GROUP PROJECT
GAGN2HS05BU
WEIGHT: 20% Start Date: 26-11-2018 Due Date: 08-12-2018

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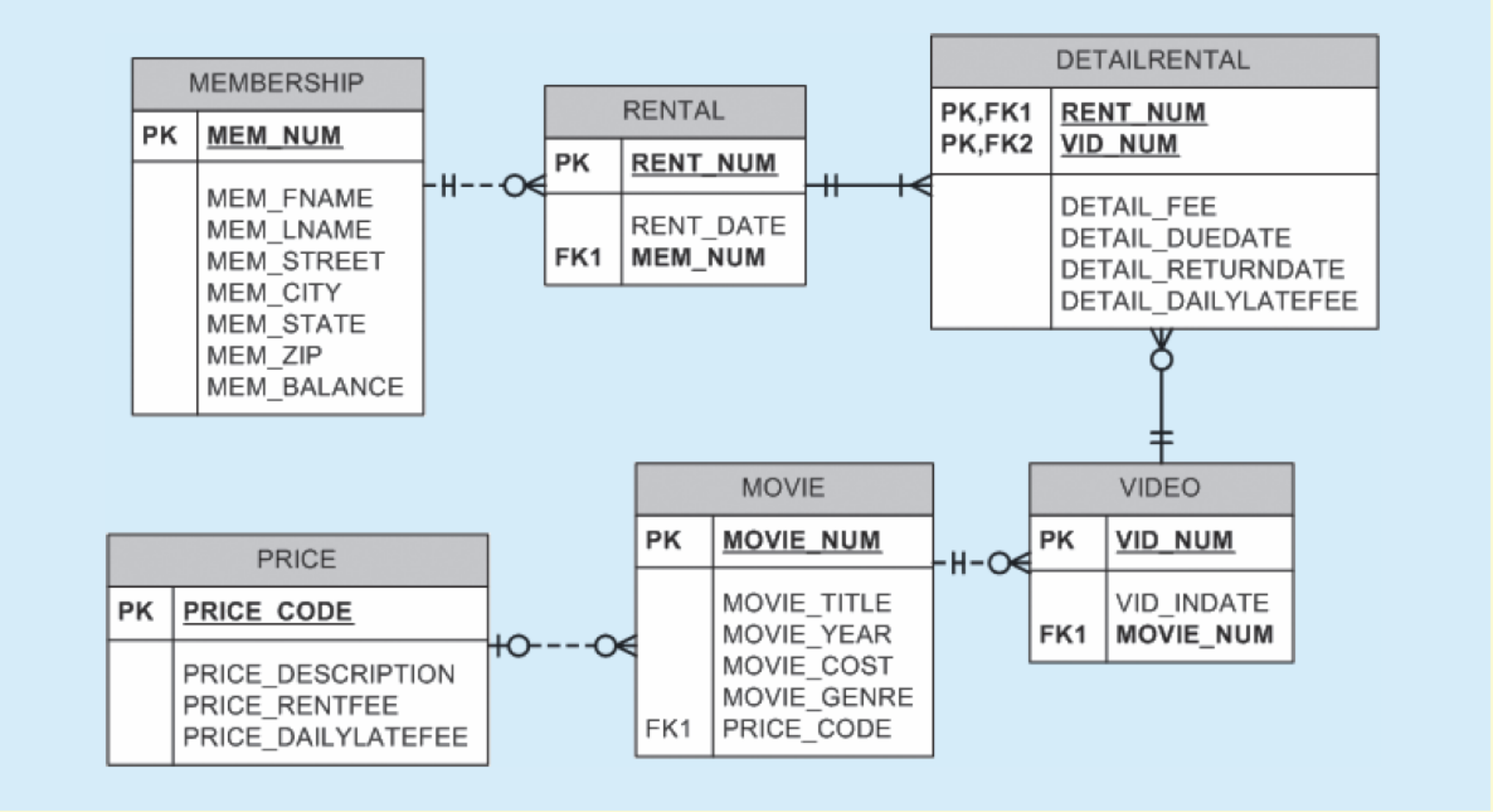
TÆKNISKÓLINN
18-04-2018

Group Project
GSF2A3U
Weight: 20% Start Date: 18-04-2018 Due Date: 11-05-2018

Note:
The project need to be submitted in Word or PDF format, question number and SQL code and screen shots. You can use phpmyadmin or workbench for database management. If you have an idea of a database project that you want to work on, or if you want to combine Database with another course you are free to do so. The goal is to practice what you have been learning in this semester in GAGN2HS05BU course, including database design, advanced SQL queries and subqueries, SQL stored procedures, functions and triggers.

Project Business Rules:
TinyVideo is a small movie rental company with a single store. TinyVideo needs a database system to track the rental of movies to its members. TinyVideo can own several copies (VIDEO) of each movie (MOVIE). For example, the store may have 10 copies of the movie “Twist in the Wind.” “Twist in the Wind” would be one MOVIE, and each copy would be a VIDEO. A rental transaction (RENTAL) involves one or more videos being rented to a member (MEMBERSHIP).
A video can be rented many times over its lifetime; therefore, there is a M:N relationship between RENTAL and VIDEO. DETAILRENTAL is the bridge table to resolve this relationship. The complete ERD is provided in **Figure P7.44**.

Figure P7.44 MovieCo ERD



1. Write the SQL code to create the table structures for the entities shown in Figure P7.44. The structures should contain the attributes specified in the ERD. Use data types that are appropriate for the data that will need to be stored in each attribute. Enforce primary key and foreign key constraints as indicated by the ERD.

2. The following tables provide a very small portion of the data that will be kept in the database. This data needs to be inserted into the database for testing purposes. Write the INSERT commands necessary to place the following data in the tables that were created in Problem 1.

MEMBERSHIP

MEM_NUM	MEM_FNAME	MEM_LNAME	MEM_STREET	MEM_CITY	MEM_STATE	MEM_ZIP	MEM_BALANCE
102	Tami	Dawson	2632 Takli Circle	Norene	TN	37136	11
103	Curt	Knight	4025 Cornell Court	Flatgap	KY	41219	6
104	Jamal	Melendez	788 East 145th Avenue	Quebeck	TN	38579	0
105	Iva	Mcclain	6045 Musket Ball Circle	Summit	KY	42783	15
106	Miranda	Parks	4469 Maxwell Place	Germantown	TN	38183	0
107	Rosario	Elliott	7578 Danner Avenue	Columbia	TN	38402	5
108	Mattie	Guy	4390 Evergreen Street	Lily	KY	40740	0
109	Clint	Ochoa	1711 Elm Street	Greeneville	TN	37745	10
110	Lewis	Rosales	4524 Southwind Circle	Counce	TN	38326	0
111	Stacy	Mann	2789 East Cook Avenue	Murfreesboro	TN	37132	8
112	Luis	Trujillo	7267 Melvin Avenue	Heiskell	TN	37754	3
113	Minnie	Gonzales	6430 Vasili Drive	Williston	TN	38076	0

RENTAL		
RENT_NUM	RENT_DATE	MEM_NUM
1001	01-MAR-09	103
1002	01-MAR-09	105
1003	02-MAR-09	102
1004	02-MAR-09	110
1005	02-MAR-09	111
1006	02-MAR-09	107
1007	02-MAR-09	104
1008	03-MAR-09	105
1009	03-MAR-09	111

DETAILRENTAL					
RENT_NUM	VID_NUM	DETAIL_FEE	DETAIL_DUEDATE	DETAIL_RETURNDATE	DETAIL_DAILYLATEFEE
1001	34342	2	04-MAR-09	02-MAR-09	1
1001	61353	2	04-MAR-09	03-MAR-09	1
1002	59237	3.5	04-MAR-09	04-MAR-09	3
1003	54325	3.5	04-MAR-09	09-MAR-09	3
1003	61369	2	06-MAR-09	09-MAR-09	1
1003	61388	0	06-MAR-09	09-MAR-09	1
1004	44392	3.5	05-MAR-09	07-MAR-09	3
1004	34367	3.5	05-MAR-09	07-MAR-09	3
1004	34341	2	07-MAR-09	07-MAR-09	1
1005	34342	2	07-MAR-09	05-MAR-09	1
1005	44397	3.5	05-MAR-09	05-MAR-09	3
1006	34366	3.5	05-MAR-09	04-MAR-09	3
1006	61367	2	07-MAR-09		1
1007	34368	3.5	05-MAR-09		3
1008	34369	3.5	05-MAR-09	05-MAR-09	3
1009	54324	3.5	05-MAR-09		3
1001	34366	3.5	04-MAR-09	02-MAR-09	3

VIDEO		
VID_NUM	VID_INDATE	MOVIE_NUM
54321	18-JUN-08	1234
54324	18-JUN-08	1234
54325	18-JUN-08	1234
34341	22-JAN-07	1235
34342	22-JAN-07	1235
34366	02-MAR-09	1236
34367	02-MAR-09	1236
34368	02-MAR-09	1236
34369	02-MAR-09	1236
44392	21-OCT-08	1237
44397	21-OCT-08	1237
59237	14-FEB-09	1237
61388	25-JAN-07	1239
61353	28-JAN-06	1245
61354	28-JAN-06	1245
61367	30-JUL-08	1246
61369	30-JUL-08	1246

MOVIE					
MOVIE_NUM	MOVIE_NAME	MOVIE_YEAR	MOVIE_COST	MOVIE_GENRE	PRICE_CODE
1234	The Cesar Family Christmas	2007	39.95	FAMILY	2
1235	Smokey Mountain Wildlife	2004	59.95	ACTION	1
1236	Richard Goodhope	2008	59.95	DRAMA	2
1237	Beatnik Fever	2007	29.95	COMEDY	2
1238	Constant Companion	2008	89.95	DRAMA	2
1239	Where Hope Dies	1998	25.49	DRAMA	3
1245	Time to Burn	2005	45.49	ACTION	1
1246	What He Doesn't Know	2006	58.29	COMEDY	1

PRICE			
PRICE_CODE	PRICE_DESCRIPTION	PRICE_RENTFEE	PRICE_DAILYLATEFEE
1	Standard	2	1
2	New Release	3.5	3
3	Discount	1.5	1
4	Weekly Special	1	.5

For Questions 3–32, use the tables that were created in Problem 1 and the data that was loaded into those tables in Problem 2.

3. Write a query to display the movie title, movie year, and movie cost for all movies that contain the word “hope” anywhere in the title. Sort the results in ascending order by title. (The results are shown in figure P7.55.)
4. Write a query to display the movie title, movie year, and movie genre for all action movies. (The results are shown in Figure P7.56.)

FIGURE P7.55 Movies with “Hope” in the title

Movie_Title	Movie_Year	Movie_Cost
Richard Goodhope	2008	59.95
Where Hope Dies	1998	25.49

FIGURE P7.56 Action movies

Movie_Title	Movie_Year	Movie_Genre
Smokey Mountain W	2004	ACTION
Time to Burn	2006	ACTION

5. Write a query to display the movie number, movie title, and movie cost for all movies with a cost greater than $40. (The results are shown in Figure P7.57.)
6. Write a query to display the movie number, movie title, movie cost, and movie genre for all movies that are either action or comedy movies and that have a cost that is less than $50. Sort the results in ascending order by genre. (The results are shown in Figure P7.58.)

FIGURE P7.57 Movies costing less than $40

Movie_Num	Movie_Title	Movie_Cost
1235	Smokey Mountain Wildlife	59.95
1236	Richard Goodhope	59.95
1238	Constant Companion	89.95
1245	Time to Burn	45.49
1246	What He Doesn't Know	58.29

FIGURE P7.58 Action or comedy movies less than $50

Movie_Num	Movie_Title	Movie_Cost	Movie_Genre
1245	Time to Burn	45.49	ACTION
1235	Smokey Mountain Wildlife	59.95	ACTION
1246	What He Doesn't Know	58.29	COMEDY
1237	Beatnik Fever	29.95	COMEDY
1239	Where Hope Dies	25.49	DRAMA
1234	The Cesar Family Christmas	39.95	FAMILY

7. Write a query to display the movie number, and movie description for all movies where the movie description is a combination of the movie title, movie year, and movie genre with the movie year enclosed in parentheses. (The results are shown in Figure P7.59.)
8. Write a query to display the movie genre and the number of movies in each genre. (The results are shown in Figure P7.60.)

FIGURE P7.59 Movies with concatenated descriptions

Movie_Num	Movie Description
1234	The Cesar Family Christmas (2007) FAMILY
1235	Smokey Mountain Wildlife (2004) ACTION
1236	Richard Goodhope (2008) DRAMA
1237	Beatnik Fever (2007) COMEDY
1238	Constant Companion (2008) DRAMA
1239	Where Hope Dies (1998) DRAMA
1245	Time to Burn (2006) ACTION
1246	What He Doesn't Know (2006) COMEDY

FIGURE P7.60 Number of movies in genre

Movie_Genre	Number of Movies
ACTION	2
COMEDY	2
DRAMA	3
FAMILY	1

9. Write a query to display the average cost of all of the movies. (The results are shown in Figure P7.61.)
10. Write a query to display the movie genre and average cost of movies in each genre. (The results are shown in Figure P7.62.)

FIGURE P7.61 Average movie cost

Average Movie Cost
51.1275

FIGURE P7.62 Average cost by genre

Movie_Genre	Average Cost
ACTION	52.72
COMEDY	44.12
DRAMA	58.46
FAMILY	39.95

11. Write a query to display the movie title, movie genre, price description, and price rental fee for all movies with a price code. (The results are shown in Figure P7.63.)
12. Write a query to display the movie genre and average price rental fee for movies in each genre that have a price. (The results are shown in Figure P7.64.)

FIGURE P7.63 Rental fees for movies

Movie_Title	Movie_Genre	Price_Description	Price_RentFee
What He Doesn't Know	COMEDY	Standard	2.5
The Cesar Family Christmas	FAMILY	New Release	4
Richard Goodhope	DRAMA	New Release	4
Beatnik Fever	COMEDY	New Release	4
Smokey Mountain Wildlife	ACTION	Discount	2
Where Hope Dies	DRAMA	Discount	2
Time to Burn	ACTION	Discount	2

FIGURE P7.64 Average rental fee by genre

Movie_Genre	Average Rental Fee
ACTION	2
COMEDY	3.25
DRAMA	3
FAMILY	4

13. Write a query to display the movie title, movie year, and the movie cost divided by the price rental fee for each movie that has a price to determine the number of rentals it will take to break even on the purchase of the movie. (The results are shown in Figure P7.65.)
14. Write a query to display the movie title and movie year for all movies that have a price code. (The results are shown in Figure P7.66.)

FIGURE P7.65 Breakeven rentals

Movie_Title	Movie_Year	Breakeven Rentals
What He Doesn't Kr	2006	23.32
The Cesar Family C	2007	9.99
Richard Goodhope	2008	14.99
Beatnik Fever	2007	7.49
Smokey Mountain V	2004	29.98
Where Hope Dies	1998	12.75
Time to Burn	2006	22.75

FIGURE P7.66 Movies with a price

Movie_Title	Movie_Year
The Cesar Family Christmas	2007
Smokey Mountain Wildlife	2004
Richard Goodhope	2008
Beatnik Fever	2007
Where Hope Dies	1998
Time to Burn	2006
What He Doesn't Know	2006

15. Write a query to display the movie title, movie year, and movie cost for all movies that have a cost between $44.99 and $49.99. (The results are shown in Figure P7.67.)
16. Write a query to display the movie title, movie year, price description, and price rental fee for all movies that are in the genres family, comedy, or drama. (The results are shown in Figure P7.68.)

FIGURE P7.67 Movies costs within a range

Movie_Title	Movie_Year	Movie_Cost
Time to Burn	2006	45.49

FIGURE P7.68 Movies within specific genres

Movie_Title	Movie_Year	Price_Description	Price_RentFee	Movie_Genre
The Cesar Family Christmas	2007	New Release	4	FAMILY
Richard Goodhope	2008	New Release	4	DRAMA
Beatnik Fever	2007	New Release	4	COMEDY
Where Hope Dies	1998	Discount	2	DRAMA
What He Doesn't Know	2006	Standard	2.5	COMEDY

17. Write a query to display the minimum balance, maximum balance, and average balance for memberships that have a rental. (The results are shown in Figure P7.71.)
18. Write a query to display the membership name (concatenate the first name and last name with a space between them into a single column), membership address (concatenate the street, city, state, and zip codes into a single column with spaces. (The results are shown in Figure P7.72.)

FIGURE P7.71 Minimum, maximum, and average balances

Minimum Balance	Maximum Balance	Average Balance
0	15	6.43

FIGURE P7.72 Concatenated membership data

Membership Name	Membership Address
Tami Dawson	2632 Takli Circle, Norene, TN 37136
Curt Knight	4025 Cornell Court, Flatgap, KY 41219
Jamal Melendez	788 East 145th Avenue, Quebeck, TN 38579
Iva McClain	6045 Musket Ball Circle, Summit, KY 42783
Miranda Parks	4469 Maxwell Place, Germantown, TN 38183
Rosario Elliott	7578 Danner Avenue, Columbia, TN 38402
Mattie Guy	4390 Evergreen Street, Lily, KY 40740
Clint Ochoa	1711 Elm Street, Greenville, TN 37745
Lewis Rosales	4524 SouthWind Circle, Counce, TN 38326
Stacy Mann	2789 East Cook Avenue, Murfreesboro, TN 37132
Luis Trujillo	7267 Melvin Avenue, Heiskell, TN 37754
Minnie Gonzales	6430 Vasili Drive, Williston, TN 38076

19. Write a query to display the rental number, rental date, video number, movie title, due date, and return date for all videos that were returned after the due date. Sort the results by rental number and movie title. (The results are shown in Figure P7.73.)

FIGURE P7.73 Late video returns

Rent_Num	Rent_Date	Vid_Num	Movie_Title	Detail_DueDate	Detail_ReturnDate
1003	02-Mar-09	54325	The Cesar Family Christmas	04-Mar-09	09-Mar-09
1003	02-Mar-09	61369	What He Doesn't Know	06-Mar-09	09-Mar-09
1003	02-Mar-09	61388	Where Hope Dies	06-Mar-09	09-Mar-09
1004	02-Mar-09	44392	Beatnik Fever	05-Mar-09	07-Mar-09
1004	02-Mar-09	34367	Richard Goodhope	05-Mar-09	07-Mar-09

20. Write a query to display the rental number, rental date, video number, movie title, due date, return date, detail fee, and number of days past the due date that the video was returned for each video that was returned after the due date. Sort the results by rental number and movie title. (The results are shown in Figure P7.74.)

FIGURE P7.74 Number of days late

Rent_Num	Rent_Date	Vid_Num	Movie_Title	Detail_DueDate	Detail_ReturnDate	Days Past Due
1003	02-Mar-09	54325	The Cesar Family Christmas	04-Mar-09	09-Mar-09	5
1003	02-Mar-09	61369	What He Doesn't Know	06-Mar-09	09-Mar-09	3
1003	02-Mar-09	61388	Where Hope Dies	06-Mar-09	09-Mar-09	3
1004	02-Mar-09	44392	Beatnik Fever	05-Mar-09	07-Mar-09	2
1004	02-Mar-09	34367	Richard Goodhope	05-Mar-09	07-Mar-09	2

21. Write a query to display the rental number, rental date, movie title, and detail fee for each movie that was returned on or before the due date. (The results are shown in Figure P7.75.)

FIGURE P7.75 Actual rental fees charged

Rent_Num	Rent_Date	Movie_Title	Detail_Fee
1001	01-Mar-09	Smokey Mountain Wildlife	2
1001	01-Mar-09	Time to Burn	2
1002	01-Mar-09	Beatnik Fever	3.5
1004	02-Mar-09	Smokey Mountain Wildlife	2
1005	02-Mar-09	Smokey Mountain Wildlife	2
1005	02-Mar-09	Beatnik Fever	3.5
1006	02-Mar-09	Richard Goodhope	3.5
1008	03-Mar-09	Richard Goodhope	3.5
1001	01-Mar-09	Richard Goodhope	3.5

22. Write a query to display the membership number, last name, first name, and total rental fees earned from that membership. (The results are shown in Figure P7.76.) The total rental fee is the sum of all of the detail fees (without the late fees) from all movies that the membership has rented.

FIGURE P7.76 **Total rental fees paid by membership**

Mem_Num	Mem_LName	Mem_FName	Rental Fee Revenue
102	Dawson	Tami	5.5
103	Knight	Curt	7.5
104	Melendez	Jamal	3.5
105	McClain	Iva	7
107	Elliott	Rosario	5.5
110	Rosales	Lewis	9
111	Mann	Stacy	9

23. Write a query to display the movie number, movie genre, average movie cost of movies in that genre, movie cost of that individual movie, and the percentage difference between the average movie cost and the individual movie cost. (The results are shown in Figure P7.77.) (*Note:* The percentage difference is calculated as the cost of the individual movie minus the average cost of movies in that genre, divided by the average cost of movies in that genre multiplied by 100. For example, if the average cost of movies in the "family" genre is $25, if a given family movie cost $26, then the calculation would be ((26 – 25) / 25 * 100), which would work out to be 4.00%. This indicates that this movie costs 4% more than the average family movie.)

FIGURE P7.77 Movie differences from genre average

Movie_Num	Movie_Genre	Average Cost	Movie_Cost	Percent Difference
1234	FAMILY	39.95	39.95	0.00
1235	ACTION	52.72	59.95	13.71
1236	DRAMA	58.46	59.95	2.54
1237	COMEDY	44.12	29.95	-32.12
1238	DRAMA	58.46	89.95	53.86
1239	DRAMA	58.46	25.49	-56.40
1245	ACTION	52.72	45.49	-13.71
1246	COMEDY	44.12	58.29	32.12

24. Alter the DETAILRENTAL table to include a derived attribute named DETAIL_DAYSLATE to store integers up to 3 digits. The attribute should accept null values.
25. Alter the VIDEO table to include an attribute named VID_STATUS to store character data up to 4 characters long. The attribute should not accept null values. The attribute should have a constraint to enforce the domain (“IN”, “OUT”, and “LOST”) and have a default value of “IN”.
26. Update the VID_STATUS attribute of the VIDEO table using a subquery to set the VID_STATUS to “OUT” for all videos that have a null value in the DETAIL_RETURNDATE attribute of the DETAILRENTAL table.
27. Alter the PRICE table to include an attribute named PRICE_RENTDAYS to store integers up to 2 digits. The attribute should not accept null values, and should have a default value of 3.
28. Update the PRICE table to place the values shown in the following table in the PRICE_RENTDAYS attribute.

PRICE_CODE	PRICE_RENTDAYS
1	5
2	3
3	5
4	7

29. Create a stored procedure named prc_new_rental to insert new rows in the RENTAL table. The procedure should satisfy the following conditions.

- **a.** The membership number will be provided as a parameter.
- **b.** Use a Count () function to verify that the membership number exists in the MEMBERSHIP table. If it does not exist, then a message should be displayed stating that the membership does not exist and no data should be written to the database.
- **c.** If the membership does exist, then retrieve the membership balance and display a message stating the balance amount as the previous balance. (For example, if the membership has a balance of $5.00, then display “Previous balance: $5.00”.
- **d.** Insert a new row in the rental table using the sequence created in #42 above to generate the value for RENT_NUM, the current system date for the value for RENT_DATE, and the membership number provided as the value for MEM_NUM.