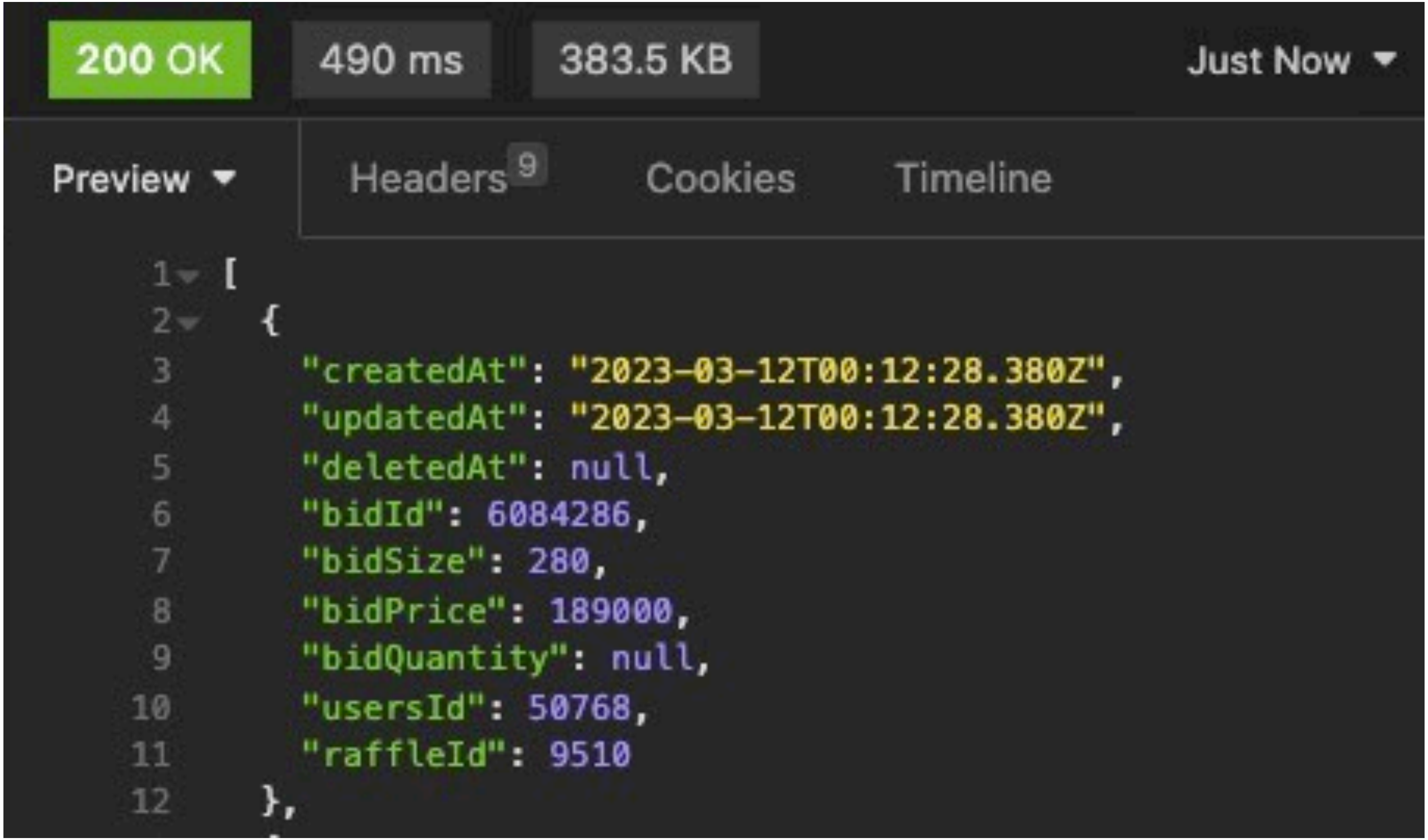
Node.js A6 Team

Trouble 4. Query Indexing



```
[
  {
    "createdAt": "2023-03-12T00:12:28.380Z",
    "updatedAt": "2023-03-12T00:12:28.380Z",
    "deletedAt": null,
    "bidId": 6084286,
    "bidSize": 280,
    "bidPrice": 189000,
    "bidQuantity": null,
    "usersId": 50768,
    "raffleId": 9510
  },
```

```
tablename|indexname                      |
---------+-------------------------------+
Bid      |PK_88960f301c458b51987cd93dbb9|
Bid      |idx_raffleid                   |

explain analyze select * from "Bid" b where "bidSize" = 280 order by "createdAt" desc limit 2000;

QUERY PLAN
-------------------------------------------------------------------------------
Limit  (cost=103448.50..103681.85 rows=2000 width=48) (actual time=324.262..327.186 rows=2000 loops=1)                  |
  ->  Gather Merge  (cost=103448.50..157240.95 rows=461046 width=48) (actual time=324.260..327.071 rows=2000 loops=1)  |
        Workers Planned: 2
        Workers Launched: 2
        ->  Sort  (cost=102448.47..103024.78 rows=230523 width=48) (actual time=317.568..317.635 rows=1223 loops=3)    |
              Sort Key: "createdAt" DESC
              Sort Method: top-N heapsort  Memory: 409kB
              Worker 0:  Sort Method: top-N heapsort  Memory: 409kB
              Worker 1:  Sort Method: top-N heapsort  Memory: 409kB
              ->  Parallel Seq Scan on "Bid" b  (cost=0.00..88656.53 rows=230523 width=48) (actual time=0.008..248.258 rows=184556 loops=3)|
                    Filter: ("bidSize" = 280)
                    Rows Removed by Filter: 1843510
Planning Time: 0.077 ms
Execution Time: 327.278 ms
```

Index

Index

Index

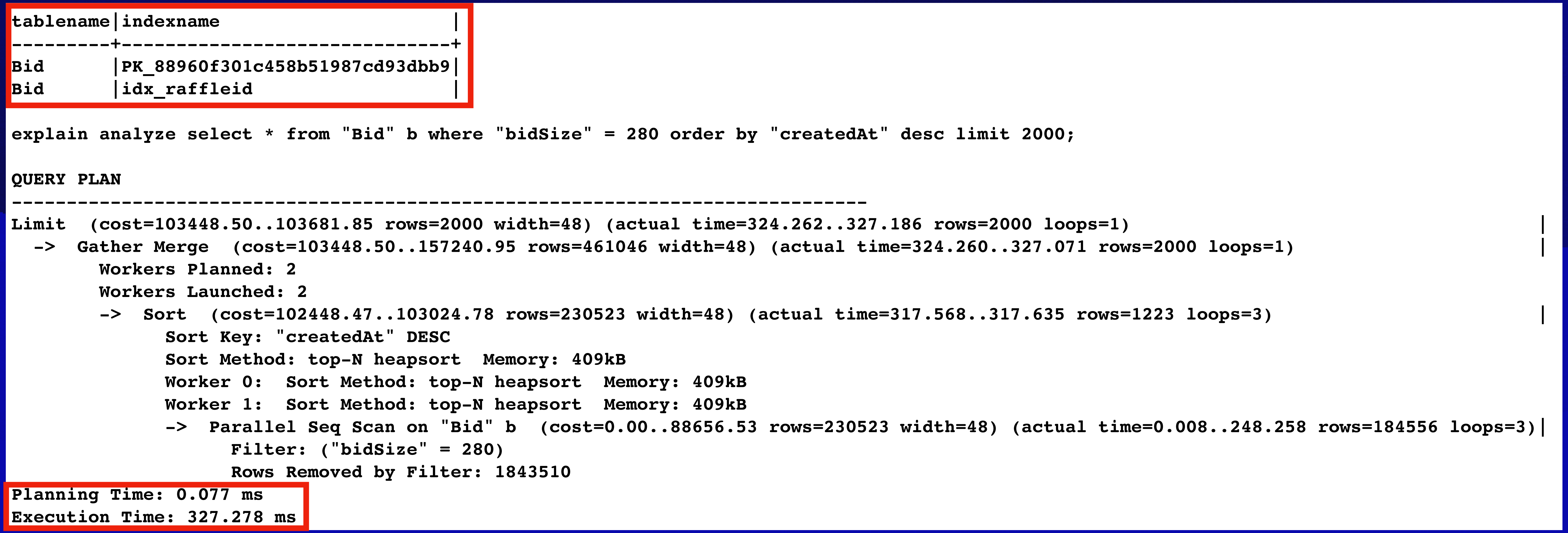
Trouble 4. Query Indexing

문제상황

입찰 데이터 조건 검색 조건인 bidSize에 인덱스
적용했으나 성능 개선이 발생하지 않았음
(조건 신발 사이즈(bidSize=280)와
비딩 생성 날짜(order by createdAt))

가설 및 정의

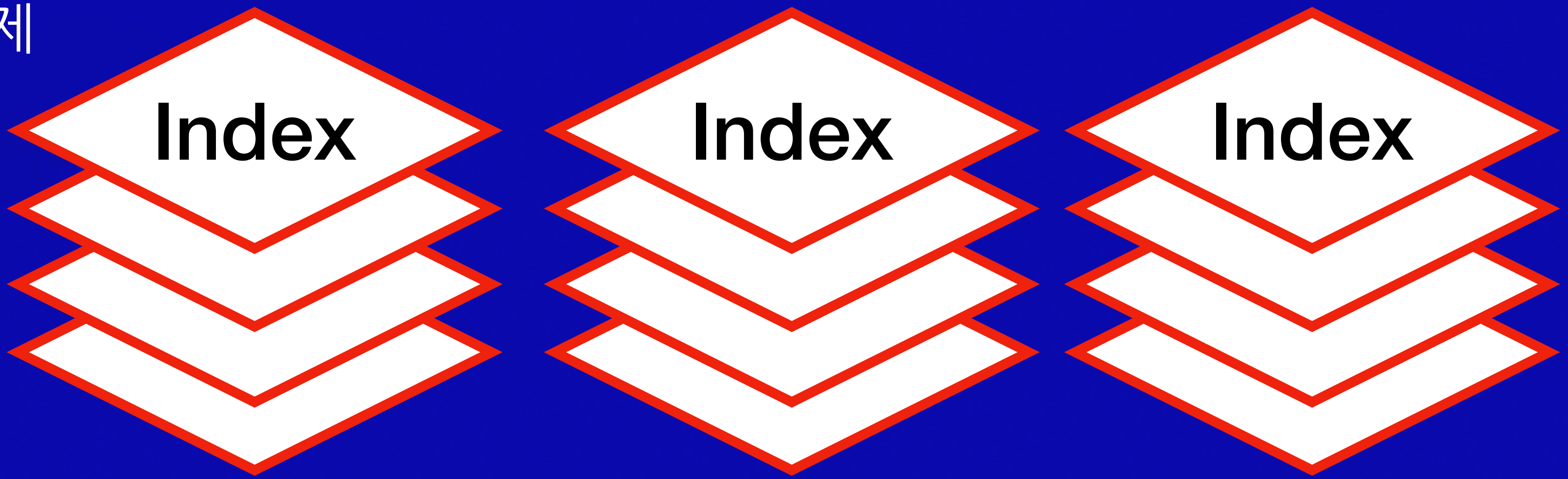
신발 사이즈(bidSize) 데이터의 범위는 250 - 300 사이
수준으로, **중복도가 높아 인덱스의 효과가 미미**한 것이 문제

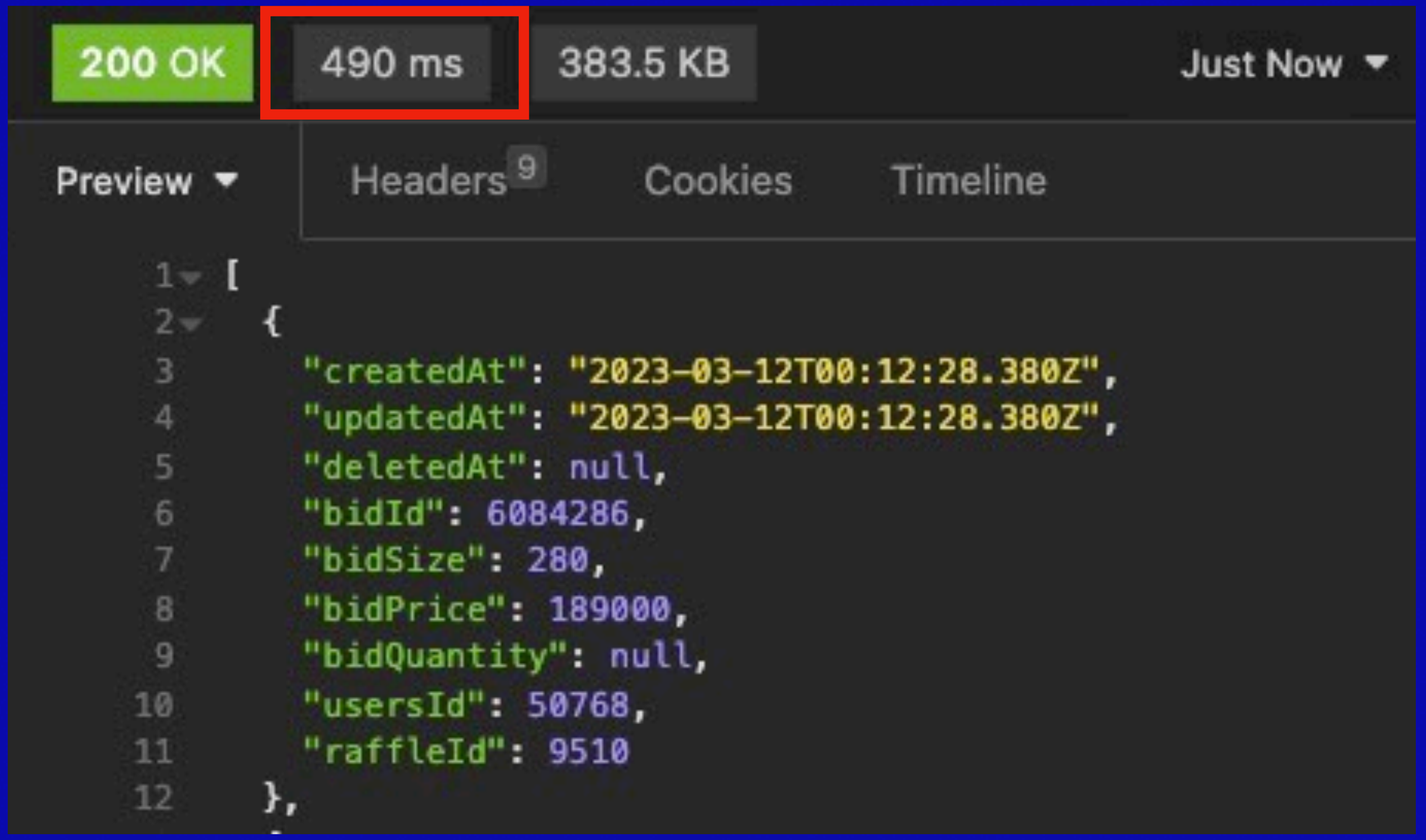


```
tablename|indexname                    |
---------+-----------------------------+
Bid      |PK_88960f301c458b51987cd93dbb9|
Bid      |idx_raffleid                 |

explain analyze select * from "Bid" b where "bidSize" = 280 order by "createdAt" desc limit 2000;

QUERY PLAN
------------------------------------------------------------------------------
Limit  (cost=103448.50..103681.85 rows=2000 width=48) (actual time=324.262..327.186 rows=2000 loops=1)                    |
  ->  Gather Merge  (cost=103448.50..157240.95 rows=461046 width=48) (actual time=324.260..327.071 rows=2000 loops=1)       |
        Workers Planned: 2
        Workers Launched: 2
        ->  Sort  (cost=102448.47..103024.78 rows=230523 width=48) (actual time=317.568..317.635 rows=1223 loops=3)         |
              Sort Key: "createdAt" DESC
              Sort Method: top-N heapsort  Memory: 409kB
              Worker 0:  Sort Method: top-N heapsort  Memory: 409kB
              Worker 1:  Sort Method: top-N heapsort  Memory: 409kB
              ->  Parallel Seq Scan on "Bid" b  (cost=0.00..88656.53 rows=230523 width=48) (actual time=0.008..248.258 rows=184556 loops=3)|
                    Filter: ("bidSize" = 280)
                    Rows Removed by Filter: 1843510
Planning Time: 0.077 ms
Execution Time: 327.278 ms
```





```
[
  {
    "createdAt": "2023-03-12T00:12:28.380Z",
    "updatedAt": "2023-03-12T00:12:28.380Z",
    "deletedAt": null,
    "bidId": 6084286,
    "bidSize": 280,
    "bidPrice": 189000,
    "bidQuantity": null,
    "usersId": 50768,
    "raffleId": 9510
  },
```

Trouble 4. Query Indexing

문제상황

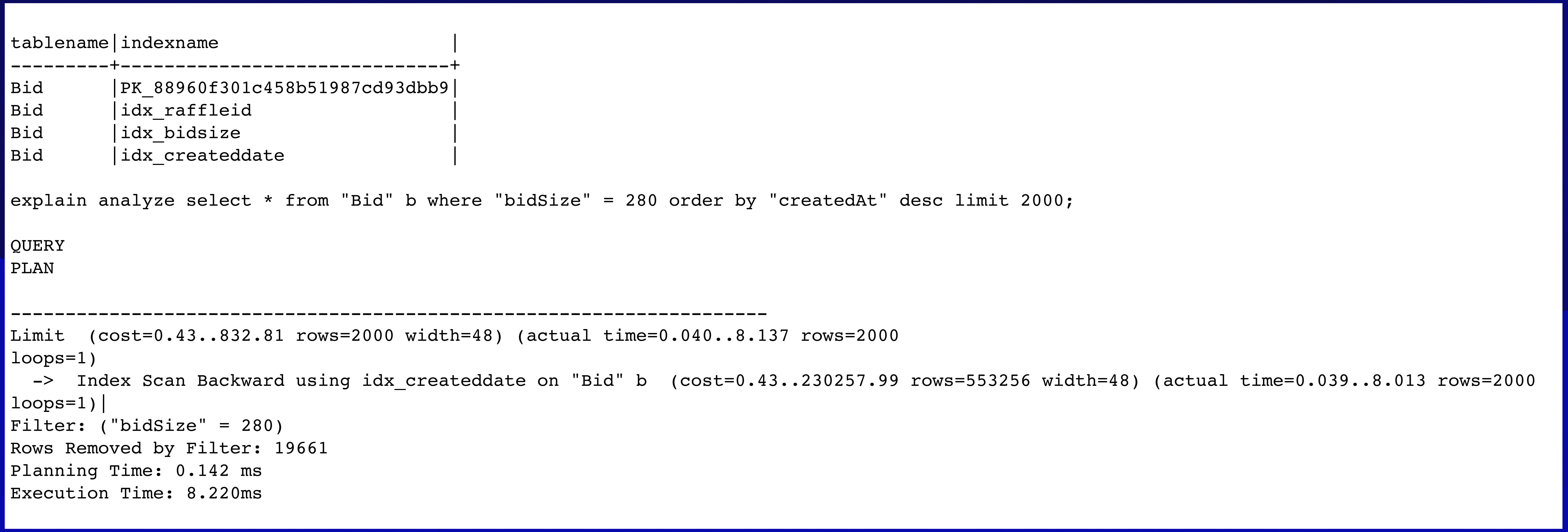
입찰 데이터 조건 검색 조건인 bidSize에 인덱스 적용했으나 성능 개선이 발생하지 않았음
(조건 신발 사이즈(bidSize=280)와
비딩 생성 날짜(order by createdAt))

가설 및 정의

신발 사이즈(bidSize) 데이터의 범위는 250 - 300 사이 수준으로, **중복도가 높아 인덱스의 효과가 미미**한 것이 문제

해결방안

중복도가 낮은 생성 날짜(createdAt) 기준으로 인덱스를 적용하여 해결.
실제 API 요청 시, 인덱스 적용 후 **75% 이상 검색 성능 개선**

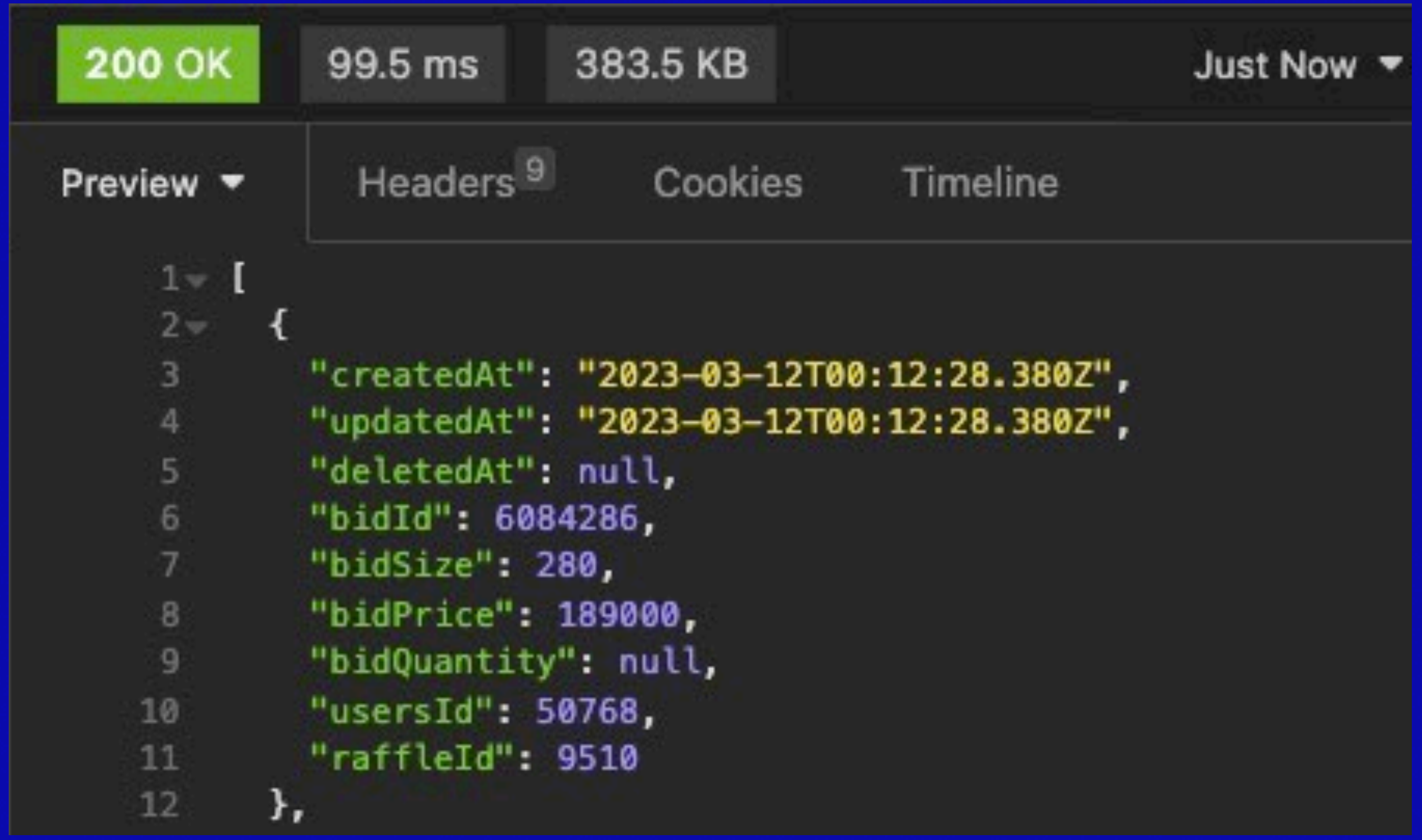


```
tablename|indexname                        |
---------+-----------------------------+
Bid      |PK_88960f301c458b51987cd93dbb9|
Bid      |idx_raffleid                  |
Bid      |idx_bidsize                   |
Bid      |idx_createddate               |

explain analyze select * from "Bid" b where "bidSize" = 280 order by "createdAt" desc limit 2000;

QUERY
PLAN

---------------------------------------------------------------------
Limit  (cost=0.43..832.81 rows=2000 width=48) (actual time=0.040..8.137 rows=2000
loops=1)
  ->  Index Scan Backward using idx_createddate on "Bid" b  (cost=0.43..230257.99 rows=553256 width=48) (actual time=0.039..8.013 rows=2000
loops=1)|
Filter: ("bidSize" = 280)
Rows Removed by Filter: 19661
Planning Time: 0.142 ms
Execution Time: 8.220ms
```



```
[
  {
    "createdAt": "2023-03-12T00:12:28.380Z",
    "updatedAt": "2023-03-12T00:12:28.380Z",
    "deletedAt": null,
    "bidId": 6084286,
    "bidSize": 280,
    "bidPrice": 189000,
    "bidQuantity": null,
    "usersId": 50768,
    "raffleId": 9510
  },
```