Lab 3: Relational Algebra

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Description automatically generatedPart 1 – Joins**



|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| A | Q | R | B | C |
| 20 | a | 5 | B | 6 |
| 20 | a | 5 | B | 5 |

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|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| T1.A | Q | R | T2.A | B | C |
| 25 | b | 8 | 20 | b | 6 |
| 25 | b | 8 | 20 | b | 5 |

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|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| A | Q | R | B | C |
| 20 | a | 5 | b | 6 |
| 20 | a | 5 | b | 5 |

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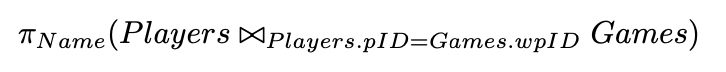


|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| A | Q | R | B | C |
| 20 | a | 5 | b | 5 |

**Part 2: Chess Queries**

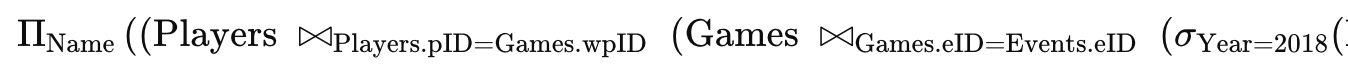
1. A black numbers and a white background

   Description automatically generatedFind the names of any player with an Elo rating of 2850 or higher.
2. Find the names of any player who has ever played a game as white.



1. Find the names of any player who has ever won a game as white.



1. Find the names of any player who played any games in 2018.



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1. Find the names and dates of any event in which Magnus Carlsen lost a game.



1. Find the names of all opponents of Magnus Carlsen. An opponent is someone who he has played a game against. **Hint:** Both Magnus and his opponents could play as white or black.



**Part 3: LMS Queries**

Part 3.1

1. Provide the relation that is the result of the following query. Your relation should be in the form of a table, and should include the schema.



|  |
| --- |
| Name VARCGAR(255) |
| Hermione |
| Harry |

1. Provide a simple English description of what the query is searching for. Your description should be in general terms (remember that the original LMS instance data may change).

This query finds the names of the students who have never received grade C.

Part 3.2

1. Provide the relation that is the result of the following query. Your relation should be in the form of a table, and should include the schema.

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|  |
| --- |
| S2.Name VARCHAR(255) |
| Hermione |

1. Provide a simple English description of what the query is searching for. Your description should be in general terms (remember that the original LMS instance data may change).

This query finds the names of the student who have the same DOB as Ron

Part 3.3

1. Provide the relation that is the result of the following query. Your relation should be in the form of a table, and should include the schema.

|  |
| --- |
| Courses.Name VARCHAR(255) |

1. Provide a simple English description of what the query is searching for. Your description should be in general terms (remember that the original LMS instance data may change).

This query finds the names of the courses that had every student enrolled in it.

Part 4

Provide a relational algebra query that uses the divide operator to find the names of all students who are taking all of the 3xxx-level classes.

