**DATABASE AND INTERFACES**

**CW (15%)**

Introduction

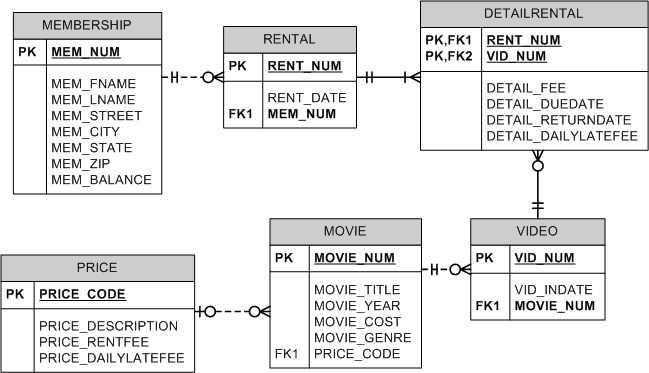
The aim of this course is to learn about databases and interfaces. The lectures and the labs are designed to support your technical skills to achieve this goal. The grades are distributed as following:

1. 50% Final exam
2. 50% Course work (CW1 (15%) & CW2(35%)

Due: 27 March 2020 23:59:00

**Task:**

**EliteVideo is a startup company providing concierge DVD kiosk service in upscale neighborhoods. EliteVideo 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 following is a complete ERD of the above scenario.   
(Group Assignment – 5 members)**



**Figure 1 : ERD**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **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-16 | 103 |
| 1002 | 01-MAR-16 | 105 |
| 1003 | 02-MAR-16 | 102 |
| 1004 | 02-MAR-16 | 110 |
| 1005 | 02-MAR-16 | 111 |
| 1006 | 02-MAR-16 | 107 |
| 1007 | 02-MAR-16 | 104 |
| 1008 | 03-MAR-16 | 105 |
| 1009 | 03-MAR-16 | 111 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **DETAILRENTAL** | | | | | |
| **Rent\_Num** | **Vid\_Num** | **Detail\_Fee** | **Detail\_Duedate** | **Detail\_Returndate** | **Detail\_Dailylatefee** |
| 1001 | 34342 | 2 | 04-MAR-16 | 02-MAR-16 |  |
| 1001 | 61353 | 2 | 04-MAR-16 | 03-MAR-16 | 1 |
| 1002 | 59237 | 3.5 | 04-MAR-16 | 04-MAR-16 | 3 |
| 1003 | 54325 | 3.5 | 04-MAR-16 | 09-MAR-16 | 3 |
| 1003 | 61369 | 2 | 06-MAR-16 | 09-MAR-16 | 1 |
| 1003 | 61388 | 0 | 06-MAR-16 | 09-MAR-16 | 1 |
| 1004 | 44392 | 3.5 | 05-MAR-16 | 07-MAR-16 | 3 |
| 1004 | 34367 | 3.5 | 05-MAR-16 | 07-MAR-16 | 3 |
| 1004 | 34341 | 2 | 07-MAR-16 | 07-MAR-16 | 1 |
| 1005 | 34342 | 2 | 07-MAR-16 | 05-MAR-16 | 1 |
| 1005 | 44397 | 3.5 | 05-MAR-16 | 05-MAR-16 | 3 |
| 1006 | 34366 | 3.5 | 05-MAR-16 | 04-MAR-16 | 3 |
| 1006 | 61367 | 2 | 07-MAR-16 |  | 1 |
| 1007 | 34368 | 3.5 | 05-MAR-16 |  | 3 |
| 1008 | 34369 | 3.5 | 05-MAR-16 | 05-MAR-16 | 3 |
| 1009 | 54324 | 3.5 | 05-MAR-16 |  | 3 |
| 1001 | 34366 | 3.5 | 04-MAR-16 | 02-MAR-16 | 3 |

|  |  |  |
| --- | --- | --- |
| **VIDEO** | | |
| **Vid\_Num** | **Vid\_Indate** | **Movie\_Num** |
| 54321 | 18-JUN-15 | 1234 |
| 54324 | 18-JUN-15 | 1234 |
| 54325 | 18-JUN-15 | 1234 |
| 34341 | 22-JAN-14 | 1235 |
| 34342 | 22-JAN-14 | 1235 |
| 34366 | 02-MAR-16 | 1236 |
| 34367 | 02-MAR-16 | 1236 |
| 34368 | 02-MAR-16 | 1236 |
| 34369 | 02-MAR-16 | 1236 |
| 44392 | 21-OCT-15 | 1237 |
| 44397 | 21-OCT-15 | 1237 |
| 59237 | 14-FEB-16 | 1237 |
| 61388 | 25-JAN-14 | 1239 |
| 61353 | 28-JAN-13 | 1245 |
| 61354 | 28-JAN-13 | 1245 |
| 61367 | 30-JUL-15 | 1246 |
| 61369 | 30-JUL-15 | 1246 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **MOVIE** | | | | | |
| **Movie\_Num** | **Movie\_Name** | **Movie\_Year** | **Movie\_Cost** | **Movie\_Genre** | **Price\_Code** |
| 1234 | The Cesar Family Christmas | 2014 | 39.95 | FAMILY | 2 |
| 1235 | Smokey Mountain Wildlife | 2011 | 59.95 | ACTION | 1 |
| 1236 | Richard Goodhope | 2015 | 59.95 | DRAMA | 2 |
| 1237 | Beatnik Fever | 2014 | 29.95 | COMEDY | 2 |
| 1238 | Constant Companion | 2015 | 89.95 | DRAMA |  |
| 1239 | Where Hope Dies | 2005 | 25.49 | DRAMA | 3 |
| 1245 | Time to Burn | 2012 | 45.49 | ACTION | 1 |
| 1246 | What He Doesn't Know | 2013 | 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 |

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| --- | --- | --- |
| **Handout**  **week** | **Activity / Tasks** | **Outcome** |
| 1st April 2019 | 1. Create database name : EliteVideo 2. Create tables based on the above ERD given. 3. Insert the values into each of the tables based on the samples tables given. 4. Show ALL the records of data for each of the table using SELECT statements. | * SQL queries for each tasks (the screen shot from MS SQL server with the sample result produced)   Note: ensure the screen-shot is big and clear enough to be able to view by the lecturer. |
| 10 | Create SQL query for each of the following questions and generate the result :   1. 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. 2. Write a query to display the movie title, movie year, and movie genre for all action movies. 3. 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. 4. Write a query to display the movie title, movie genre, price description, and price rental fee for all movies with a price code. 5. Write a query to display the movie genre and average price rental fee for movies in each genre that have a price. 6. Write a query to display the membership number, first name, last name, and balance of the memberships that have a rental. 7. Write a query to display the minimum balance, maximum balance, and average balance for memberships that have a rental. 8. 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. 9. 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. 10. 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.   [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.]   1. Implement all the query in local host server and present to your lecturer. | Note: ensure the screen-shot is big and clear enough to be able to view by lecturer.  ***Submission: 30 April 2019***  Date: by Tuesday (before 6pm) |

**MARKING CRITERIA/RUBRIC**

|  |  |  |
| --- | --- | --- |
| **Assessment Criteria and Marking Overview Tasks**  **(2m for each criteria)** | **Marks given** | **Marks awarded** |
| **1. Create statements**   * Correct syntax * Database created correctly * All tables created correctly * All attributes are created correctly * Applicable attribute types for the provided data * All primary and foreign keys created correctly * Any deletion anomalies corrected * SQL query created correctly * Screen shots of sample output (with clear view) | 18 |  |
| 1. **Insert statements**  * Correct syntax * Values are inserted to each of the table * Values are inserted to each table with at least 10 records of data * SQL query created correctly * Screen shots of sample output (with clear view) | 5 |  |
| **3. Display values**   * Correct syntax * Values of all tables are displayed using select statement * SQL query created correctly * Screen shots of sample output (with clear view) | 8 |  |
| **4. Time management (works are submitted on time)** | 4 |  |
| **5. Implementation on local server.** | 5 |  |
| **Total marks (A)** | **40** |  |
| **6. SQL statements** |  |  |
| Q1   * Correct syntax * Correct table used * Correct conditions used * SQL query created correctly * Screen shots of sample output (with clear view) | 5 |  |
| Q2   * Correct syntax * Correct table used * Correct conditions used * SQL query created correctly * Screen shots of sample output (with clear view) | 5 |  |
| Q3   * Correct syntax * Correct table used * Correct conditions used * SQL query created correctly * Screen shots of sample output (with clear view) | 5 |  |
| Q4   * Correct syntax * Correct table used * Correct conditions used * SQL query created correctly * Screen shots of sample output (with clear view) | 5 |  |
| Q5   * Correct syntax * Correct table used * Correct conditions used * Correct operators used * SQL query created correctly * Screen shots of sample output (with clear view) | 6 |  |
| Q6   * Correct syntax * Correct table used * Correct function used * Correct aggregation used * SQL query created correctly * Screen shots of sample output (with clear view) | 6 |  |
| Q7   * Correct syntax * Correct table used * Correct function used * Correct aggregation conditions used * SQL query created correctly * Screen shots of sample output (with clear view) | 6 |  |
| Q8   * Correct syntax * Correct table/join used * Correct conditions used * SQL query created correctly * Screen shots of sample output (with clear view) | 5 |  |
| Q9   * Correct syntax * Correct table used * Correct function used * Correct aggregation * Correct aggregation conditions * SQL query created correctly * Screen shots of sample output (with clear view) | 7 |  |
| Q10   * Correct syntax * Correct table used * Correct formula used * Correct conditions used * SQL query created correctly * Screen shots of sample output (with clear view) | 6 |  |
| Time management (works are submitted on time) | 4 |  |
| **Total Marks (60m) – B** |  |  |
| **Total marks – (A + B)** | **100** |  |
| **Total** | **15%** |  |