BERLIN SCHOOL OF BUSINESS & INNOVATION

University for the Creative Arts

DEGREE: BSc – Computer Science and Digitisation

Module: Database Design and Implementation

Assignment Title: Basics Database Design using MySql

Assignment Type: Set exercise

Word Limit: 2000 words (+/- 200)

Weighting: 50%

Issue Date: 12/07/2024

Submission Date: 26/08/2024

Feedback Date: 23/09/2024

Plagiarism:

When submitting work for assessment, students should be aware of the InterActive/Canvas guidance and regulations in concerning plagiarism. All submissions should be your own, original work. Please note that you must not submit the same assignment for two different modules within your course.

You must submit an electronic copy of your work. Your submission will be electronically checked.

Learner declaration
I certify that the work submitted for this assignment is my own and research sources are fully acknowledged. **Student signature:** **Date:**

Harvard Referencing:

The Harvard Referencing System must be used. The Wikipedia, UKEssays.com or similar websites must **not** be used or referenced in your work.

Introduction

Learning Outcomes:

LO1 Learn the concepts of database and database management systems along with the concepts and approaches of database design, administration and management

LO2 Learn the principals and science behind querying the data from a database management system to use for business analytics and implement the queries to retrieve the data from MySQL

LO3 Write advanced SQL queries to manipulate, wrangle and derive insights from large database systems

Assessment Criteria: Weighting 50%

2000 words

Tasks (All tasks are equally weighted):

Task 1:

Write a SQL query using the **Employee and Department** table, please solve these questions and explain in detail.

- Retrieve all columns for all employees.
- Get the first and last names of all employees who work in the 'Sales' department.
- List the total number of employees in each department.
- Find the employee with the highest salary.

Column Name	Datatype
employee_id	INT
first_name	VARCHAR(50)
last_name	VARCHAR(50)
hire_date	DATE
salary	DECIMAL(18, 2)

Table: Employee

Column Name	Datatype
department_id	INT
department_name	VARCHAR(100)

Table: Departments

Column Name	Datatype
project_id	INT
project_name	VARCHAR(100)
department_id	INT

Table: Projects

Column Name	Datatype
employee_id	INT
project_id	INT
hours_worked	INT

Table: EmployeeProjects

Task 2:

Write an SQL query using the **Employee and Department** table, please answer these questions and write in detail.

- Get the average salary of employees in each department.
- Retrieve the names of employees who were hired in the year 2020.
- List all employees who have not been assigned to any project.

Task 3:

Write an SQL using **the Employee, Department and Project** table, could you answer these questions and write in detail.

- Find the names of projects that involve employees from the 'IT' department.
- Retrieve the list of employees who work on more than 2 projects.
- Get the names and salaries of employees who earn more than the average salary of their department.

Task 4:

Write an SQL using **the Employee, Department, Project and Employeeprojects** table, could you answer these questions and write in detail.

- List the names of employees and the total hours they worked on projects where the project name starts with 'A'.
- Retrieve the names of employees who work on projects within their own department.
- Get the highest, lowest, and average salary in the company.

Task 5:

Write a SQL query using the using **the City** table, please answer these questions and write in detail.

- Query All Attributes of Germany Cities:
- The City table contains information about various cities around the world. The structure of the CITY table is described below:

Column Name	Data Type	Description
ID	INT	Unique identifier for each city
Name	VARCHAR(50)	Name of the city
CountryCode	VARCHAR(50)	Country code of the city
District	VARCHAR(50)	District the city is located in
Population	INT	Population of the city

Table: City

- Write a SQL query that selects all columns for cities in Germnay.
- Ensure the query only returns cities with the CountryCode 'GER'.

BERLIN SCHOOL OF BUSINESS & INNOVATION

University for the Creative Arts

GUIDANCE ON ASSESSMENT

All materials must be properly referenced under Harvard conventions. The length required is 2000 with tasks equally weighted. The writing style should be formal academic / report writing style with in-text referencing to support your comments and observations. Originality, quality of argument and good structure are required. The report should demonstrate sound understanding and ability to apply knowledge and theory of Database Design and Implementation. Additional marks being awarded for juxtaposition and insight of issues.

Grading Criteria

	Generic Criteria	90 - 100	80 - 89	70 - 79	60 - 69	50 - 59	40 - 49	30 - 39	0 - 29
Level 4	**Knowledge of contexts, concepts, technologies and processes** The extent to which knowledge is demonstrated: *relevant contextual or theoretical issues are identified, defined and described* *historical or contemporary practices are identified, defined and described* *appropriate technologies, methods and processes are identified, defined and described*	Outstanding breadth of knowledge of fundamental contextual and theoretical issues and critical concepts and their relationship to historical and contemporary practices Extensive knowledge of relevant and specialist technologies and processes	Extensive knowledge of fundamental contextual and theoretical issues and critical concepts and a widening appreciation of historical and contemporary practices In depth and broadening knowledge of appropriate technologies and processes	Significant knowledge of fundamental contextual and theoretical issues and critical concepts and a widening appreciation of historical and contemporary practices Significant knowledge of appropriate technologies and processes	Confident familiarity with fundamental contextual and theoretical issues and critical concepts Thorough knowledge of appropriate technologies and processes	Familiar with fundamental contextual and theoretical issues and critical concepts Sound knowledge of appropriate technologies and processes	Adequate knowledge of fundamental contextual and theoretical issues and critical concepts Adequate knowledge of appropriate technologies and processes	Limited knowledge of fundamental contextual and theoretical issues and critical concepts Limited knowledge of appropriate technologies and processes	Little or no knowledge of fundamental contextual and theoretical issues or critical concepts Little or no knowledge of appropriate technologies or processes
	Understanding through application of knowledge The degree to which research methods are demonstrated: *relevant knowledge and information is compared, contrasted, manipulated, translated and interpreted* *knowledge and information is selected, analysed, synthesized and evaluated in order to generate creative ideas, practices, solutions, arguments or hypotheses*	Relevant knowledge is explored and interpreted when proposing solutions to projects and problems which demonstrate evidence of independent thought Outstanding ability to analyse and synthesise knowledge to produce own creative practice in standard situations and to evaluate results	Deep level of comprehension and exploration of relevant knowledge in seeking solutions to projects or problems Outstanding ability to analyse and synthesise knowledge in order to produce creative practice in standard situations and to evaluate the results	Deep level of comprehension of relevant knowledge in seeking solutions to projects or problems Strong ability to apply and analyse knowledge to produce creative practice in standard situations, with some evaluation of the results	Strong comprehension of relevant knowledge in seeking solutions to projects or problems Sound ability to apply and analyse knowledge to produce creative practice in standard situations	Sound comprehension of relevant knowledge in seeking solutions to projects or problems Sound ability to apply knowledge to produce creative practice in standard situations	Surface-level comprehension of relevant knowledge in seeking solutions to projects or problems Competent application of knowledge to the production of creative practice in standard situations	Incomplete comprehension of relevant knowledge in seeking solutions to projects or problems Limited ability to apply knowledge to produce creative practice in standard situations	Little or no comprehension of relevant knowledge in seeking solutions to projects or problems Little or no ability to apply relevant knowledge to produce creative practice in standard situations
	Application of technical and professional skills The degree to which: *appropriate materials and media are selected, tested and utilised*	Accomplished and fluent application of appropriate practical and technical skills	Relevant, accomplished and fluent application of basic practical and technical skills	Relevant and accomplished application of basic practical and technical skills	Strong application of basic practical and technical skills	Sound application of basic practical and technical skills	Competent application of practical and technical skills	Rudimentary application of basic practical and technical skills	Scant application of basic practical and technical skills

	to realise and present ideas and solutions *appropriate technologies, methods and processes are demonstrated* *transferable, professional skills are effectively demonstrated* *self management and independent learning are demonstrated*	Outstanding application of appropriate transferable and professional skills Significant ability to learn independently and critically evaluate own progress using a wide range of feedback sources	Outstanding application of fundamental transferable and professional skills Substantial ability to work independently and use feedback to reflect critically on own progress	Highly effective application of fundamental transferable and professional skills Strong ability to work independently and use feedback to plan future tasks effectively	Strong application of fundamental transferable and professional skills Evidence of developing well as an independent learner	Sound application of fundamental transferable and professional skills Evidence of beginning to develop as an independent learner	Competent application of fundamental transferable and professional skills Adequate evidence of beginning to develop as an independent learner	Limited application of fundamental transferable and professional skills Limited evidence of ability to learn independently	Ineffective application of fundamental transferable and professional skills Little or no evidence of ability to learn independently