### **Hong Kong Baptist University**

### Department of Computer Science

*COMP 7990 Principles and Practices of data analytics (2022-23)*

*Assignment 3a*

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**Part A: Write SELECT statements using DEPT and EMP tables**

Write some select statement to return the results for the following questions:

1. Select employee number and employee name for the employees in DEPTNO 10.

[SELECT](https://cslinux0.comp.hkbu.edu.hk/7990_database/url.php?url=https://dev.mysql.com/doc/refman/5.5/en/select.html" \t "mysql_doc) EMPNO, ENAME, DEPTNO FROM EMP WHERE DEPTNO = 10

1. Select the employees whose name is "SMITH" or "JAMES". (display all the fields in EMP)

[SELECT](https://cslinux0.comp.hkbu.edu.hk/7990_database/url.php?url=https://dev.mysql.com/doc/refman/5.5/en/select.html) \* FROM EMP WHERE ENAME = 'SMITH' [OR](https://cslinux0.comp.hkbu.edu.hk/7990_database/url.php?url=https://dev.mysql.com/doc/refman/5.5/en/logical-operators.html#operator_or) ENAME = 'JAMES'

1. Select the employees with department number greater than or equal to 20. (display all the fields in EMP)

[SELECT](https://cslinux0.comp.hkbu.edu.hk/7990_database/url.php?url=https://dev.mysql.com/doc/refman/5.5/en/select.html) \* FROM `EMP` WHERE DEPTNO >= 20

1. Select the employees with salary between 1000 and 2000 AND their departments is located in 'NEW YORK'. (display ENAME, SAL, DEPTNO, LOC]

[SELECT](https://cslinux0.comp.hkbu.edu.hk/7990_database/url.php?url=https://dev.mysql.com/doc/refman/5.5/en/select.html) EMP.ENAME, EMP.SAL, EMP.DEPTNO, DEPT.LOC FROM EMP, DEPT WHERE SAL BETWEEN 1000 [AND](https://cslinux0.comp.hkbu.edu.hk/7990_database/url.php?url=https://dev.mysql.com/doc/refman/5.5/en/logical-operators.html#operator_and) 2000 [AND](https://cslinux0.comp.hkbu.edu.hk/7990_database/url.php?url=https://dev.mysql.com/doc/refman/5.5/en/logical-operators.html#operator_and) LOC = 'NEW YORK'

1. Show the number of employees for each department. Rename the count field to “Number of employees”. (keep lowercase except for the first character)

[SELECT](https://cslinux0.comp.hkbu.edu.hk/7990_database/url.php?url=https://dev.mysql.com/doc/refman/5.5/en/select.html) [COUNT](https://cslinux0.comp.hkbu.edu.hk/7990_database/url.php?url=https://dev.mysql.com/doc/refman/5.5/en/group-by-functions.html#function_count)(\*) AS 'Number of employees' FROM `EMP` GROUP BY DEPTNO

1. Show the number of clerks in each department. (include DEPTNO and the count field)

[SELECT](https://cslinux0.comp.hkbu.edu.hk/7990_database/url.php?url=https://dev.mysql.com/doc/refman/5.5/en/select.html) [COUNT](https://cslinux0.comp.hkbu.edu.hk/7990_database/url.php?url=https://dev.mysql.com/doc/refman/5.5/en/group-by-functions.html#function_count)(\*), DEPTNO FROM EMP WHERE JOB = 'CLERK' GROUP BY DEPTNO

1. Show the employees whose manager (MGR) is ‘KING’ (display all the fields in EMP)

[SELECT](https://cslinux0.comp.hkbu.edu.hk/7990_database/url.php?url=https://dev.mysql.com/doc/refman/5.5/en/select.html) \* FROM EMP WHERE MGR = ([SELECT](https://cslinux0.comp.hkbu.edu.hk/7990_database/url.php?url=https://dev.mysql.com/doc/refman/5.5/en/select.html) EMPNO FROM `EMP` WHERE ENAME = 'KING')

**Part B: Create tables, insert data**

1. Use **CREATE** **TABLE** statements shown below to build **MOVIE** and **DIRECTOR** tables. Display the structure of the two tables and capture the screenshots in the textboxes.

|  |  |
| --- | --- |
| CREATE TABLE DIRECTOR  (DIRECTORID INT NOT NULL,  FIRSTNAME VARCHAR(25),  LASTNAME VARCHAR(25),  GENDER VARCHAR(8),  CITY VARCHAR(25),  COUNTRY VARCHAR(25),  PRIMARY KEY (DIRECTORID)); | CREATE TABLE MOVIE  (MOVIEID INT NOT NULL,  TITLE VARCHAR(50),  YEAR INT,  MOVTIME INT ,  PRODCOUNTRY VARCHAR(50),  DIRECTORID INT,  REVENUE DECIMAL(8, 2),  PRIMARY KEY(MOVIEID),  FOREIGN KEY(DIRECTORID) REFERENCES DIRECTOR(DIRECTORID)); |

* **DIRECTOR** table (display the table structure with screenshots)

图形用户界面, 应用程序

描述已自动生成

* **MOVIE** table (display the table structure with screenshots)

图形用户界面, 应用程序

描述已自动生成

1. Use **INSERT** statements to create seven records in the **DIRECTOR** table. Add one more record (8th record) in DIRECTOR table by using your first name, last name etc. Use your SID as DIRECTORID. Use your gender in GENDER field. Then **INSERT** seven records in **MOVIE** table.

**Syntax:**

|  |
| --- |
|  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **DirectorID** | **FirstName** | **LastName** | **Gender** | **City** | **Country** |
| 1 | To | Keung | Male | Berlin | Germany |
| 2 | GiGi | Yim | Female | London | UK |
| 3 | Anson | Lo | Male | London | UK |
| 4 | Yumi | Chung | Female | California | USA |
| 5 | Chantel | Yiu | Female | Berlin | Germany |
| 6 | Edan | Liu | Male | New York | USA |
| 7 | Laurence | Wu | Female | Seattle | USA |
| {your sid} | {your firstname} | {your lastname} | {your gender} | Hong Kong | China |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **MovieID** | **Title** | **Year** | **Movtime** | **Prodcountry** | **DirectorID** | **Revenue** |
| 101 | Vertigo | 2020 | 120 | UK | 1 | 123500 |
| 102 | Deer Hunter | 2018 | 100 | UK | 2 | 254000 |
| 103 | Annie Hall | 2017 | 160 | USA | 3 | 324000 |
| 104 | Back to the Future | 2020 | 160 | UK | 4 | 453000 |
| 105 | Seven Samurai | 2020 | 110 | JP | 5 | 622000 |
| 106 | Lion King | 2020 | 160 | USA | 7 | 455000 |
| 107 | Frozen | 2019 | 110 | USA | 7 | 855000 |

Put the **INSERT** statements in the following text boxes below for inserting records to the two tables:

* **DIRECTOR** table (insert statements)

INSERT INTO DIRECTOR(DirectorID, FirstName, LastName, Gender, City, Country)

VALUES

(1,'To','Keung','Male','Berlin','Germany'),

(2,'GiGi','Yim','Female','London','UK'),

(3,'Anson','Lo','Male','London','UK'),

(4,'Yumi','Chung','Female','California','USA'),

(5,'Chantel','Yiu','Female','Berlin','Germany'),

(6,'Edan','Liu','Male','New York','USA'),

(7,'Laurence','Wu','Female','Seattle','USA'),

(22407987,'Zhang','Chi', 'Male', 'Hong Kong', 'China')

* **MOVIE** table (insert statements)

INSERT INTO MOVIE

VALUES

(101,'Vertigo',2020,120,'UK',1,123500),

(102,'Deer Hunter',2018,100,'UK',2,254000),

(103,'Annie Hall',2017,160,'USA',3,324000),

(104,'Back to the Future',2020,160,'UK',4,453000),

(105,'Seven Samurai',2020,110,'JP',5,622000),

(106,'Lion King',2020,160,'USA',7,455000),

(107,'Frozen',2019,110,'USA',7,855000)

**Part C: Write SELECT statements to get the results from MOVIE and DIRECTOR tables**

1. Select the movies (showing all the fields) with **REVENUE greater than 400000**.

[SELECT](https://cslinux0.comp.hkbu.edu.hk/7990_database/url.php?url=https://dev.mysql.com/doc/refman/5.5/en/select.html) \* FROM `MOVIE` WHERE REVENUE >= 400000

1. The average movie time for the movies in different production countries. (showing **PRODCOUNTRY** and **AVERAGE MOVIE TIME**)

[SELECT](https://cslinux0.comp.hkbu.edu.hk/7990_database/url.php?url=https://dev.mysql.com/doc/refman/5.5/en/select.html) PRODCOUNTRY,[AVG](https://cslinux0.comp.hkbu.edu.hk/7990_database/url.php?url=https://dev.mysql.com/doc/refman/5.5/en/group-by-functions.html#function_avg)(MOVTIME) FROM MOVIE GROUP BY PRODCOUNTRY

1. Select all the fields from DIRECTOR table where **COUNTRY** is "**USA**" AND **CITY** must be "**CALIFORNIA**" OR "**SEATTLE**".

[SELECT](https://cslinux0.comp.hkbu.edu.hk/7990_database/url.php?url=https://dev.mysql.com/doc/refman/5.5/en/select.html) \* FROM `DIRECTOR` WHERE COUNTRY = 'USA' [AND](https://cslinux0.comp.hkbu.edu.hk/7990_database/url.php?url=https://dev.mysql.com/doc/refman/5.5/en/logical-operators.html#operator_and) CITY = 'CALIFORNIA' [OR](https://cslinux0.comp.hkbu.edu.hk/7990_database/url.php?url=https://dev.mysql.com/doc/refman/5.5/en/logical-operators.html#operator_or) CITY = 'SEATTLE'

1. Select all the fields from MOVIE where the production country is **neither USA nor JP.**

[SELECT](https://cslinux0.comp.hkbu.edu.hk/7990_database/url.php?url=https://dev.mysql.com/doc/refman/5.5/en/select.html) \* FROM `MOVIE` WHERE PRODCOUNTRY [NOT](https://cslinux0.comp.hkbu.edu.hk/7990_database/url.php?url=https://dev.mysql.com/doc/refman/5.5/en/logical-operators.html#operator_not) [LIKE](https://cslinux0.comp.hkbu.edu.hk/7990_database/url.php?url=https://dev.mysql.com/doc/refman/5.5/en/string-comparison-functions.html#operator_like) 'USA' [AND](https://cslinux0.comp.hkbu.edu.hk/7990_database/url.php?url=https://dev.mysql.com/doc/refman/5.5/en/logical-operators.html#operator_and) PRODCOUNTRY [NOT](https://cslinux0.comp.hkbu.edu.hk/7990_database/url.php?url=https://dev.mysql.com/doc/refman/5.5/en/logical-operators.html#operator_not) [LIKE](https://cslinux0.comp.hkbu.edu.hk/7990_database/url.php?url=https://dev.mysql.com/doc/refman/5.5/en/string-comparison-functions.html#operator_like) 'JP'

1. Calculate average revenue for the movies produced in **USA or JP**. Use **HAVING** clause to select those with average revenue > 550000 only.

[SELECT](https://cslinux0.comp.hkbu.edu.hk/7990_database/url.php?url=https://dev.mysql.com/doc/refman/5.5/en/select.html) [AVG](https://cslinux0.comp.hkbu.edu.hk/7990_database/url.php?url=https://dev.mysql.com/doc/refman/5.5/en/group-by-functions.html#function_avg)(REVENUE),PRODCOUNTRY FROM `MOVIE` WHERE PRODCOUNTRY = 'USA' [OR](https://cslinux0.comp.hkbu.edu.hk/7990_database/url.php?url=https://dev.mysql.com/doc/refman/5.5/en/logical-operators.html#operator_or) PRODCOUNTRY = 'JP' GROUP BY PRODCOUNTRY HAVING [AVG](https://cslinux0.comp.hkbu.edu.hk/7990_database/url.php?url=https://dev.mysql.com/doc/refman/5.5/en/group-by-functions.html#function_avg)(REVENUE) > 550000

1. Select the movies directed by ‘ANSON LO’ or ‘CHANTEL YIU’ (display only the fields in movie table, remember to match both firstname and lastname)

[SELECT](https://cslinux0.comp.hkbu.edu.hk/7990_database/url.php?url=https://dev.mysql.com/doc/refman/5.5/en/select.html) M.\* FROM MOVIE M, DIRECTOR D WHERE D.DIRECTORID = M.DIRECTORID [AND](https://cslinux0.comp.hkbu.edu.hk/7990_database/url.php?url=https://dev.mysql.com/doc/refman/5.5/en/logical-operators.html#operator_and) (D.FIRSTNAME = 'Anson' [OR](https://cslinux0.comp.hkbu.edu.hk/7990_database/url.php?url=https://dev.mysql.com/doc/refman/5.5/en/logical-operators.html#operator_or) D.FIRSTNAME = 'CHANTEL') [AND](https://cslinux0.comp.hkbu.edu.hk/7990_database/url.php?url=https://dev.mysql.com/doc/refman/5.5/en/logical-operators.html#operator_and) (D.LASTNAME = 'LO' [OR](https://cslinux0.comp.hkbu.edu.hk/7990_database/url.php?url=https://dev.mysql.com/doc/refman/5.5/en/logical-operators.html#operator_or) D.LASTNAME = 'YIU')

1. Select DIRECTORID, FIRSTNAME and TITLE from the DIRECTOR and MOVIE tables. You also need to include the directors who do not make any movie.

[SELECT](https://cslinux0.comp.hkbu.edu.hk/7990_database/url.php?url=https://dev.mysql.com/doc/refman/5.5/en/select.html) D.DIRECTORID, FIRSTNAME, TITLE FROM DIRECTOR D [LEFT](https://cslinux0.comp.hkbu.edu.hk/7990_database/url.php?url=https://dev.mysql.com/doc/refman/5.5/en/string-functions.html#function_left) JOIN MOVIE M ON D.DIRECTORID = M.DIRECTORID

1. Count the number of movies directed by different genders. The count should be displayed in **DESCENDING** order (display gender and ‘movie count’ fields)

[SELECT](https://cslinux0.comp.hkbu.edu.hk/7990_database/url.php?url=https://dev.mysql.com/doc/refman/5.5/en/select.html) D.GENDER, [COUNT](https://cslinux0.comp.hkbu.edu.hk/7990_database/url.php?url=https://dev.mysql.com/doc/refman/5.5/en/group-by-functions.html#function_count)(M.TITLE) FROM MOVIE M, DIRECTOR D WHERE D.DIRECTORID = M.DIRECTORID GROUP BY D.GENDER ORDER BY [COUNT](https://cslinux0.comp.hkbu.edu.hk/7990_database/url.php?url=https://dev.mysql.com/doc/refman/5.5/en/group-by-functions.html#function_count)(M.TITLE) DESC

1. Select the movies with the lowest revenue in production country ‘USA’ or ‘UK’. (using subquery)

[SELECT](https://cslinux0.comp.hkbu.edu.hk/7990_database/url.php?url=https://dev.mysql.com/doc/refman/5.5/en/select.html) M.\* FROM MOVIE M INNER JOIN ( [SELECT](https://cslinux0.comp.hkbu.edu.hk/7990_database/url.php?url=https://dev.mysql.com/doc/refman/5.5/en/select.html) PRODCOUNTRY, [MIN](https://cslinux0.comp.hkbu.edu.hk/7990_database/url.php?url=https://dev.mysql.com/doc/refman/5.5/en/group-by-functions.html#function_min)(REVENUE) R FROM MOVIE GROUP BY PRODCOUNTRY ) S ON M.PRODCOUNTRY = S.PRODCOUNTRY [AND](https://cslinux0.comp.hkbu.edu.hk/7990_database/url.php?url=https://dev.mysql.com/doc/refman/5.5/en/logical-operators.html#operator_and) M.REVENUE = S.R WHERE M.PRODCOUNTRY = 'USA' [or](https://cslinux0.comp.hkbu.edu.hk/7990_database/url.php?url=https://dev.mysql.com/doc/refman/5.5/en/logical-operators.html#operator_or) M.PRODCOUNTRY = 'UK'

**Part D: Update record**

1. **Update** the record of DIRECTOR Laurence Wu by changing the gender to Male. Put the update statement in the box below and capture the result after updating.

**Syntax**:

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|  |

* DIRECTOR table (update statements)

[UPDATE](https://cslinux0.comp.hkbu.edu.hk/7990_database/url.php?url=https://dev.mysql.com/doc/refman/5.5/en/update.html) DIRECTOR [SET](https://cslinux0.comp.hkbu.edu.hk/7990_database/url.php?url=https://dev.mysql.com/doc/refman/5.5/en/set.html) GENDER = 'Male' WHERE FIRSTNAME = 'Laurence' [AND](https://cslinux0.comp.hkbu.edu.hk/7990_database/url.php?url=https://dev.mysql.com/doc/refman/5.5/en/logical-operators.html#operator_and) LASTNAME = 'Wu'

* DIRECTOR table (put screenshot of the result after updating)

图形用户界面, 应用程序

描述已自动生成

**Assignment Submission**

Submit the file **lab3a-assignment-ans.docx** to bulearning website