**Databases 1 Exam 2021.05.31 Name: Lin Guohao**

**Neptun code: IW3XV9**

Copy your solutions into this file and send it to the following email address: [nikovits@inf.elte.hu](mailto:nikovits@inf.elte.hu). You should send the **SQL statements** and the **results (output)** too. If you do not send the output, I will give you much fewer points!!! You can use ARAMIS or ULLMAN database.

Deadline: 13:40.

(If you think you could not reach grade 2 within the deadline, then you can have an extended deadline **extra 60 minutes** for a grade 2.)

Each exercise counts 10 points, so altogether you can get 60 points.

Grades are the following: 2 -> 20 points, 3-> 30 points, 4 -> 40 points, 5 -> 50 points

**Exercise 1. Relational algebra**

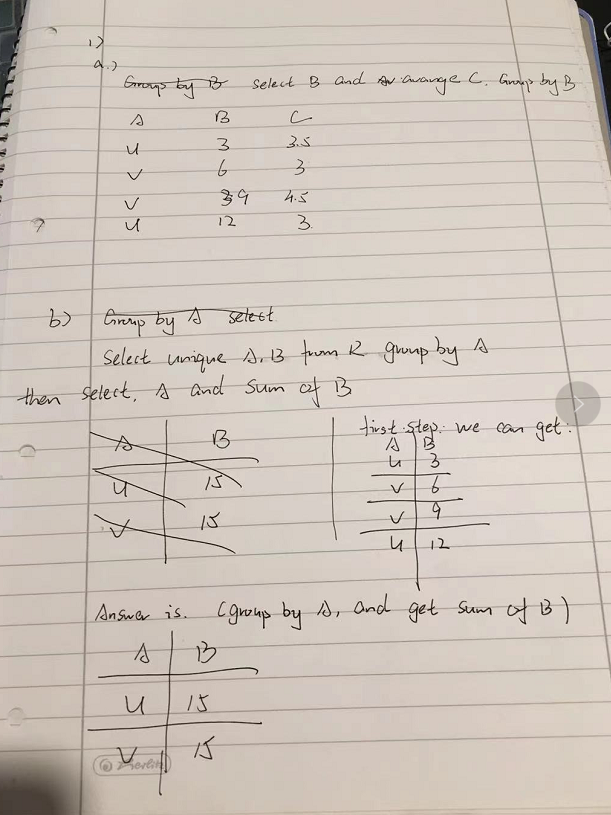
We have the following relation: R(A, B, C)

|  |  |  |
| --- | --- | --- |
| **A** | **B** | **C** |
| U | 3 | 2 |
| V | 6 | 3 |
| V | 9 | 4 |
| U | 3 | 5 |
| V | 9 | 5 |
| U | 12 | 2 |
| U | 12 | 4 |

Compute the results of the following expressions in paper and give the results:

a) γB,avg(C)(R)

b) γA,SUM(B) δ (ΠA,B R)



**Exercise 2. DML (**Tables needed: nikovits.emp, nikovits.sal\_cat)

Create a table EMP2 which has the same tuples as nikovits.EMP, then write an UPDATE statement (not a pl/sql program !!!) on this table which increases the salaries of the employees falling into salary category 2 (see nikovits.SAL\_CAT table) and for whom it is true that there are at least 4 other employees having the same job as his job. The increment is the average salary of all the employees having this job. After the update, give the result of the following query:

SELECT avg(sal) FROM emp2; (**Avg\_Sal**)

drop table emp2;

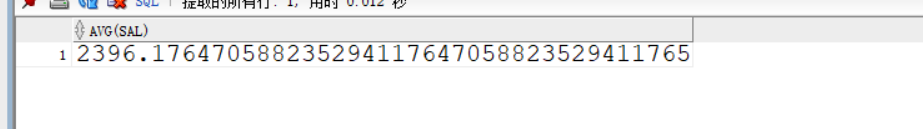
create table emp2 as select \* from nikovits.EMP;

update emp2 tmp set sal = sal + (select avg(sal) from emp2 where emp2.job = tmp.job)

where tmp.empno in (select empno from emp2,sal\_cat where sal between lowest\_sal and highest\_sal and category = 2)

and tmp.empno in(select empno from emp2 group by job,empno having job = tmp.job) and (( select count(\*) cn from (select empno from emp2 group by job,empno having job = 'SALESMAN'))>3);

SELECT avg(sal) FROM emp2;



**Exercise 3. Recursion in SQL (**Tables needed: nikovits.edge)

We have a relation EDGE(Orig, Dest, Weight) which contains the edges and their weights in a directed graph. Write a recursive SQL query which gives the minimal costs of the routes from node ‘A’ to all the other nodes **(‘A’, Dest, Min\_Cost)**. The output should contain node ‘A’, the destination node, and the cost of the minimal cost route from A to the destination, for example (‘A’, ‘B’, 20).

create table edge as select \* from nikovits.edge;

select \* from edge;

WITH reaches(orig, dest,weight) AS

(

select orig , dest , weight from edge where orig = 'A'

union all

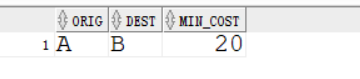
select reaches.orig, edge.dest, edge.weight + reaches.weight from edge ,reaches

where reaches.orig <> edge.dest and reaches.dest = edge.orig

)

cycle orig,dest SET cycle\_yes TO 'Y' DEFAULT 'N'

select orig,dest,weight Min\_Cost from (select \* from Reaches where orig = 'A' order by weight) where rownum = 1 ;

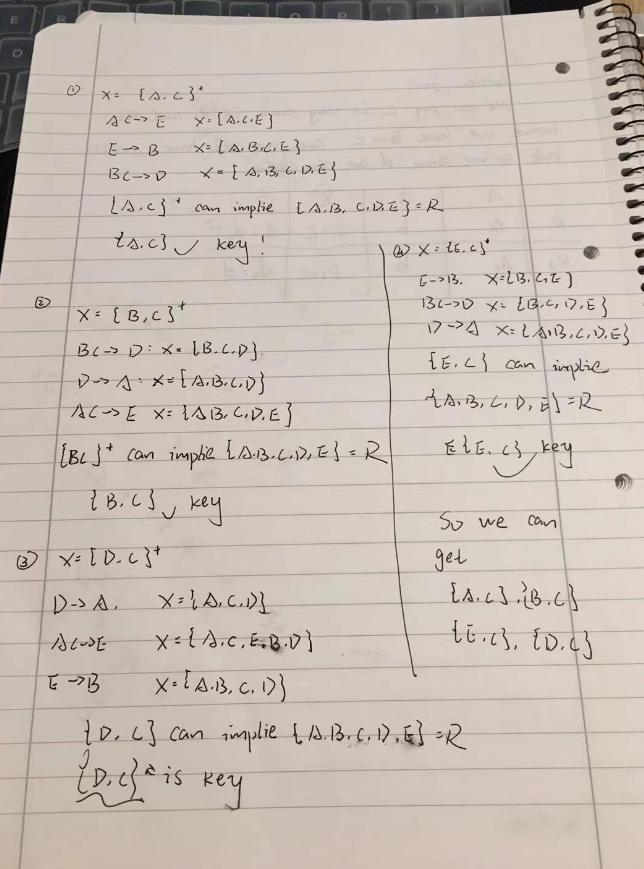


**Exercise 4. Functional Dependencies**

Consider a relation with schema R(A, B, C, D, E) and FD’s AB->D, AC->E, BC->D, D->A, E->B.

What are all the keys of R? If you find a key, prove the key property by computing the closure of the set of attributes in the supposed key.

All the key should be {A,C} {B,C} {E,C} {D,C}



**Exercise 5. Normal Forms**

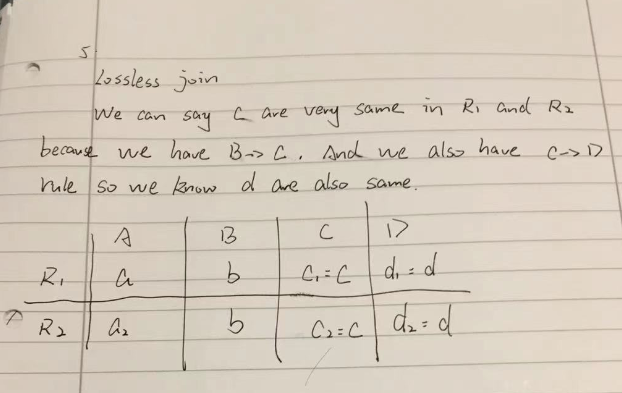
Let R(A,B,C,D) be decomposed into relations R1={A,B}, and R2={B,C,D}.

For the following FD's {B -> C, C -> D} use the chase test to tell whether the decomposition of R is lossless. If not lossless, give an example of an instance of R that returns more than R when projected onto the decomposed relations and rejoined.

My Answer ：

Lossless join

We can say the C are very same in R1 and R2 because we have B->C. And we also have C->D rule so we know d are also same.



**Exercise 6. E-R models and DDL**

Convert the following E-R diagram to a relational database schema. Give the CREATE TABLE statements with **primary key** and **foreign key** definitions. The statements should be syntactically correct, please run them in Oracle to test it. (You can use any Oracle datatype for the columns. You can change the attribute names if needed, for example from “name” to “starName”.)

![A képen szöveg, térkép látható

Automatikusan generált leírás](data:image/jpeg;base64,/9j/4AAQSkZJRgABAQEAYABgAAD/4RDcRXhpZgAATU0AKgAAAAgABAE7AAIAAAAGAAAISodpAAQAAAABAAAIUJydAAEAAAAMAAAQyOocAAcAAAgMAAAAPgAAAAAc6gAAAAgAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAFRpYm9yAAAFkAMAAgAAABQAABCekAQAAgAAABQAABCykpEAAgAAAAMwNgAAkpIAAgAAAAMwNgAA6hwABwAACAwAAAiSAAAAABzqAAAACAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA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gAooooAKKKKACiiigAooooAKKKKACiiigDP1+8GneG9TvWvVsFtrSWU3bQmYQBUJ8woOXC4ztHXGKy/hx/ySzwp/wBgWz/9EJWtreqwaDoGoaveJI9vp9rJdSrEAXZUUsQoJAzgcZIrJ+HH/JLPCn/YFs//AEQlAHSUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRXPeMfG+i+BdLhvddll/0iYQW8FvEZJZ5DztVR9OpwOgzkgHlP+EM8VeP2S6+ImpS6Lpu7KeG9GuMB1DA4ubgcyEjKlUwOFKkHNAGvrPxZ8LaT4hTQLa4n1nWnLKNP0mL7RIGXdlGI+VWGxshiCuMnA5qjear8VdYufK0Tw7o3hy1DSK1xrF59qmZMgIypB8qtjJ2lmGeM8c9ppWhaToULQ6JpdlpsTnLJZ26RKx9woHqav0AccnhDxLeWNxBrnxA1MvMGTOk2VtZqqFccFkkcN1O4OMcYAIyah+D/AIfnvFuNT1DxDqTKuwC71u4bj6hwe57967yigDhpPg34JmieKbT76SN1KujaxeEMD1BHm8ioNO+CXgjTdNgs4bPUGWFAu/8Ata6Que7FUkVQSck7QBknAFegUUAcE3wc8NJeJc6fd69p0iLgG11q4BB5ycs5OcHHWrUHgTVdLs549C8eeIYneTzUGpNDfop4GD5kfmFcD7okHUkEEmuzooA87nl+LmiXm6ODw34p06PPyxmSwvJ/kJ/iLRJhuO+QB0ySJ7z4xeHNE1CKy8W22reG5pmZYzqdkwjkZSAQskZdGHzA5DEAHkiu9qG6tLa+tXtr63iuYJBh4pkDqw9weDQA62uYLy1iurOaOe3mQSRSxOGSRSMhlI4IIOQRUleaan8MtQ8PXx1j4T6p/YtxuBn0a4Yvp92vm72G058knJAKAADhQmSa3fAvjl/FKXWna1psuieI9NOL/TZsnaCSFkjfGHjbacEZx6kEMwB11FFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQB5z4Zibxj8UPEPiDU1tZ7Lw/cf2PpcAcyeTMgDzTFT8qyEuq7lwQFKnplvRq868Izt4X+J/ifw1qNulrDrV4dY0m4OEF6WjQXCKM8shQEj72CWIAIJ7jWtUi0TQNQ1W4GYbG1kuZBzyqKWPQHsPQ0AOvdW07TJbaLUb+1tJLuUQ2yTzLGZpD0RAT8zHI4HNTwXMF1GZLWaOZFd4y0bhgGRirLkdwykEdiCO1eB6dPbR/CPxB8TfiT9mm1nxHayRWVve242RJiRYIIEKlgH+9wSCoVyeGaqMcWp+H/BvgP4T6BcXdlrfiILqGrXEZa3uLO3ZjI6gMeGCq6kBgSICCv7zFAHcfG/xPf2Phn7J4N8RSQa697DprWFk0TyM1wpKBsqXiYqrFGBTqTk8Y9Ge7tfD2gxza3qcMMFrEiTXt5KI1J4XczMcAkkdT1NeO6rofhzU/2lvDPh/SNG0+1t/Dlk+o3IsLcRESk7o0fZjAVvLkHUEyEEfMaseFNU07xbLrXxR8c3iQ6Hp00trptjNIZbWCNQFNxtOd0r7tgAUHqAGLLgA1vAGqarr/xi8XS/8JRdatoOjRRWVpEyIInklw8hzGqqzRtGyZKk4fr/AHvTTe2oFsTcwgXbbbf94P3x2l8J/eO1WbjsCegr5/8AAtzZ+Gv2Z/EvizVtIsL+31S+mvLeylgE8ZJkSGFJVbaCqzLu4PC8jnik8GfCnSPB3wus/Hni4TX+q6XF/bVpbC4khjhAQvFbkHuXKsTtHz4HKg7wD3+91Kx077P/AGheW9p9pmW3g8+VU82Vvuxrk/MxwcAcnFGoalY6RYSX2q3lvY2kWPMuLmVY40yQBlmIAySB9TXzb4Y8M+MPHehXZ1HQZJrzxUwlu/EerFTFp1qx3qlrHvLsCuCMbACUUjChq6D4r6NN4e07wrr3hpo9f0XwOyWeo6bLcq5UIqKGdQMb9pwxxldynaVzgA9y/tKx/sr+0/tlv/Z/k/aPtfmr5Xlbd3mb8427ec5xjmq2keI9D8Qed/YOs6fqfkbfN+xXSTeXuzjdtJxnBxn0NeZ65oGka/8As+3+mfD22itX16BtWtbGJEjll/fpK67AcHaCkRwSFG1RxtFXPg5c6P4vtz4702C3sb+4tF0zUrK0tvJiWeJi5cd2JV0wcn5dozkEAA9SrzH4v2R0L+x/iDpTQWl/od9Cl7OwwbiylcRvE3yndyykZ+6NxGDivTq85+K9ydc/snwFp1ut7e6zdwT3keA4tbGKZXkncE4C5UKA2A3zAZPFAHo1FFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQBieKfCemeLtNS21ONlmt386zu4mKTWkw+7LGw6MDg+hxyCK4i88T6lpVjqvhr4uWLJoslobX/hJ7ONzBdpIBF+8RFP2d23nJJCg5A42lvUqbJGk0TxTIskbqVZGGQwPUEdxQB5Jonwa8Haz4Al0W38S3mv6QXK2U8V1DKLH975jCFlUqHY8MxBOCQNoY51L74JaHNqumavpWqatpWsWHmB9St51aa58xmaRn3KV3sZJDlQAN54wFAt33wh0WJ7i68GXt/4Pv5wS0ukTFIZWwwTzID8jKpYkABTycEVQhi+MXhnzHkn0PxvaI5by2H9n3sgPyhUIHkqBw53ZJ+YA/doAtaX8FPC2j+OpfE1k1+JJQrPayXbyxySiQSeY7OS7neqPy2Ay554xRtPgJ4dttGudFfV9dn0eZpJI9OkukMMDuhUOo2ZLLklckjOCQSM1dPxL8QWG/wDt34ZeJIvLRS/9nGK9+Y44Xaw3DnqPTkDnFm++Mng/RrW0l8Rzapob3abkh1LRruJ8gAsv+rKsV3AHaSOepyKAIL34N6JqPw/g8J3mq6xJbRtEXuTcI0zrEpWOP5kKoig8Kir0ycksW7O/0TTtT0CbRL60SbTp4DbvbkkAx4xgEcjjoQcjqK5G0+OHw4vYjJD4qtVUNtxNHJEc/R1Bxz1qST40fDuKJ5G8V2JVFLELuY4HoAMk+woAk8L/AA0h8NJDbt4k1/VLC1CC0sr67BjgCFWT7iqW2leATt2nG3gGqOq/CK21K81ww+JNXs7HxDIZNVsolt2WU4wuxmiLR478nNXdI+L/AIM8Qed/YN7qGp+Rt837Fo17N5e7ON22I4zg4z6GqMfxR1a/8v8Asj4aeLH3Psb7fbx2e08Y++5456nAHr1wAbV14CtFGi/8I/qV/wCH/wCxLaS0tRYeUwMMnl7lcSo+7/VKcnnPJyateHPDmj+AfDc8FvcSLbq8l7e39/Pukmc8yTSyHAzgcngYFcsZ/i34ojdYrTR/AtudqF5pRqV4CGBLptxFtKnbhsnIPTIIk0/4P2dz9mn8f63qPjK6twdiX77LVDk/MsCnGdpAJYtnHbgAAjuvibeeKJzp3wq0yTWizCK41yRfLsrEkgE5fHnOoYMUXsRgnkV0vhPwevh37Re6jfyazrt7j7bqs8YR5QPuoqDiNB2Ucd66C2toLO1itbOGOC3hQRxRRIFSNQMBVA4AAGABUlABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFAH/9k=)

CREATE TABLE Stars(

name varchar(25),

address varchar(30),

PRIMARY KEY (name)

);

CREATE TABLE Studios(

name varchar(25),

address varchar(30),

PRIMARY KEY (name)

);

CREATE TABLE Movies(

title varchar(20),

year varchar(4),

length number(3),

genre varchar(10),

studioname varchar(25),

PRIMARY KEY (title, year),

FOREIGN KEY (studioname) references Studios(name)

);

CREATE Table MoviewithStar (

moviename varchar(20),

starname varchar(25),

PRIMARY KEY (moviename,starname),

FOREIGN KEY (moviename) references Movies(title),

FOREIGN KEY (starname) references Stars(name)

);