Jonathan Pilling

Homework 3

Databases

**Part 1.**

1.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **T1.A** | **Q** | **R** | **T2.A** | **B** | **C** |
| 20 | a | 5 | 20 | b | 6 |
| 20 | a | 5 | 20 | b | 5 |

2.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **A** | **Q** | **R** | **B** | **C** |
| 25 | b | 8 | Null | Null |
| 20 | a | 5 | b | 6 |
| 20 | a | 5 | b | 5 |

3.

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

4.

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

**Part 2.**

1. π Names (Elo > 2849 (Players))
2. π Names (Players joinopWID == PID Games)
3. ρ(wpiWinner, wpid(result == “1-0” (Games)))

Names (wpiWinner == Pid (Players x wpiWinner))

1. ρ(Games2018, eid(year == 2018 (Events)))

ρ(Players2018, wpid,bpid(eid == Games2018 (Games x Games2018)))

Names (PID == Players2018.bpid Pid == Players2018.wpid (Players x Players2018))

1. ρ(Magnus, pid(Name == “Magnus Carlsen” (Players)))

ρ(gamesMagLost, eid(wpid == Magnus  result == “0-1”)  (bpid == Magnus  result == “1-0”) (Games x Magnus)))

Names, Year(gamesMagLost== eid (Events x gamesMagLost))

1. ρ(Magnus, pid(Name == “Magnus Carlsen” (Players)))

ρ(blackOpponents, bpid(wpid == Magnus (Games x Magnus)))

ρ(whiteOpponents, wpid(bpid == Magnus (Games x Magnus)))

Names ((pid == blackOpponents) (pid == whiteOpponents)(Players x blackOpponents x whiteOpponents))

**Part 3**

1. a.

|  |
| --- |
| **Name** |
| Hermione |
| Harry |

b. Queries the students who don’t have any C’s in any of there enrolled classes.

1. a.

|  |
| --- |
| **Name** |
| Hermione |

b. Queries the students with the same DOB as Ron.

1. a.

|  |
| --- |
| Null |

b. Queries for the names of courses with all students enrolled.

1. ρ(3000Classes, cID(cID > 2999  cID < 4000 (Courses)))

Names ((Enrolled / 3000Classes) joinop Students)