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|  | **根据ID检索论文** | **根据作者ID检索topk文章** | **检索文章的topk被引文章信息** |
| **Mysql** | **0.251 s** | **6.493 s** | **35.190 s** |
| **Neo4j** | **0.239 s** | **3.062 s** | **24.332 s** |

**根据ID检索论文：共有2个join**

**根据作者ID检索topk文章：共有4个join**

**检索文章的topk被引文章信息：共有3个join**

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| **作者ID** | **作者Name** | **文章数目** |  |
| 7F612BC9 | **padhraic smyth** | **89** |  |
| **7F7C3054** | **david j hand** | **374** |  |

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| --- | --- | --- | --- |
| **文章ID** | **被引文章数目** | **Venue** |  |
| **7940DD7C** | **168** | **Mobicom** | **sing mobile relays to prolong the lifetime of wireless sensor networks** |
| **7F90B621** | **6788** |  | **Data Mining: Concepts and Techniques** |
| **7E08D1FC** | **449** | **CSUR** | **Survey of Graph Database Models** |

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|  | **根据ID检索论文：** | **检索文章的被引文章ID** | **检索作者的文章：** |
| **Mysql** | **878-259**  **0.251 s** | **54.643-43 548**  **45.409 -41.059** | **04.850 - 2.251**  **04.956-58.323 6.49** |
| **Neo4j** | 675 ms  **0.239 s** | 6955 ms  3433 ms | 1631 ms  3062 ms |

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| Mysql 根据ID检索论文  SELECT NOW(3);  SELECT p.paID AS ID, p.paYear AS paYear, (SELECT count(\*) FROM tb\_ref r WHERE r.parefID=ID) AS citations, group\_concat(a.athName) AS Name  FROM tb\_Paper p, tb\_Author a, tb\_PAA paa  WHERE p.paID="6A8C1112" AND a.athID = paa.athID AND p.paID = paa.paID  GROUP by ID;  SELECT NOW(3);  Neo4j 根据ID检索论文  MATCH (p:Paper)-[:PaPAA]->(r)-[:PAAAth]-(a:Author)  WHERE p.paID = "6A8C1112"  WITH DISTINCT ( p.paID ) AS paID, a.athName AS authors, p.paYear AS year, SIZE(()-[:PaRef]->(p)) AS citations, p.paScore AS score  WITH paID, year, COLLECT(authors) AS authors, citations, score  RETURN paID, year, authors, citations  ORDER BY score DESC |

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| Neo4j 根据Paper ID检索topk被引文献  MATCH (p1:Paper)-[:PaRef]->(p2:Paper)  WHERE p2.paID = "7B132B81"  WITH p1 AS p  ORDER BY p.paScore DESC SKIP 0 LIMIT 10  MATCH (p)-[:PaPAA]->(paa:PAA)-[:PAAAth]-(a:Author)  WITH DISTINCT (p.paID) AS paID,a.athName AS authors, p.paYear AS year, size(()-[:PaRef]->(p)) AS citations, p.paScore AS score  WITH paID, year, COLLECT(authors) AS authors, citations, score  ORDER BY score DESC  RETURN paID, authors, year, citations  Mysql 根据Paper ID检索topk被引文献  SELECT NOW(3);  SELECT p.paID AS ID, p.paYear AS paYear, (SELECT count(\*) FROM tb\_ref r WHERE r.parefID= ID) AS citations, group\_concat(a.athName) AS Name  FROM tb\_Paper p, tb\_Author a, tb\_PAA paa  WHERE p.paID IN (  SELECT t2.\* FROM (  SELECT p.paID AS ID FROM tb\_Paper p WHERE p.paID IN (  SELECT r.paID AS paID FROM tb\_ref r WHERE r.parefID="7B132B81"  )order by p.paScore DESC limit 10 offset 0  ) AS t2  )AND a.athID = paa.athID AND p.paID = paa.paID  GROUP by ID Order by p.paScore DESC ;  SELECT NOW(3); |

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| Neo4j 根据Author ID检索作者topk文章  MATCH(a:Author)<-[:PAAAth]-()<-[:PaPAA]-(p:Paper)  WHERE a.athID = "811BC456"  WITH p  ORDER BY p.paScore DESC SKIP 0 LIMIT 10  MATCH (p)-[:PaPAA]->(r)-[:PAAAth]-(a:Author)  WITH DISTINCT ( p.paID ) AS paID ,a.athName AS authors, p.paYear AS year, SIZE(()-[:PaRef]->(p)) AS citations, p.paScore AS score  WITH paID, year, COLLECT(authors) AS authors, citations, score  RETURN paID, year, authors, citations  ORDER BY score DESC  Mysql 根据Author ID检索作者topk文章  SELECT NOW(3);  SELECT p.paID AS ID, p.paYear AS paYear, (SELECT count(\*) FROM tb\_ref r WHERE r.parefID= ID) AS citations, group\_concat(a.athName) AS Name  FROM tb\_Paper p, tb\_Author a, tb\_PAA paa  WHERE p.paID IN (  SELECT t2.\* FROM (  SELECT p.paID AS paID FROM tb\_Author a, tb\_PAA paa, tb\_Paper p  WHERE a.athID = "811BC456" AND a.athID = paa.athID AND p.paID = paa.paID  order by p.paScore DESC limit 10 offset 0  ) AS t2  )AND a.athID = paa.athID AND p.paID = paa.paID  GROUP by ID order by p.paScore DESC ;  SELECT NOW(3); |