenic_spot s
JOIN spot_line sl ON s.spot_id = sl.spot_id
JOIN tourism_line t ON sl.line_id = t.line_id
JOIN tourism_team tt ON t.line_id = tt.line_id
WHERE s.price < 50
  AND t.start_city = 'Beijing'
  AND tt.start_date = '2021-08-01'
  AND tt.end_date = '2021-08-10';
```


$\pi_{s\_name, price, l\_name}$

$\bowtie_{line\_id = t\_team.line\_id}$

π_{line_id}

$\delta_{s\_date = '2021-08-01' and e\_date = '2021-08-10'}$

$\bowtie_{l\_id = t\_l.l\_id}$

$\pi_{s\_name, price, l\_id}$

π_{l_id, l_name}

t_team.

$\bowtie_{s\_spot.s\_id = sl.s\_id}$

$\delta_{s\_city = 'Beijing'}$

$\pi_{s\_id, s\_name, price}$

s_line.

t_line.

$\delta_{price < 50}$

s_spot.