CS309

Information and Database Systems

Fall 2023

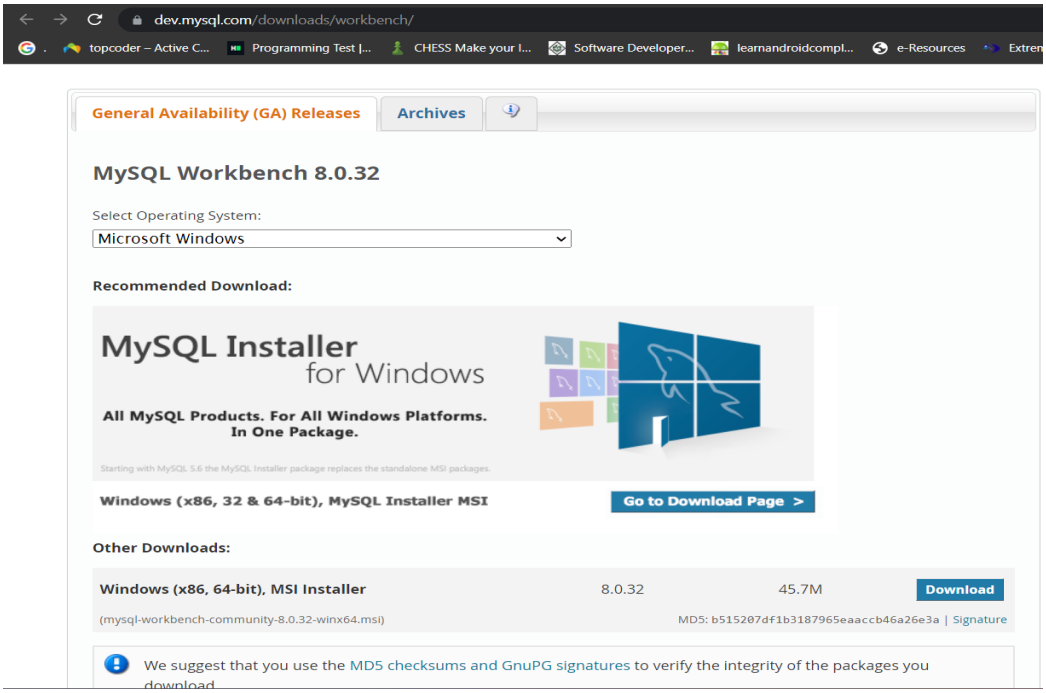
Assignment 4

Instructor: Dr. Rohit Saluja

The first 4 pages of this pdf includes guidelines to install and use mysql workbench, and remaining pages include the problem statements for Assignment 4.

Installation of MySQL Workbench

- Go to the official MySQL website at https://dev.mysql.com/downloads/workbench/.
- Scroll down the page and look for "MySQL Workbench" under "MySQL Workbench GA Releases".
- Click the download button for your operating system (Windows, Mac, or Linux)



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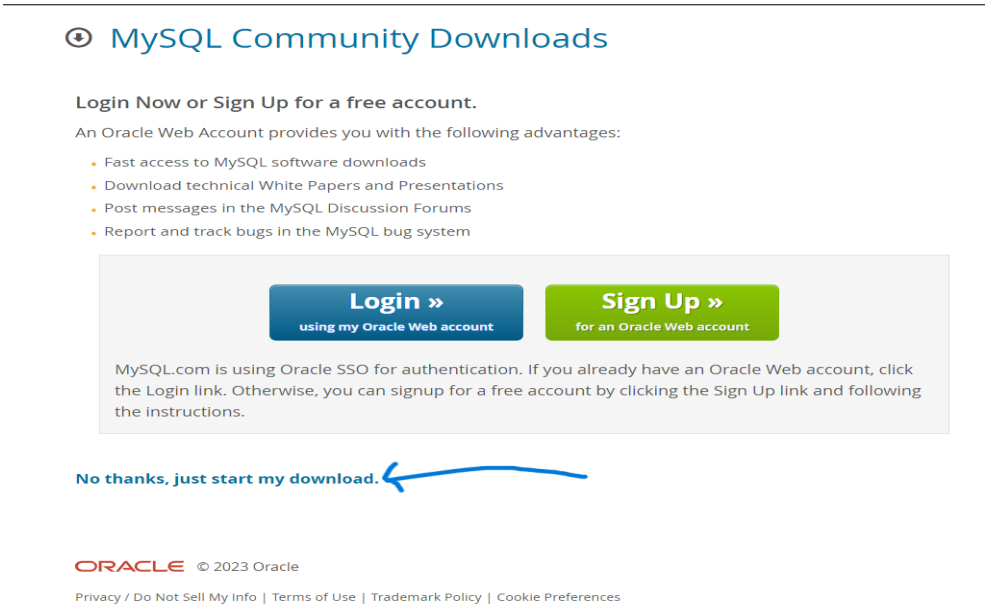
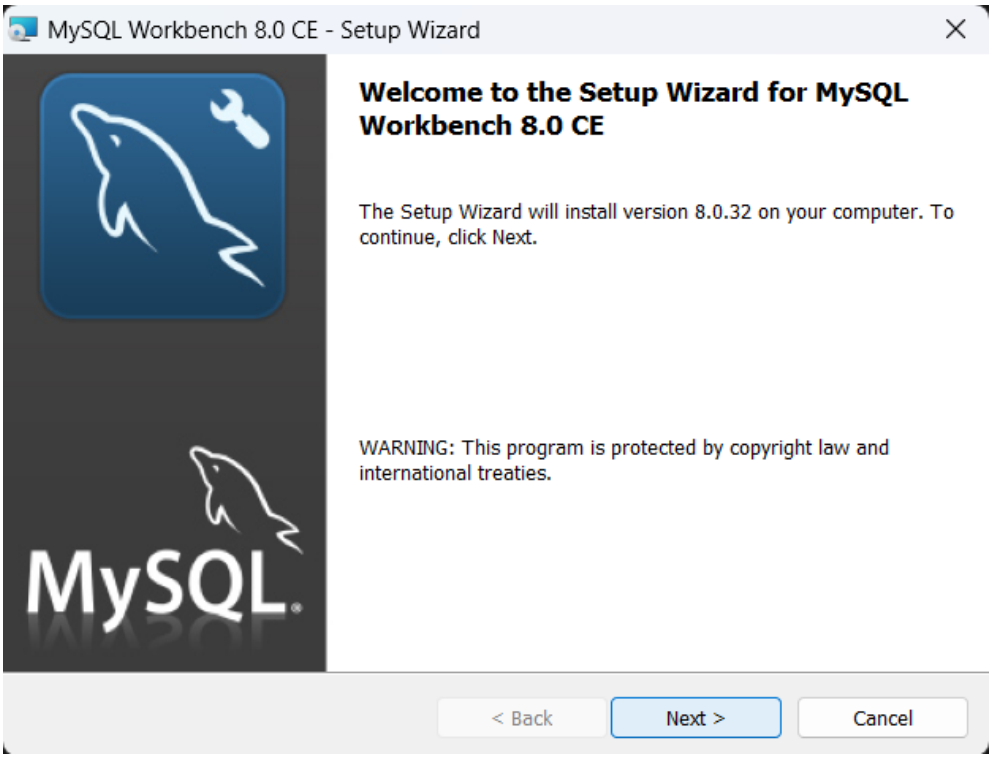
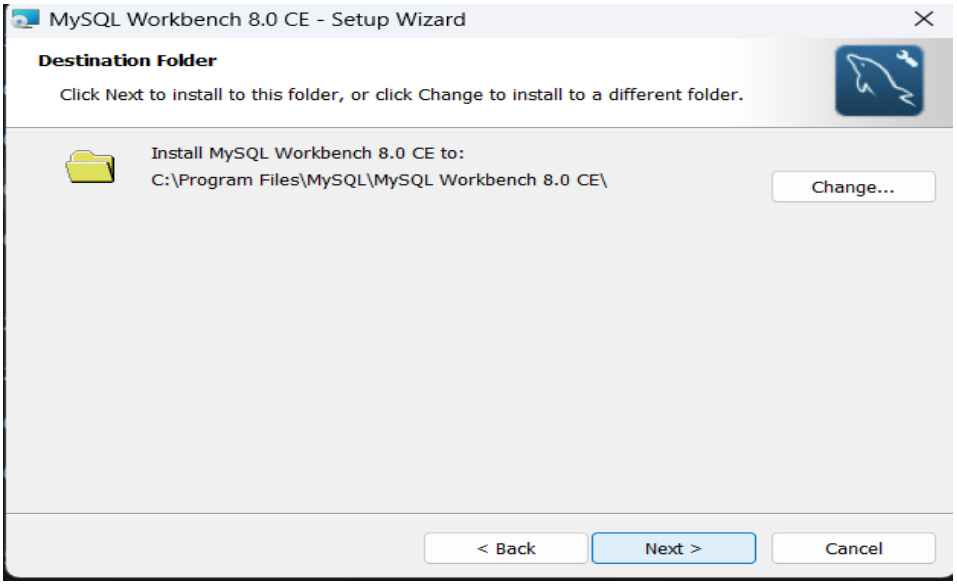


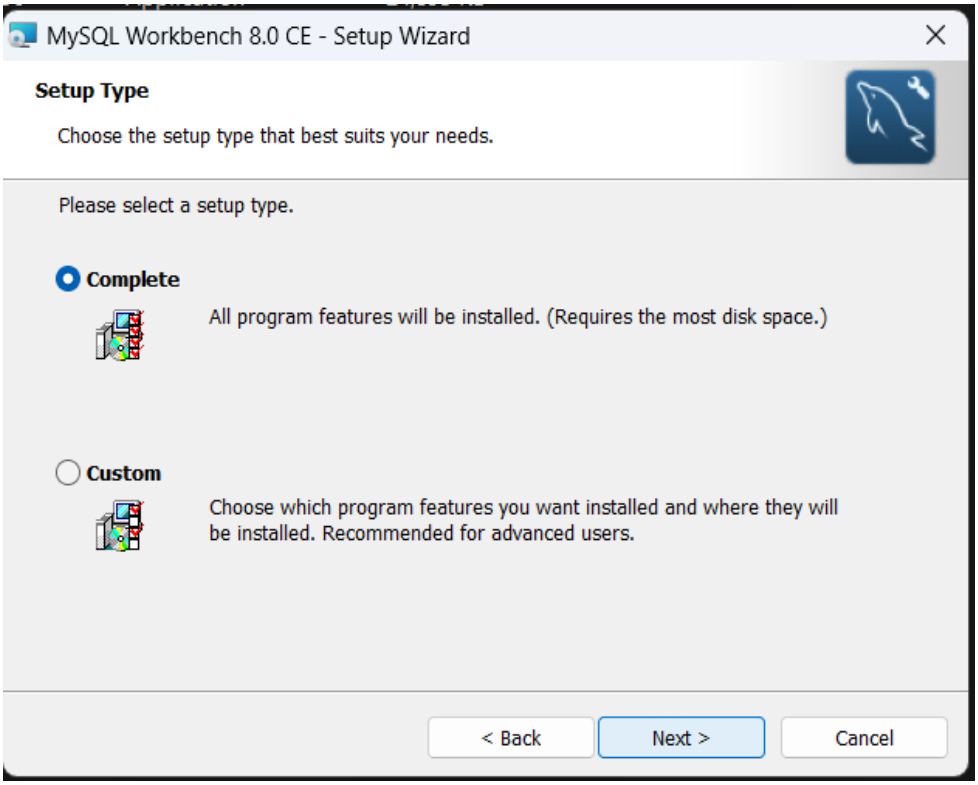
- Once the download is complete, run the installer file.
- The installation wizard will appear on the screen. Follow the prompts and click "Next" to proceed.



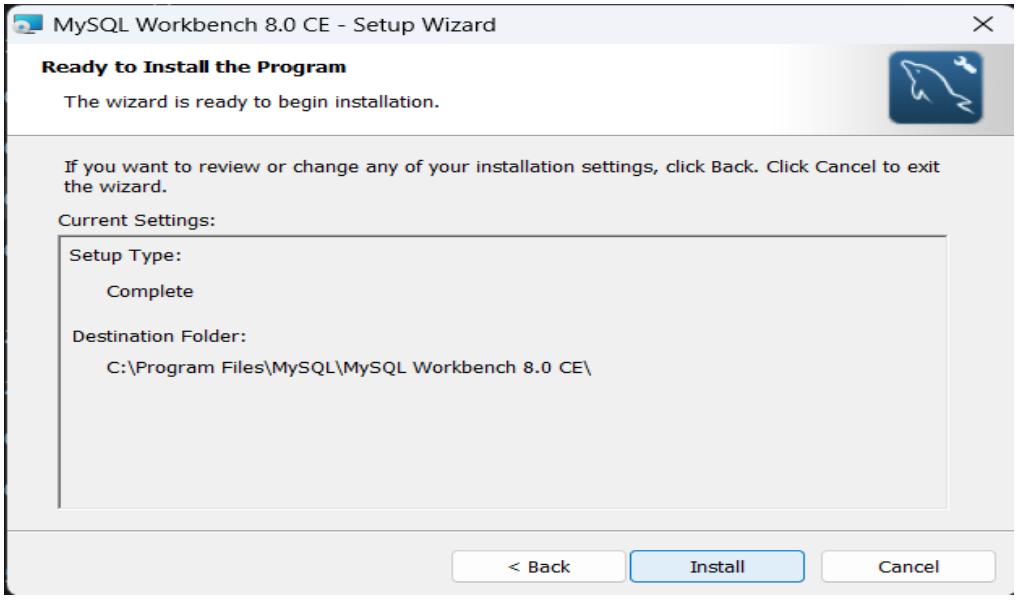
- Read the license agreement and select "I accept the terms in the license agreement" if you agree.
- Choose the installation folder and click "Next".



- Choose the type of installation (Complete, Custom or Typical) and click "Next".



- Review the settings and click "Install".



- Wait for the installation to complete.
- Click "Finish" to complete the installation.

Assignment 4

NOTE: FOR LAST TWO QUESTIONS YOU HAVE TO SUBMIT THE MYSQL WORKBENCH PROJECT FILE

Q.1 Consider the following tables: **[5]**

Employee (emp_id, name, age, department_id)
Department (department_id, department_name, manager_id)

Write a relational algebra expression to find the name and age of all employees who work in the department managed by John.

Q.2 Consider the following tables: **[5]**

Customer (cust_id, name, city, state)
Order (order_id, cust_id, date, amount)

Write a relational algebra expression to find the name and city of all customers who have placed an order.

Q.3 Consider the following tables: **[5]**

Student (student_id, name, major)
Course (course_id, name, credits)
Enrollment (student_id, course_id, grade)
Write a relational algebra expression to find the name and major of all students who have taken a course worth more than 3 credits and received a grade of A.

Q.4 Consider the following tables: **[5]**

Author (author_id, name)
Book (book_id, title, author_id)
Publisher (publisher_id, name)
Publication (book_id, publisher_id, year)

Write a relational algebra expression to find the titles of all books published by publishers whose name contains the word "Penguin".

Q.5 Consider the following tables: **[5]**

Product (product_id, name, price)
Order (order_id, date, customer_id)
OrderItem (order_id, product_id, quantity)

Write a relational algebra expression to find the total amount spent by each customer on each product.

NOTE: FOR BELOW TWO QUESTIONS YOU HAVE TO SUBMIT THE MYSQL WORKBENCH PROJECT FILE

Q.6 Create a new database and schema for following tables in MySql Workbench **[5]**

Student (student_id, name, major)
Course (course_id, name, credits)
Enrollment (student_id, course_id, grade)

Note: Make appropriate assumptions for different attributes' data types. Make sure keys are properly referenced.

Q.7 For the given EER diagram, convert it into relational Schema in MySql Workbench. **[30]**