# COSC 3318: Database Management Systems

# (Assignment 3)

**Assigned on October 9, 2017. Typed and printed copy due at the start of class on October 16, 2017.**

1. For the following PC relation, suppose we compute the projection π*speed* (PC). What is the value of this expression as a set? As a bag? What is the average value of tuples in this projection, when treated as a set? As a bag? (20 points)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| *model* | *speed* | *ram* | *hd* | *price* |
| 1001 | 2.66 | 1024 | 250 | 2114 |
| 1002 | 2.10 | 512 | 250 | 995 |
| 1003 | 1.42 | 512 | 80 | 478 |
| 1004 | 2.80 | 1024 | 250 | 649 |
| 1005 | 3.20 | 512 | 250 | 630 |
| 1006 | 3.20 | 1024 | 320 | 1049 |
| 1007 | 2.20 | 1024 | 200 | 510 |
| 1008 | 2.20 | 2048 | 250 | 770 |
| 1009 | 2.00 | 1024 | 250 | 650 |
| 1010 | 2.80 | 2048 | 300 | 770 |
| 1011 | 1.86 | 2048 | 160 | 959 |
| 1012 | 2.80 | 1024 | 160 | 649 |
| 1013 | 3.06 | 512 | 80 | 529 |

1. For two relations:

*R (A, B) = {(0,1), (2,3), (0,1), (2,4), (3,4)}*

*S(B, C) = {(0,1), (2,4), (2,5), (3,4), (0,2), (3,4)}*

Compute the following: (40 points)

1. π*B+1,C-1* (S); b) τ*B,C* (S); c) δ(R); d) γ*A,SUM(B)* (R); e) R OUTERJOIN R.B < S.B S
2. List the isolation levels of transactions and explain their differences in your own words (10 points).
3. From the following base tables: (20 points)

*MovieStar (name, address, gender, birthdate)*

*MovieExec (name, address, cert#, netWorth)*

*Studio (name, address, presC#)*

Construct the following views:

1. A view RichExec giving the name, address, certificate number and net worth of all executive with a net worth of at least $10,000,000.
2. A view StudioPres giving the name, address, and certificate number of all executive who are studio presidents.
3. For the same base tables in Question 5, declare indexes on the following attributes or combination of attributes (10 points).
4. address of MovieExec
5. gender and birthdate