Home work 5

s1260027 Shunsuke

join : I

Q1

1. ΠP#(σCITY=’London’(J I SPJ))

ΠP#,J#(SPJ) ÷ ΠJ#(σCITY=’London’(J))

1. temp = join(J)(SPJ)(J.J#=SPJ.J#)

temp1 =restrict(temp)(CITY=’London’)

display(project(temp1)(P#))

1. INPUT table J I SPJ : σCITY=’London’(J I SPJ)

INPUT table temp as @last : ΠP#(temp)

Result : P3 P5

1.project(restrict (J) (city='London')) (jnum)

Q2

(a)

course

Course-student

course

(b)

Course → teacher

S# → sname

{course,sname} → grade

COURSE | TEACHER | S# | SNAME | GRADE

------------+---------------+-----------+---------------+---------

Maths | Hatashi | s201000 | NakaMura | A

Maths | Hatashi | s102000 | Kato | A

DB | Billard | s100000 | Saito | A

DB | Billard | s200000 | Yamada | A

Physics | Mori | s200000 | Yamada | A

OS | Billard | s100000 | Saito | A

OS | Billard | s200000 | Yamada | A

Q3

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| P# | PNAME | COLOR | WEIGHT | CITY |
| P1 | Nut | Red | 12 | London |
| P2 | Bolt | Green | 17 | Paris |
| P3 | Screw | Blue | 17 | Rome |
| P4 | Cam | Blue | 12 | Paris |
| P5 | Cog | Red | 19 | London |

(a)

|  |  |
| --- | --- |
| Nut |  |
| Bolt |  |
| Screw |  |
| Cam |  |
| Cog |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Nut | Red | 12 | London | P1 |  |
| Bolt | Green | 17 | Paris | P2 |  |
| Screw | Blue | 17 | Rome | P3 |  |
| Cam | Blue | 12 | Paris | P4 |  |
| Cog | Red | 19 | London | P5 |  |

(b)

|  |  |
| --- | --- |
|  |  |
| Bolt |  |
| Screw |  |
|  |  |
| Cog |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Nut | Red | 12 | London | P1 |  |
| Bolt | Green | 17 | Paris | P2 |  |
| Screw | Blue | 17 | Rome | P3 |  |
| Cam | Blue | 12 | Paris | P4 |  |
| Cog | Red | 19 | London | P5 |  |

(c)B+ tree

P2

P3

P4

P5

P2

P3P

P1

(d)B tree

P3

P2P5

P1P4