

Introduction To SQL

1. Database Fundamentals

(Introduction Data, What kind of data, Database, What is a DBMS?,RDBMS.)

2. Installation MySQL software.

3. What is SQL?

4. SQL Basics(create DB and Tables. all CRUD operation)

5. SQL Data Types

6. Types of SQL commands/dbms languages

7. Normalization

8. Data Sorting

9. Functions

10. Subquery

11. Joins

12. Interview Question.

What is Data?

---In simple words, data can be facts related to any object in consideration.

---For example, your name, age, height, weight, etc. are some data related to you.

---A picture, image, file, pdf, etc. can also be considered data.

What kind of data:

- Data can be different types EX Banking Data,E-commerce Data etc.

Data can be structured data and Unstructured Data.

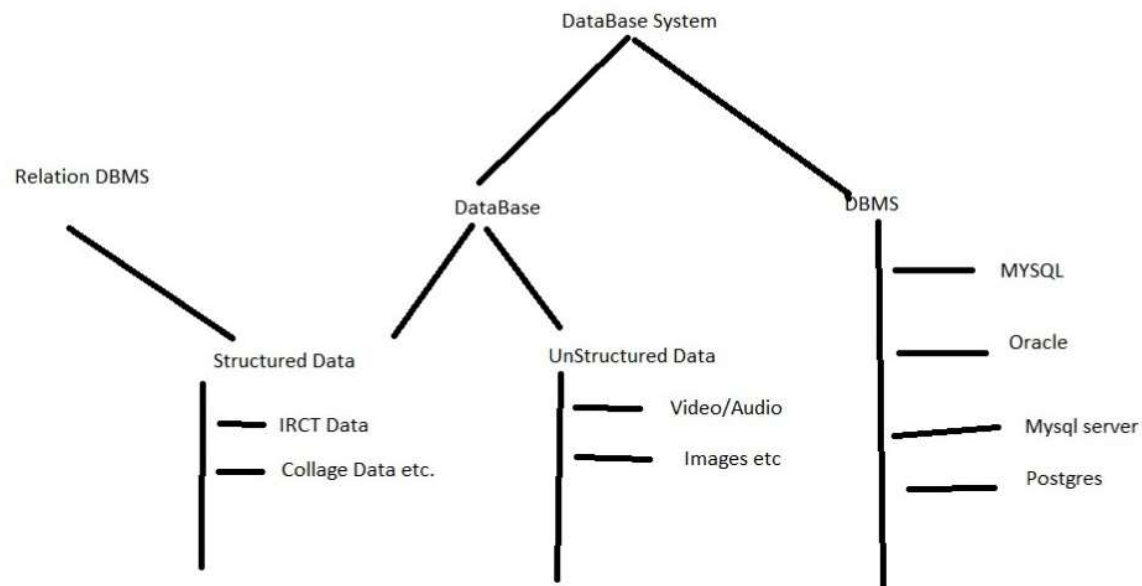
Structured data can be to a tabular format with relationship between the different rows and columns.

---Examples of structured data include names, dates, addresses, credit card numbers etc.

Unstructured data is information that is not arranged according to a pre-set data model or schema

---Examples of unstructured data includes things like video, audio or image files.

Shown below screen.



What is Database?

- database is a systematic collection of data.
- They support electronic storage and manipulation of data.
- Databases make data management easy.

Database Management System (DBMS)

- its system software for creating and managing database.
- DBMS provides users and programmers with systematic way to creat, read, update and manage data/
- It also helps to control access to the database.

Examples:Orcale 11/12/19c,Mysql,DB2 and postgres.

FLAT Files/File System: This is a traditional way in which used to store data/information in individual unrelated files.

Drawbacks:

- Data retrieval
- Data redundancy
- Data Integrity
- Data security

What is RDBMS?

- It is a database with relational model
- developed by E.F. codd.
- Most relational database use the SQL.

Or

It is basically a program that allows us to create, delete, and update a relational database. Relational Database is a database system that stores and retrieves data in a tabular format organized in the form of rows and columns.

It is a smaller subset of DBMS which was designed by E.F Codd in the 1970s.

The major DBMS like SQL, My-SQL, ORACLE are all based on the principles of relational DBMS.

Example:

The following table STUDENT consists of three columns Roll Number, Name, Section and four records of students 1, 2, 3 and 4 respectively

RollNo	NAME	Section
1	RAjA	A
2	Rajesh	B
3	RAjA	C
4	Ramesha	D

DBMS vs RDBMS

- DBMS stores data as a file whereas in RDBMS, data is stored in the form of tables.
- DBMS supports single users, while RDBMS supports multiple users.
- DBMS does not support client-server architecture but RDBMS supports client-server architecture.
- DBMS has low software and hardware requirements whereas RDBMS has higher hardware and software requirements.
- In DBMS, data redundancy is common while in RDBMS, keys and indexes do not allow data redundancy.

What is SQL?

---Stand for Structured Query language (SQL) pronounced as "S-Q-L" or sometimes as "See-Quel" is the standard language for dealing with Relational Databases.

--- Designed by Donald Chamberlin and Raymond Boyce 1974.

---A relational database defines relationships in the form of tables.

SQL programming can be effectively used to insert, search, update, and delete database records.

MySQL S/w:

---MySQL is an open-source relational database management system.

---most popular RDBMS.

--- managed by oracle.

MySQL workbench:

--- User interface for mysql.

--- used to manage MySQL in GUI form.

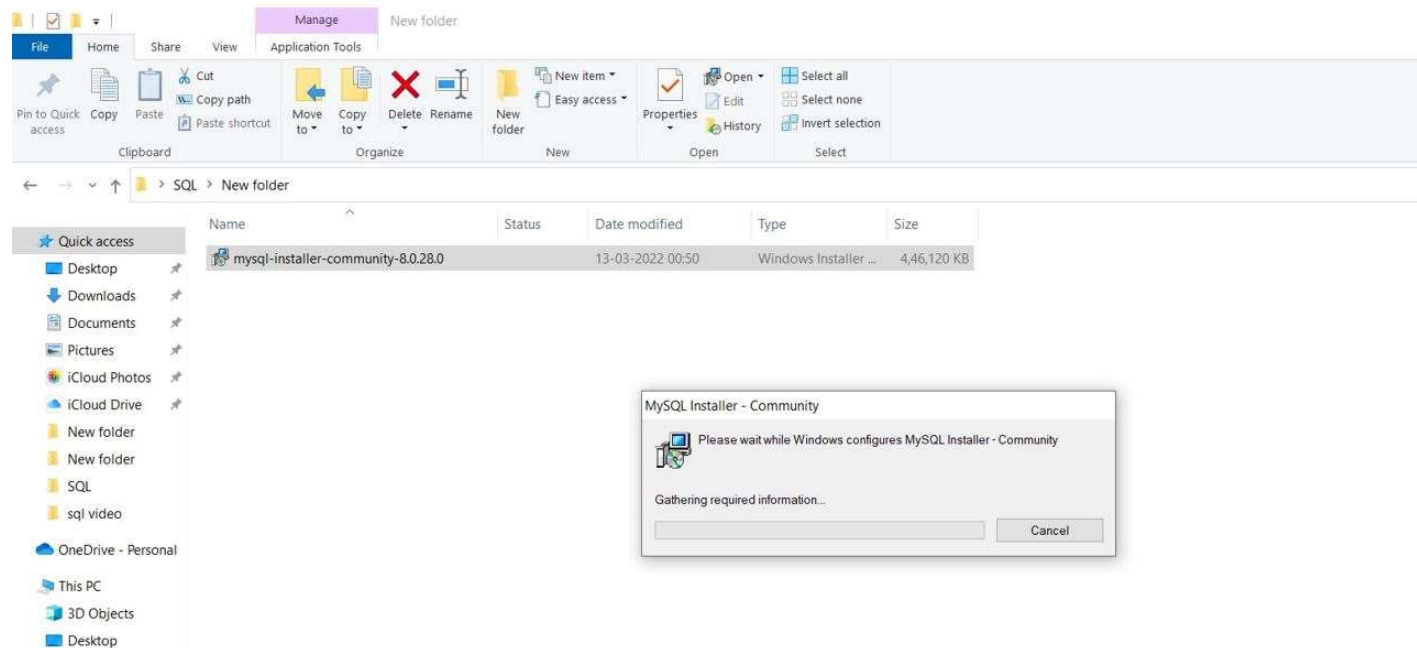
Step to Install MySQL Software

Go to <https://dev.mysql.com/downloads/installer/> and download

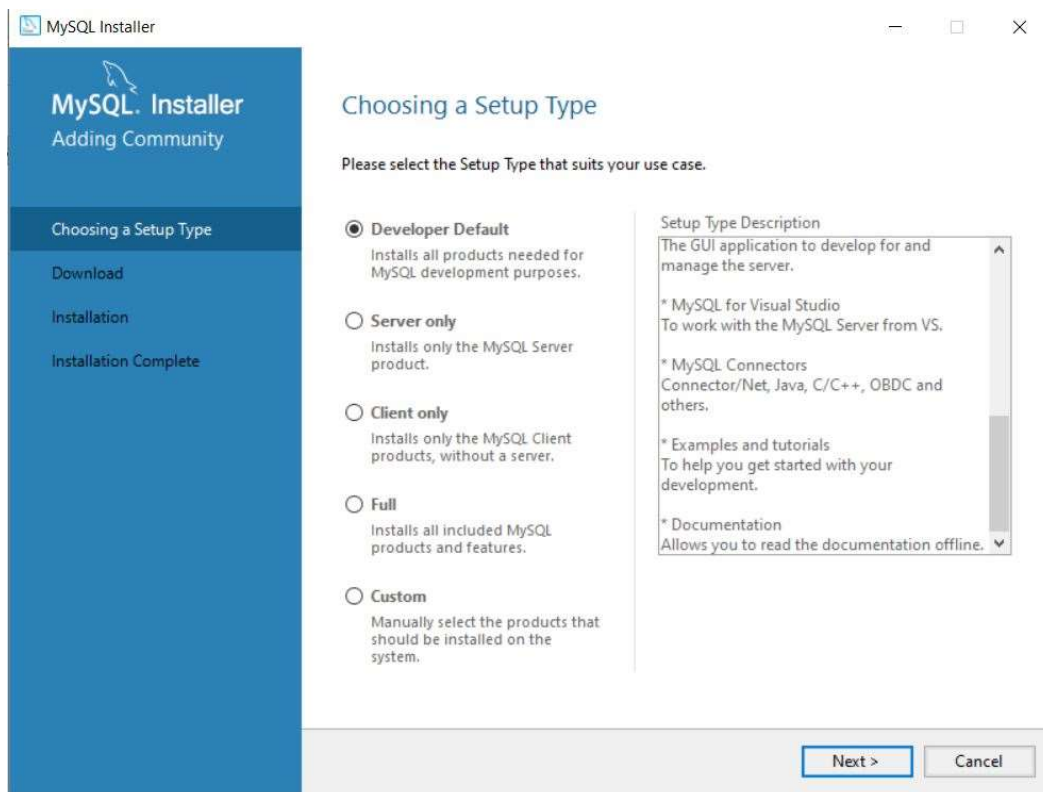
The screenshot shows the MySQL Community Downloads page for the MySQL Installer 8.0.28. The page is titled "MySQL Community Downloads" and "MySQL Installer". It features a "General Availability (GA) Releases" tab and an "Archives" tab. The main content area displays the "MySQL Installer 8.0.28" with a "Download 435.7MB mysql installer. Note it support both 32/64 bit" message. Below this, there is a "Select Operating System:" dropdown menu set to "Microsoft Windows". A table lists two download options for Windows (x86, 32-bit), MSI Installer. The first option is labeled "8.0.28" and "2.3M" with a "Download" button. The second option is labeled "8.0.28" and "435.7M" with a "Download" button. A red box highlights the second option. A black arrow points to the "8.0.28" text in the first row of the table. At the bottom, a note suggests using MD5 checksums and GnuPG signatures to verify the integrity of the packages.

Operating System	Version	Size	Action
Windows (x86, 32-bit), MSI Installer	8.0.28	2.3M	Download
Windows (x86, 32-bit), MSI Installer	8.0.28	435.7M	Download

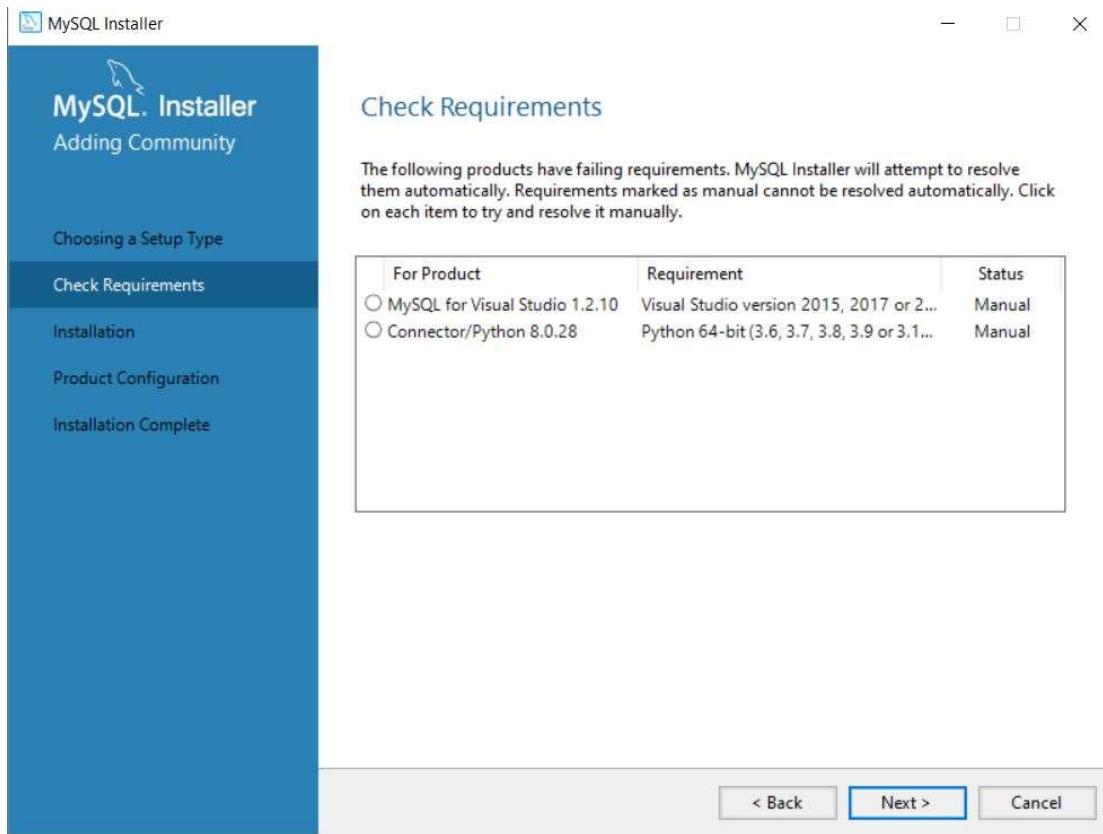
After Downloading Mysql S/w, double click on mysql sw to install



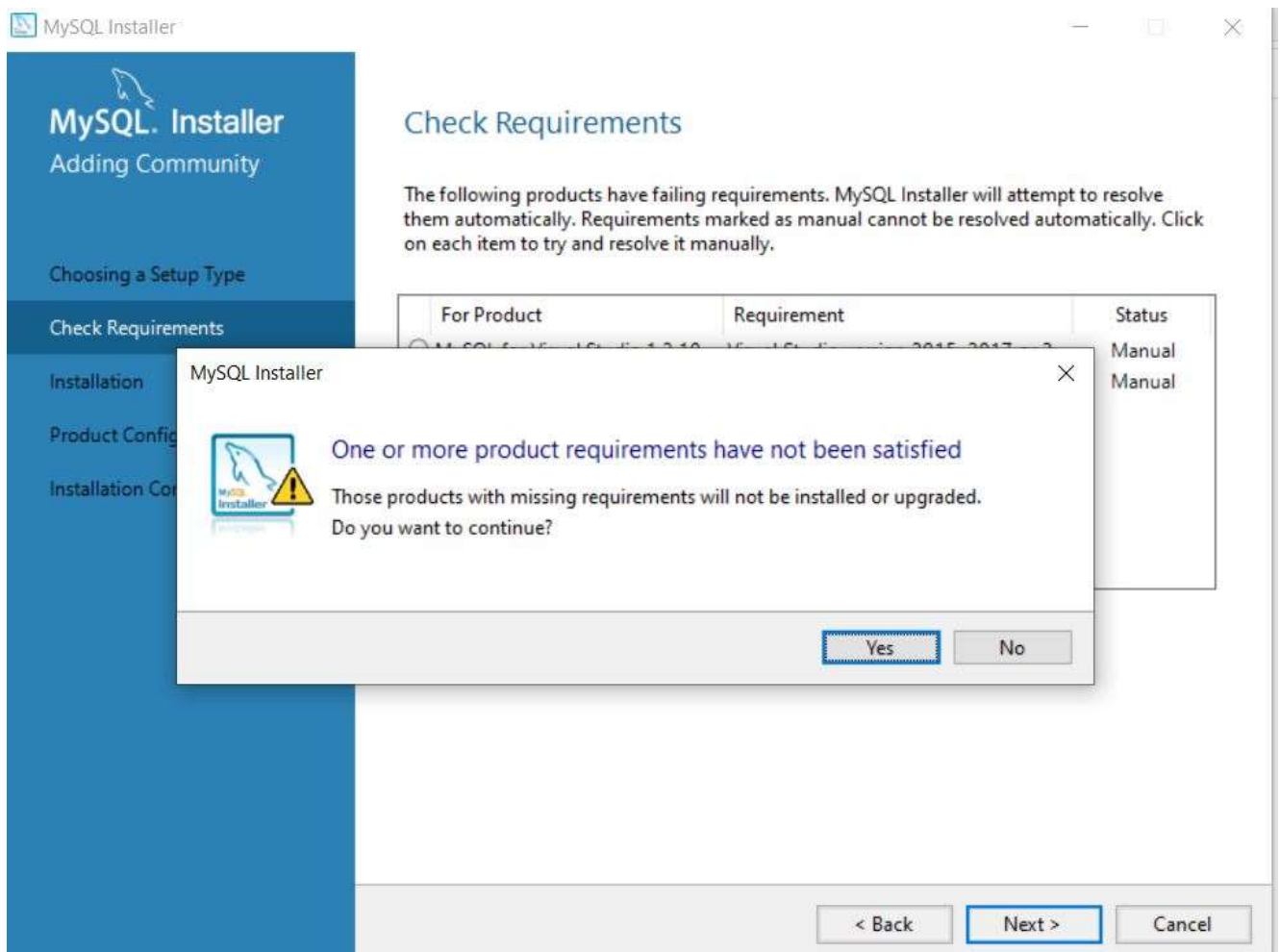
Step3: By default Developer Default option is selected,Click On Next Button



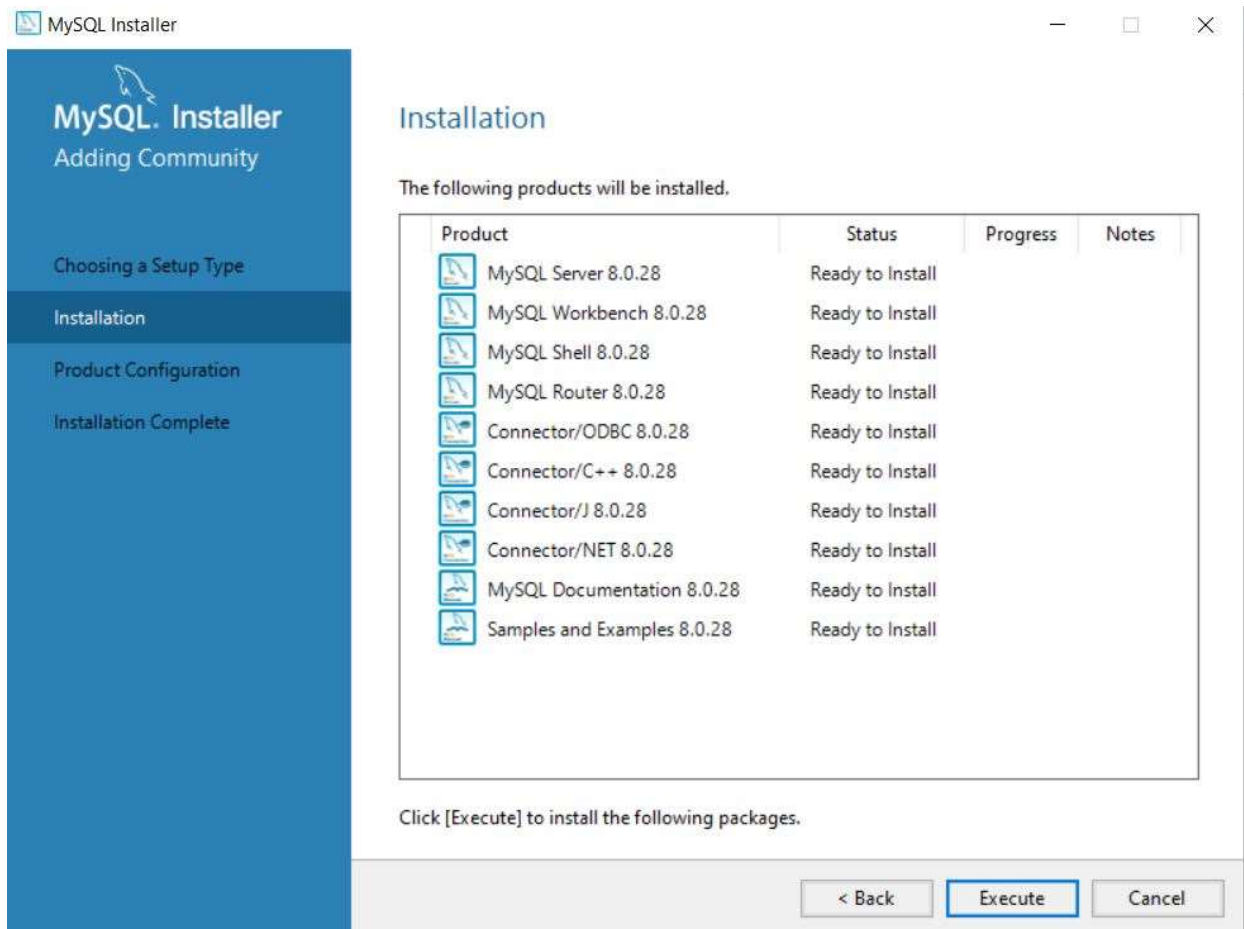
Step4:Click on Next Button



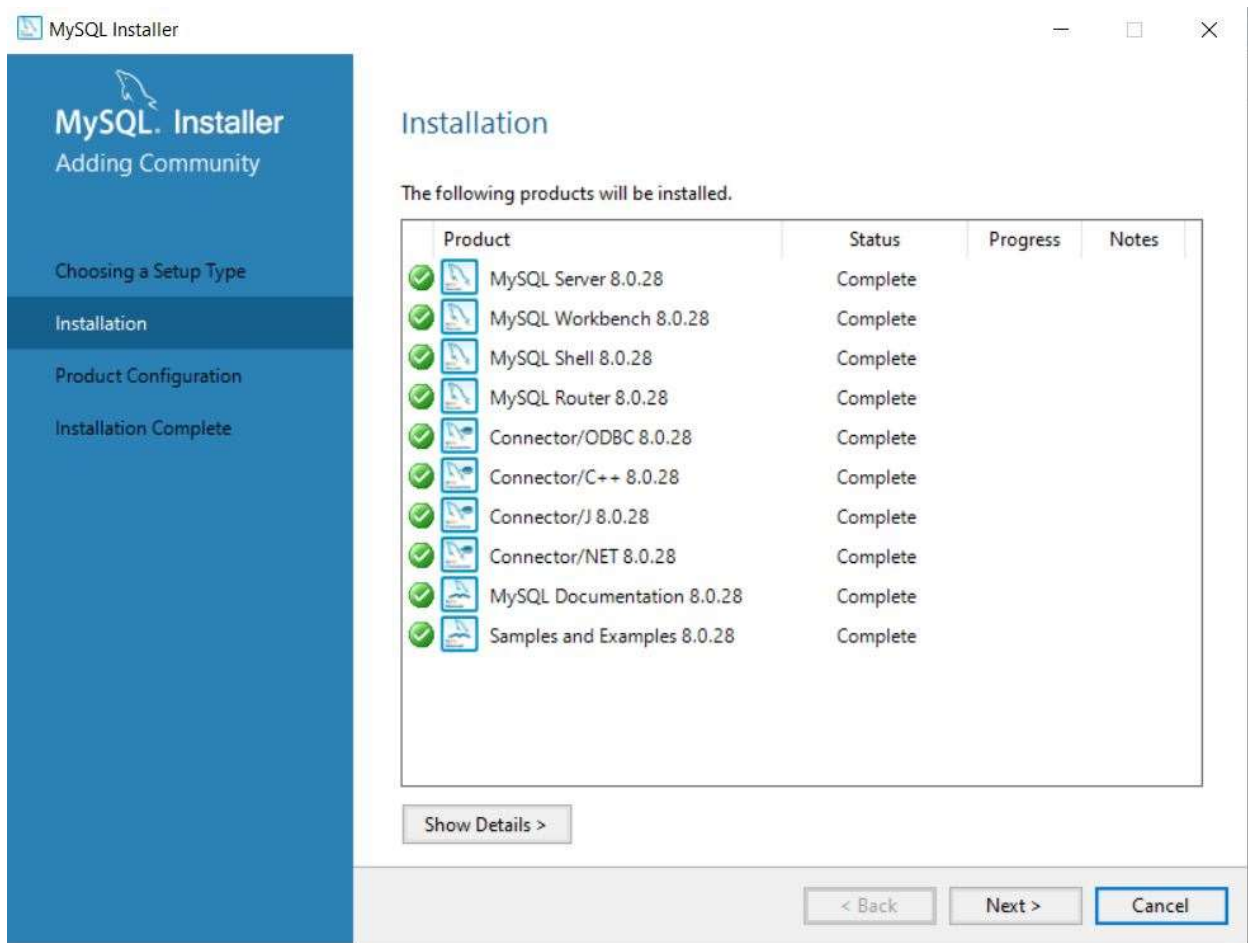
Step5:Click on Yes button, then Click on Next button



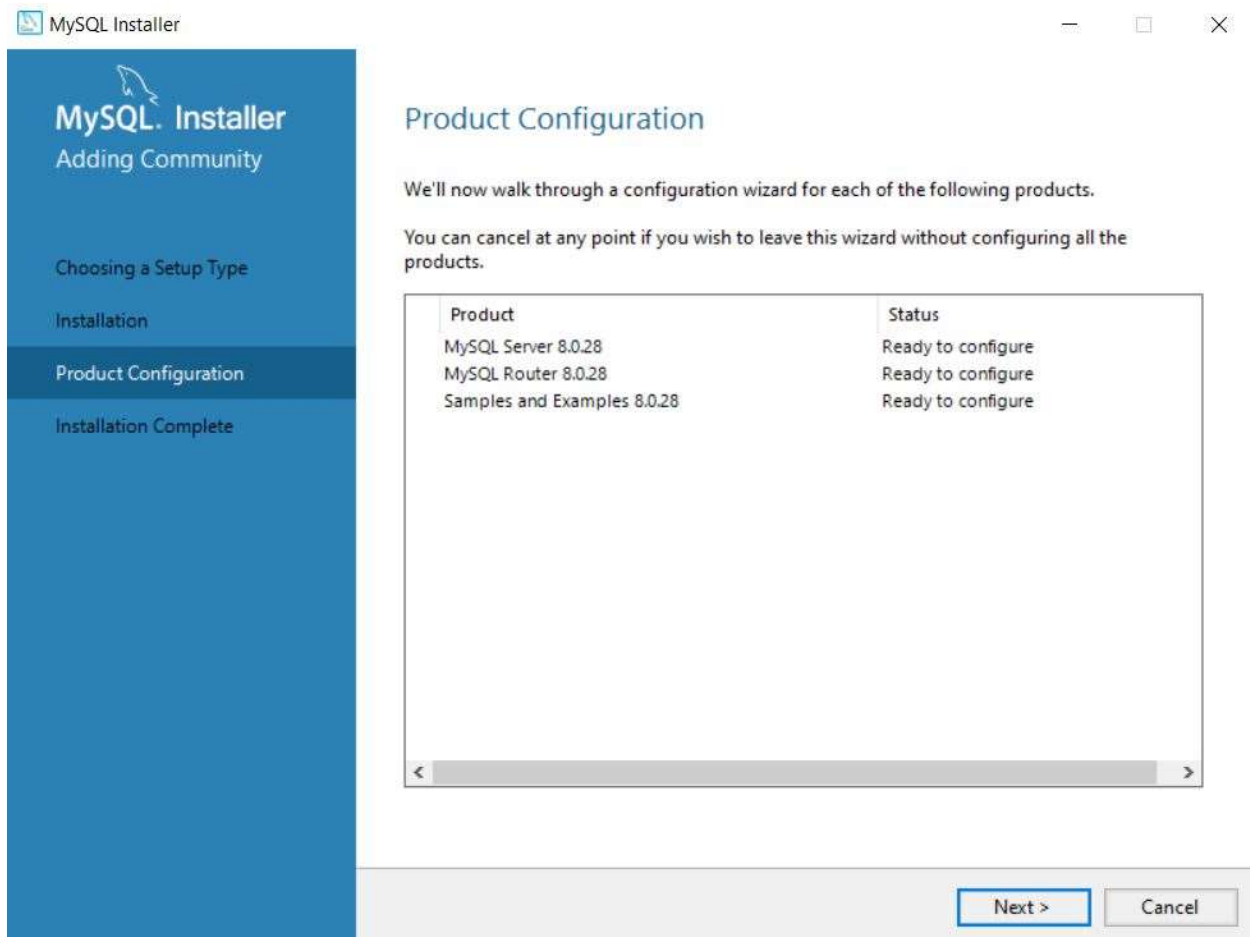
Step6:Click on Next Button



Step 7: Click on Next Button

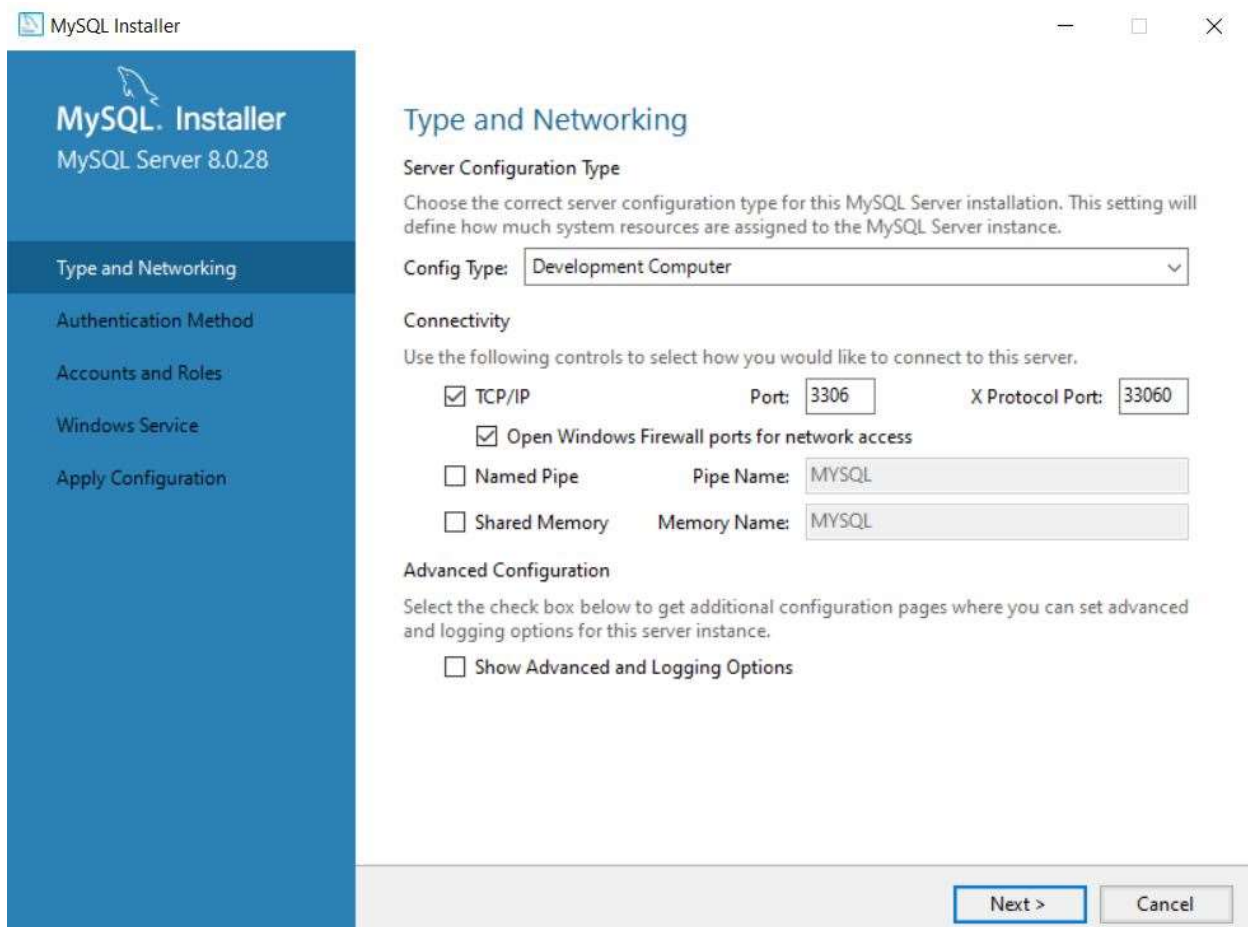


Step8 : Click on Next Button



Step9 : Click on Next Button, Keep it as it is.

Note: Don't Change anything in below screen



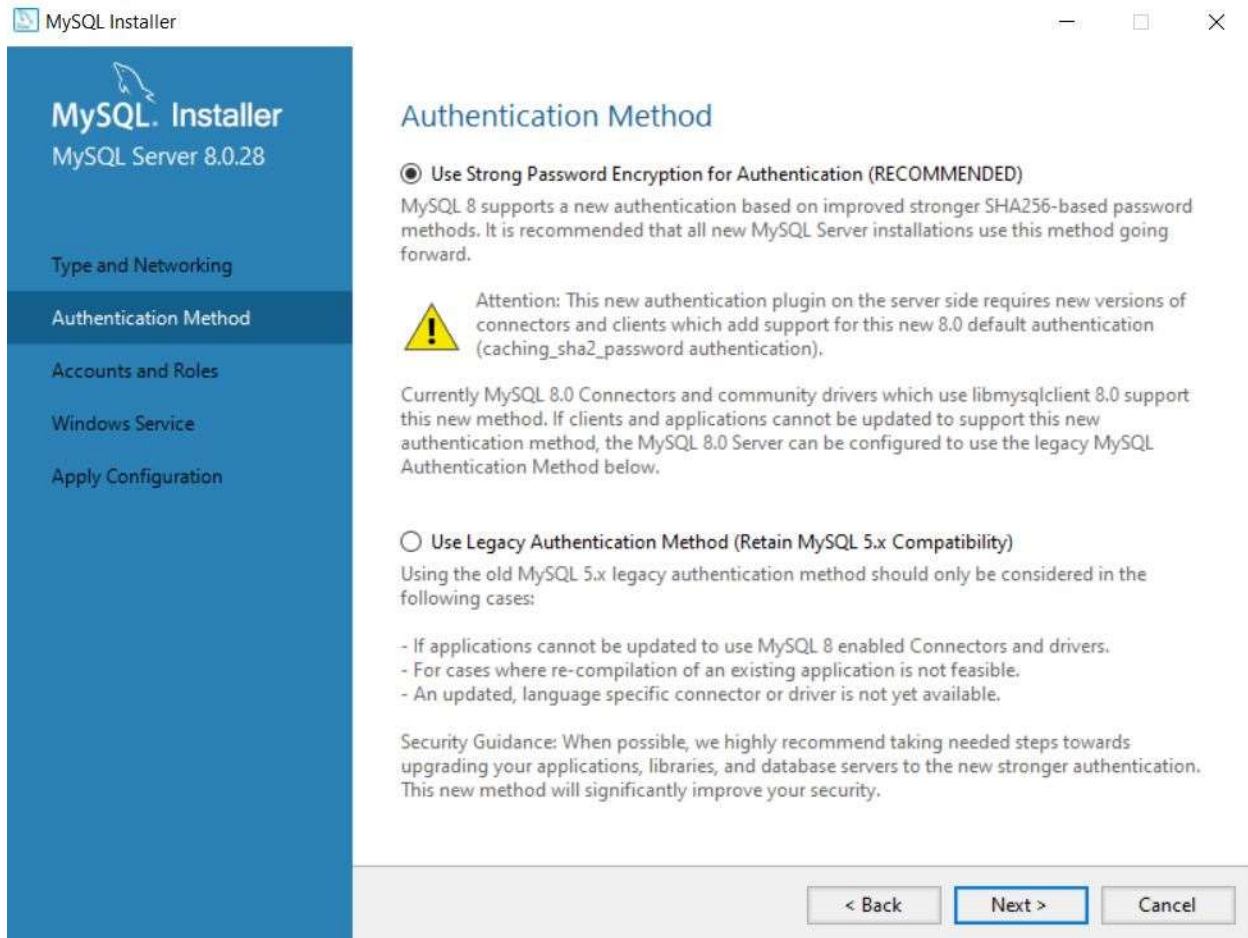
The image shows the MySQL Installer window for MySQL Server 8.0.28. The left sidebar contains the following navigation items: "Type and Networking" (selected), "Authentication Method", "Accounts and Roles", "Windows Service", and "Apply Configuration". The main content area is titled "Type and Networking" and includes the following sections:

- Server Configuration Type**: A dropdown menu labeled "Config Type:" with "Development Computer" selected.
- Connectivity**: A section with the instruction "Use the following controls to select how you would like to connect to this server." It contains:
 - ☒ TCP/IP: Port: 3306, X Protocol Port: 33060
 - ☒ Open Windows Firewall ports for network access
 - ☐ Named Pipe: Pipe Name: MYSQL
 - ☐ Shared Memory: Memory Name: MYSQL
- Advanced Configuration**: A section with the instruction "Select the check box below to get additional configuration pages where you can set advanced and logging options for this server instance." It contains:
 - ☐ Show Advanced and Logging Options

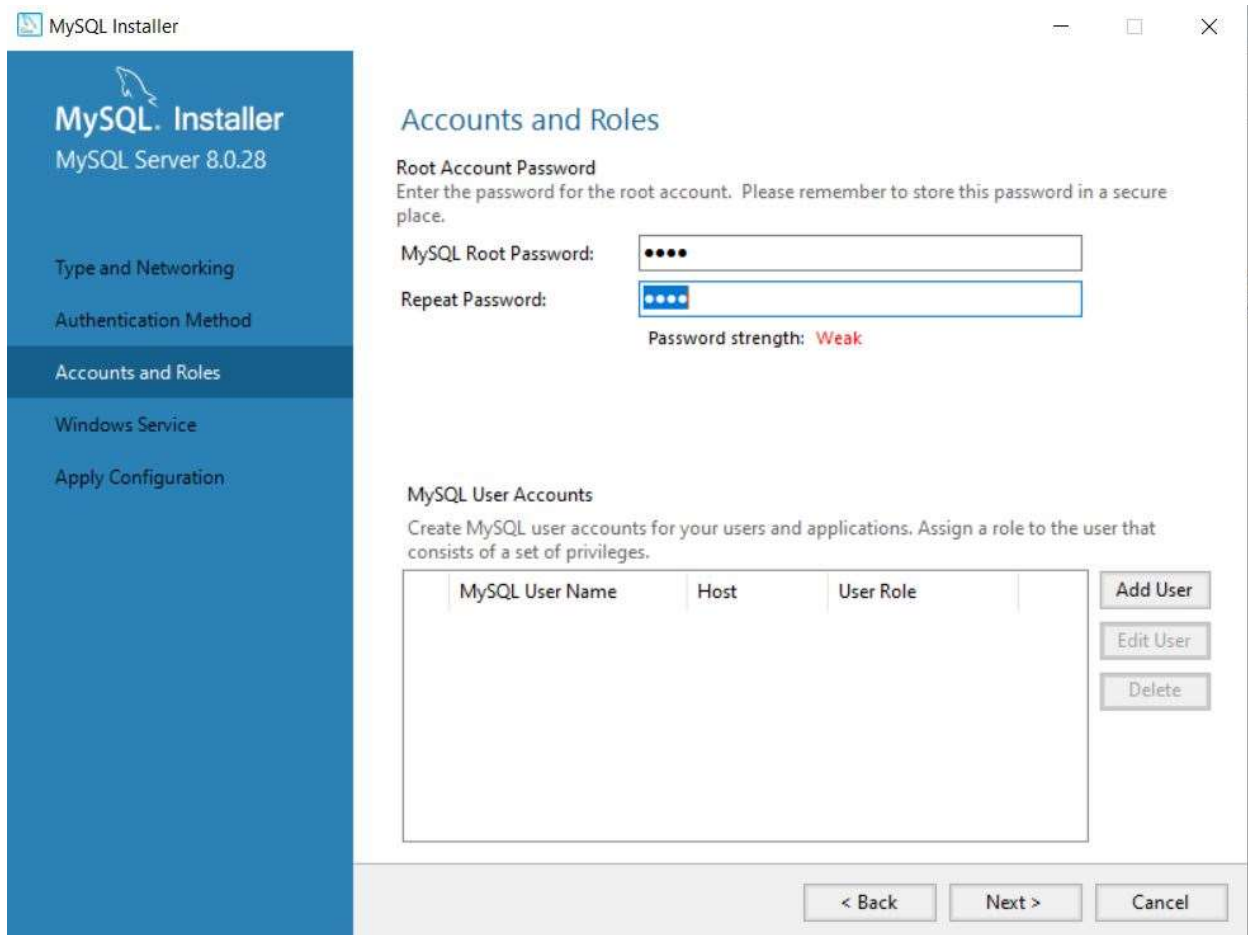
At the bottom right, there are two buttons: "Next >" and "Cancel".

Step10 : Click on Next Button, Keep it as it is.

Note: Don't Change anything in below screen



Step11: In below screen Enter password for MYSQL(I have given 4 digit ie. root as password), then click on Next button



The screenshot shows the 'Accounts and Roles' step of the MySQL 8.0.28 installer. The left sidebar contains navigation links: 'Type and Networking', 'Authentication Method', 'Accounts and Roles' (selected), 'Windows Service', and 'Apply Configuration'. The main area is titled 'Accounts and Roles' and contains two sections. The first section, 'Root Account Password', prompts the user to enter a password for the root account, with a note to store it securely. It features two password input fields: 'MySQL Root Password:' and 'Repeat Password:'. The password strength is indicated as 'Weak' in red text. The second section, 'MySQL User Accounts', instructs the user to create accounts and assign roles. It includes a table with columns for 'MySQL User Name', 'Host', and 'User Role'. To the right of the table are buttons for 'Add User', 'Edit User', and 'Delete'. At the bottom of the window are navigation buttons: '< Back', 'Next >', and 'Cancel'.

MySQL Installer

MySQL Server 8.0.28

Type and Networking

Authentication Method

Accounts and Roles

Windows Service

Apply Configuration

Accounts and Roles

Root Account Password
Enter the password for the root account. Please remember to store this password in a secure place.

MySQL Root Password:

Repeat Password:

Password strength: **Weak**

MySQL User Accounts
Create MySQL user accounts for your users and applications. Assign a role to the user that consists of a set of privileges.

MySQL User Name	Host	User Role
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Add User

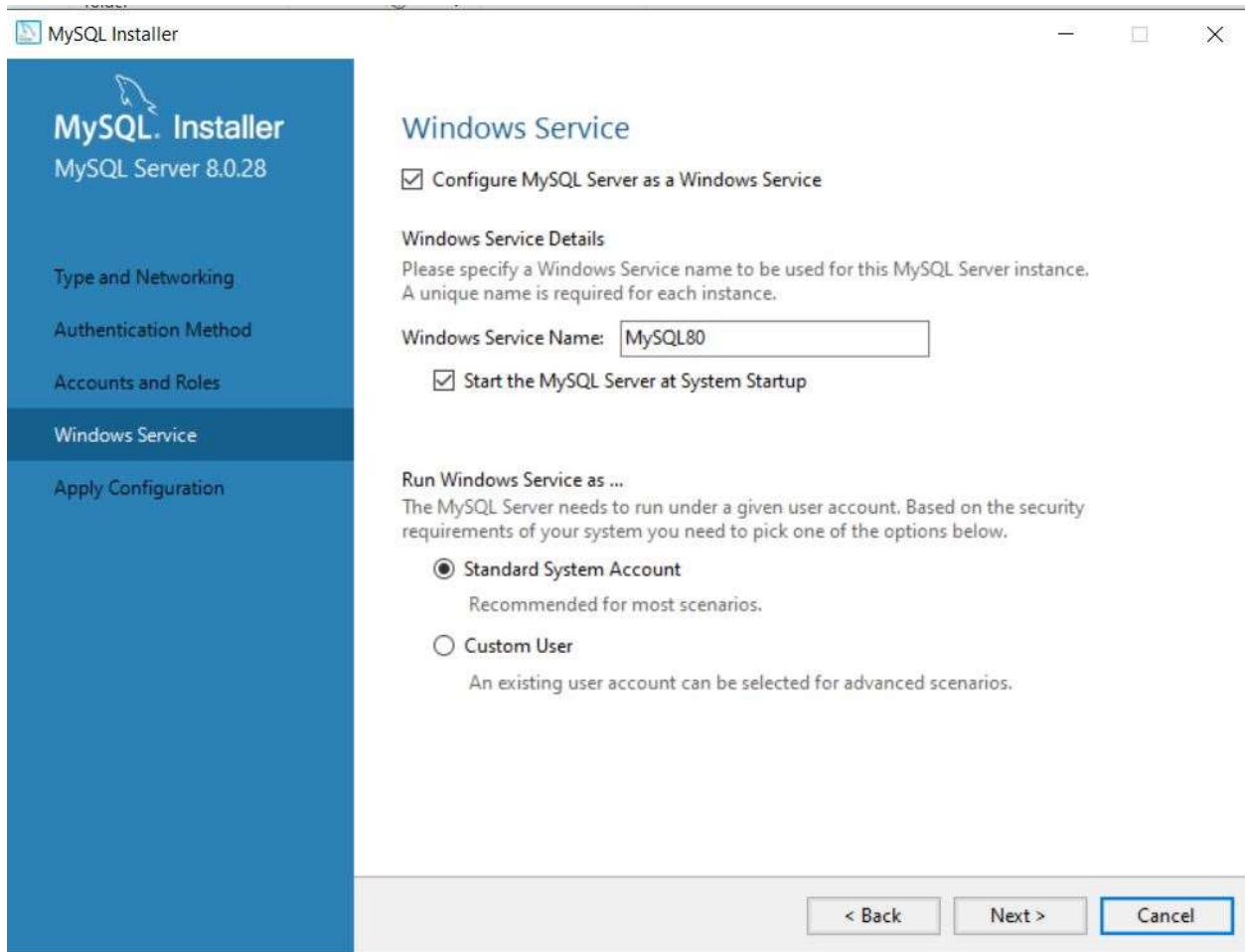
Edit User

Delete

< Back Next > Cancel

Step12 : Click on Next Button, Keep it as it is.

Note: Don't Change anything in below screen

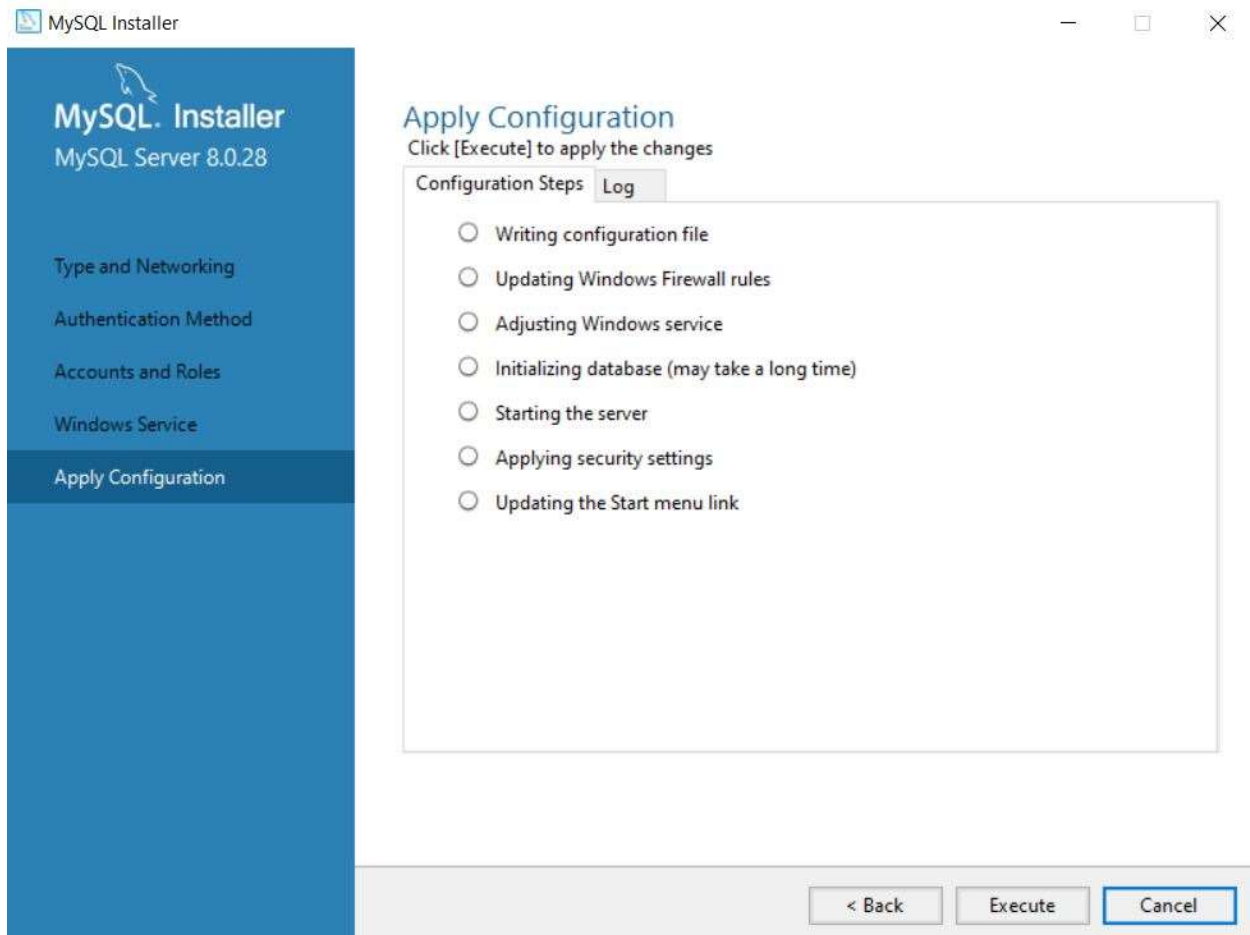


The screenshot shows the 'MySQL Installer' window for 'MySQL Server 8.0.28'. The left sidebar contains a list of configuration steps: 'Type and Networking', 'Authentication Method', 'Accounts and Roles', 'Windows Service' (which is highlighted), and 'Apply Configuration'. The main area is titled 'Windows Service' and contains the following options:

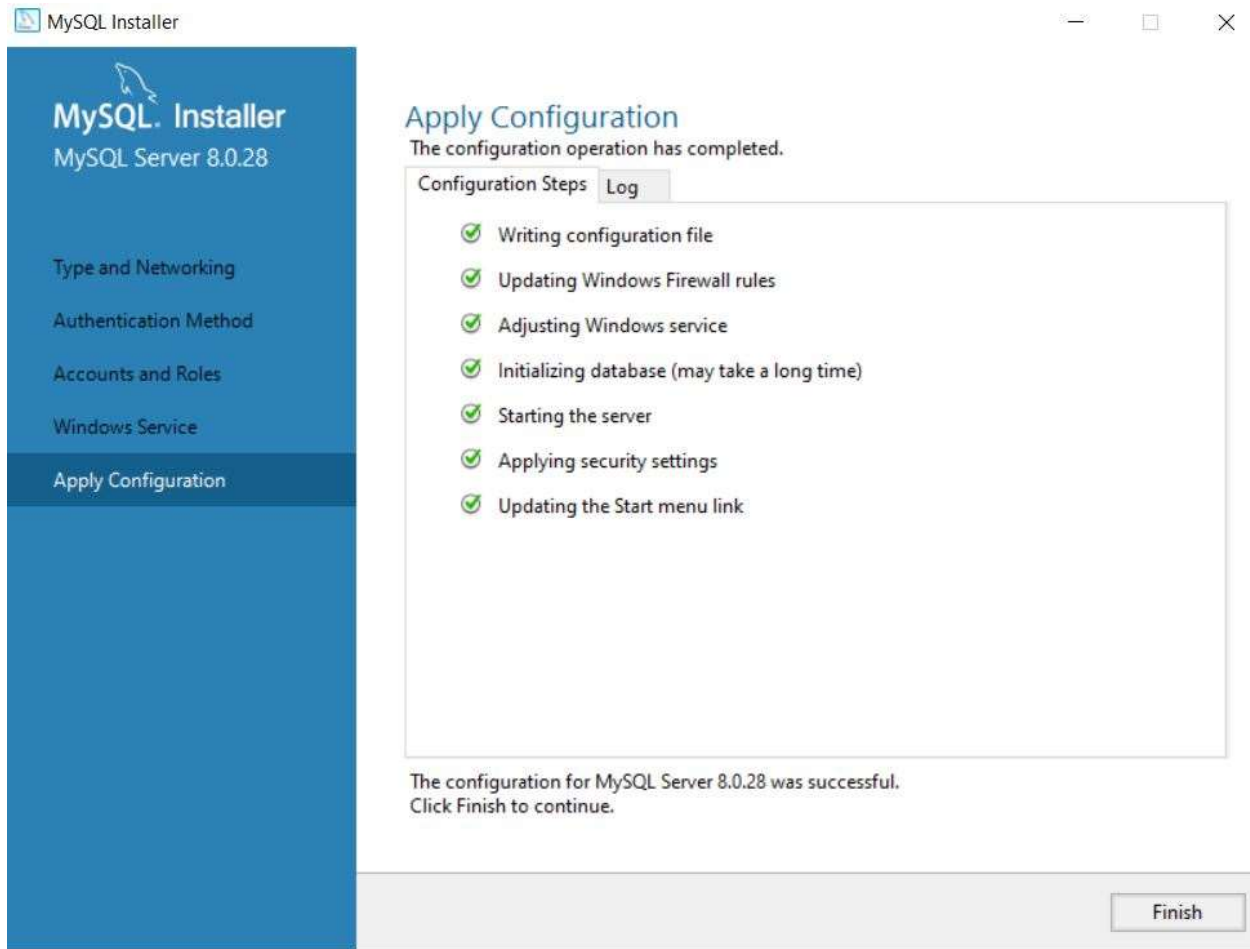
- ☒ **Configure MySQL Server as a Windows Service**
- Windows Service Details**
Please specify a Windows Service name to be used for this MySQL Server instance. A unique name is required for each instance.
Windows Service Name:
- ☒ **Start the MySQL Server at System Startup**
- Run Windows Service as ...**
The MySQL Server needs to run under a given user account. Based on the security requirements of your system you need to pick one of the options below.
 - ☒ **Standard System Account**
Recommended for most scenarios.
 - ☐ **Custom User**
An existing user account can be selected for advanced scenarios.

At the bottom right, there are three buttons: '< Back', 'Next >', and 'Cancel'.

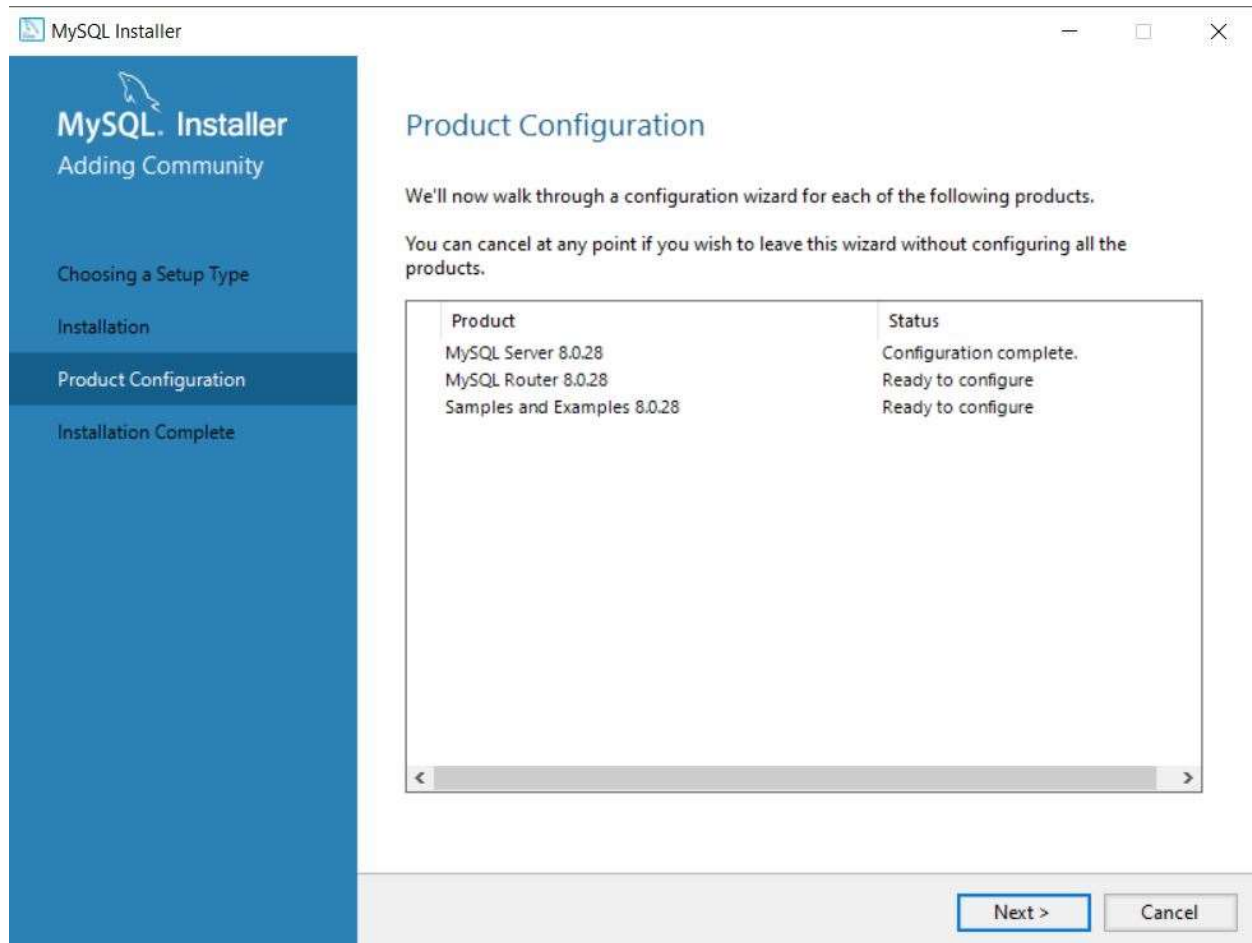
Step13: Click on Execute Button, Keep it as it is.



Step14 : Click on Finish Button, Keep it as it is.

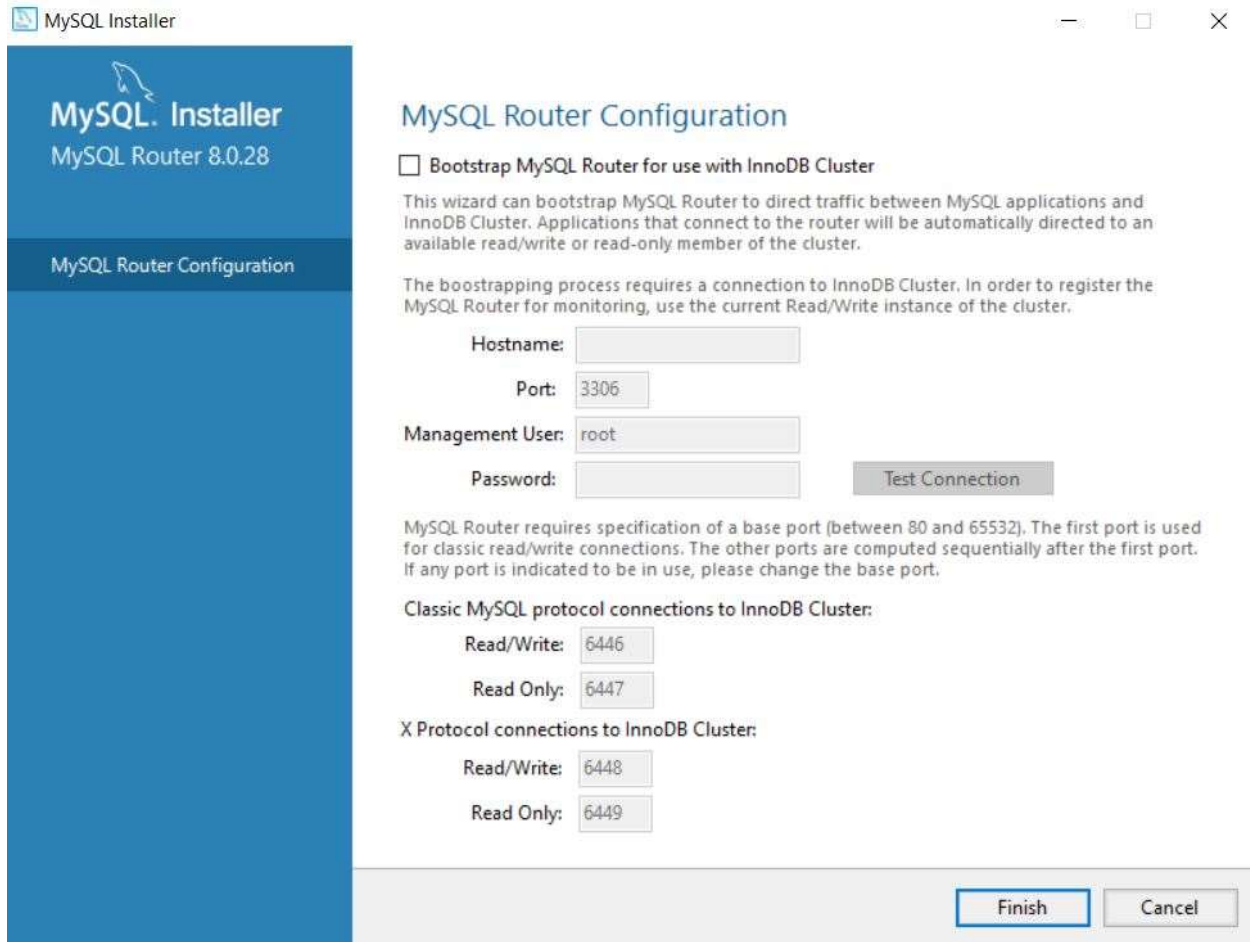


Step15: Click on Next Button, Keep it as it is.



Step16: Click on Next Button, Keep it as it is.

Note: Don't Change anything in below screen



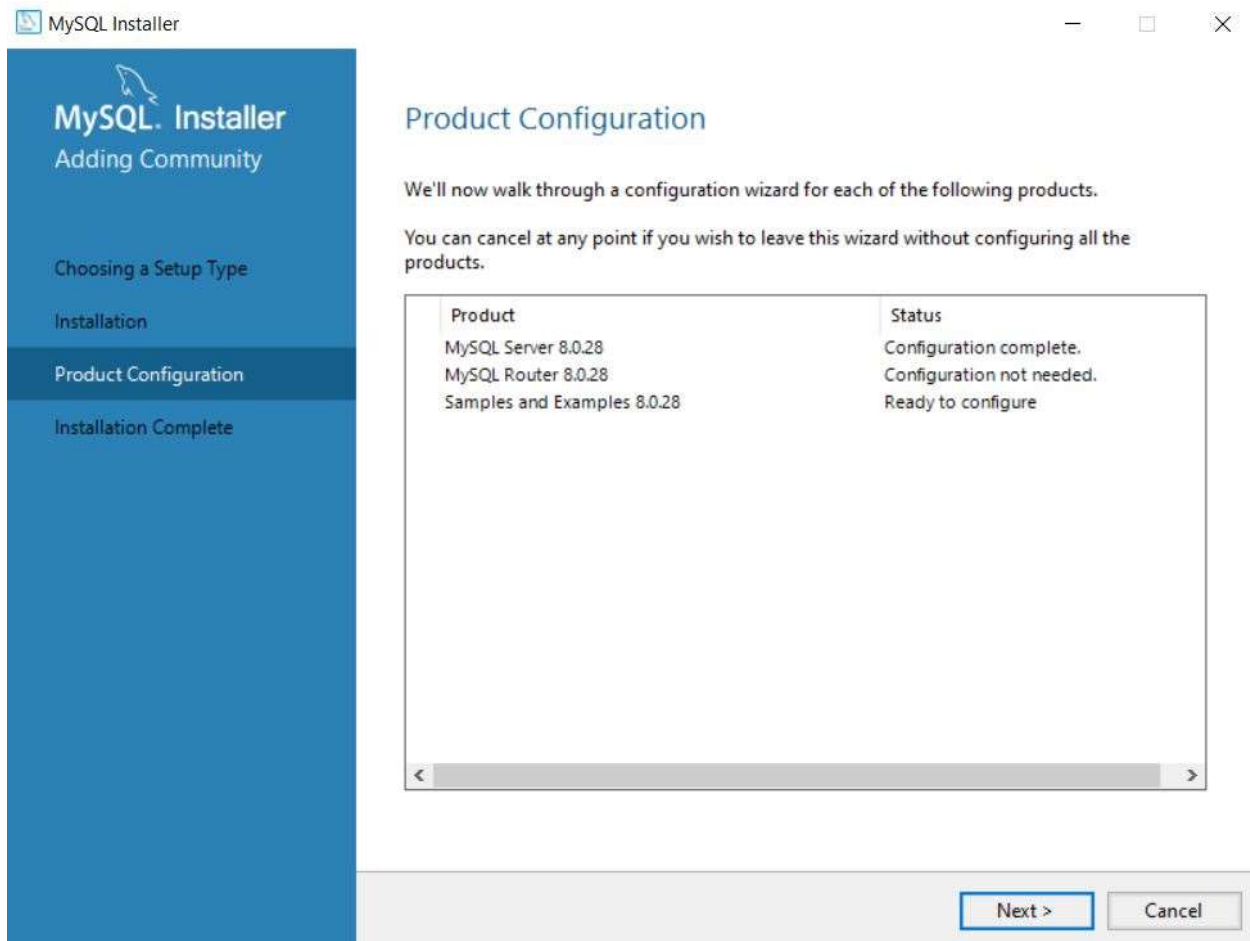
The image shows the 'MySQL Router Configuration' window from the MySQL Installer. The window has a blue sidebar on the left with the MySQL logo and the text 'MySQL Router 8.0.28' and 'MySQL Router Configuration'. The main area is white and contains the following elements:

- MySQL Router Configuration** (Section Header)
- ☐ **Bootstrap MySQL Router for use with InnoDB Cluster**
- This wizard can bootstrap MySQL Router to direct traffic between MySQL applications and InnoDB Cluster. Applications that connect to the router will be automatically directed to an available read/write or read-only member of the cluster.
- The bootstrapping process requires a connection to InnoDB Cluster. In order to register the MySQL Router for monitoring, use the current Read/Write instance of the cluster.
- Hostname:** [Text Field]
- Port:** [Text Field: 3306]
- Management User:** [Text Field: root]
- Password:** [Text Field] **Test Connection** (Button)
- MySQL Router requires specification of a base port (between 80 and 65532). The first port is used for classic read/write connections. The other ports are computed sequentially after the first port. If any port is indicated to be in use, please change the base port.
- Classic MySQL protocol connections to InnoDB Cluster:**

 - Read/Write:** [Text Field: 6446]
 - Read Only:** [Text Field: 6447]
- X Protocol connections to InnoDB Cluster:**

 - Read/Write:** [Text Field: 6448]
 - Read Only:** [Text Field: 6449]
- Finish** (Button) **Cancel** (Button)

Step17 : Click on Next Button, Keep it as it is.

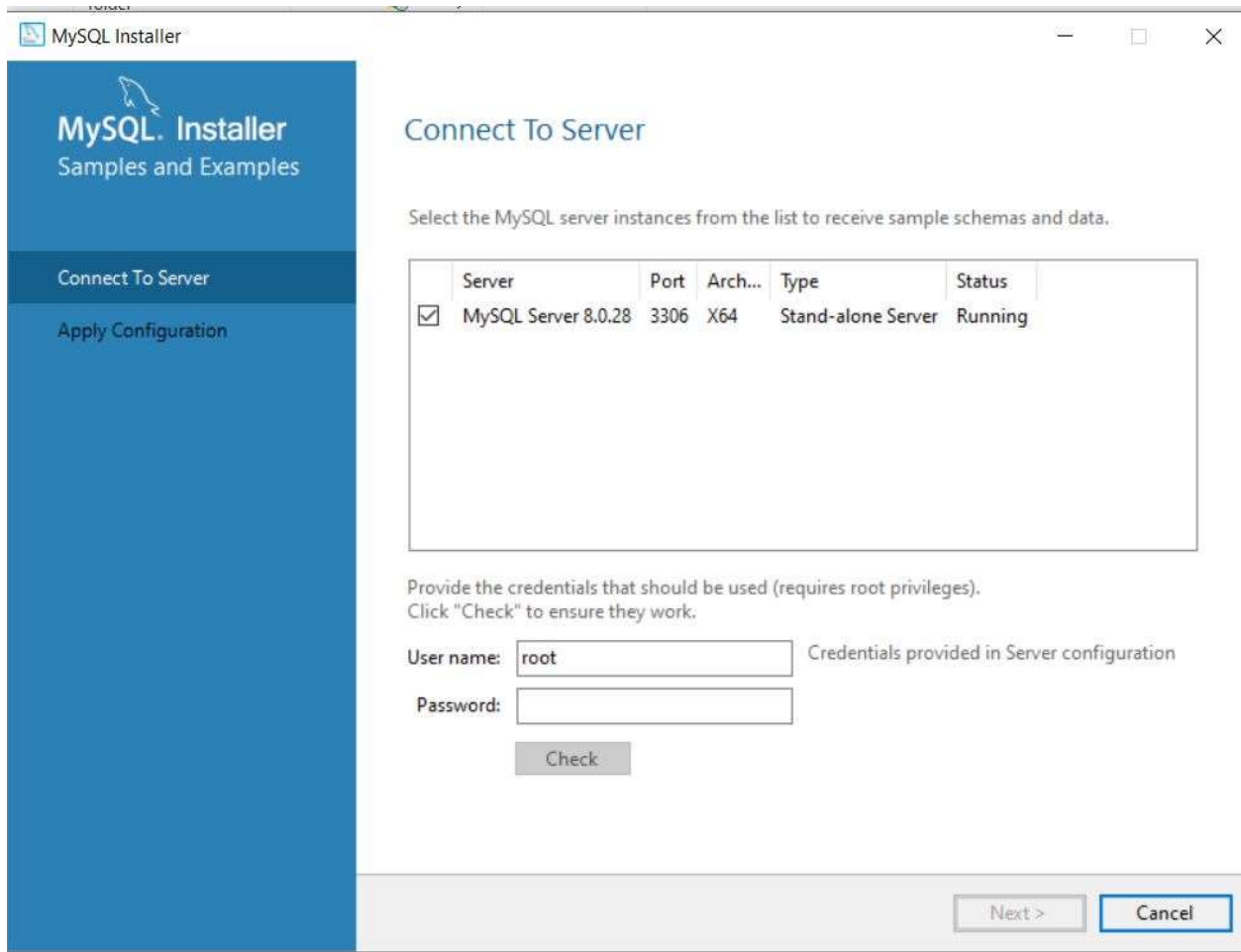


Step18 :

By default user name: root

Password: the password you had given in Step11 is same you enter.

Then click on Check button to test password correct.

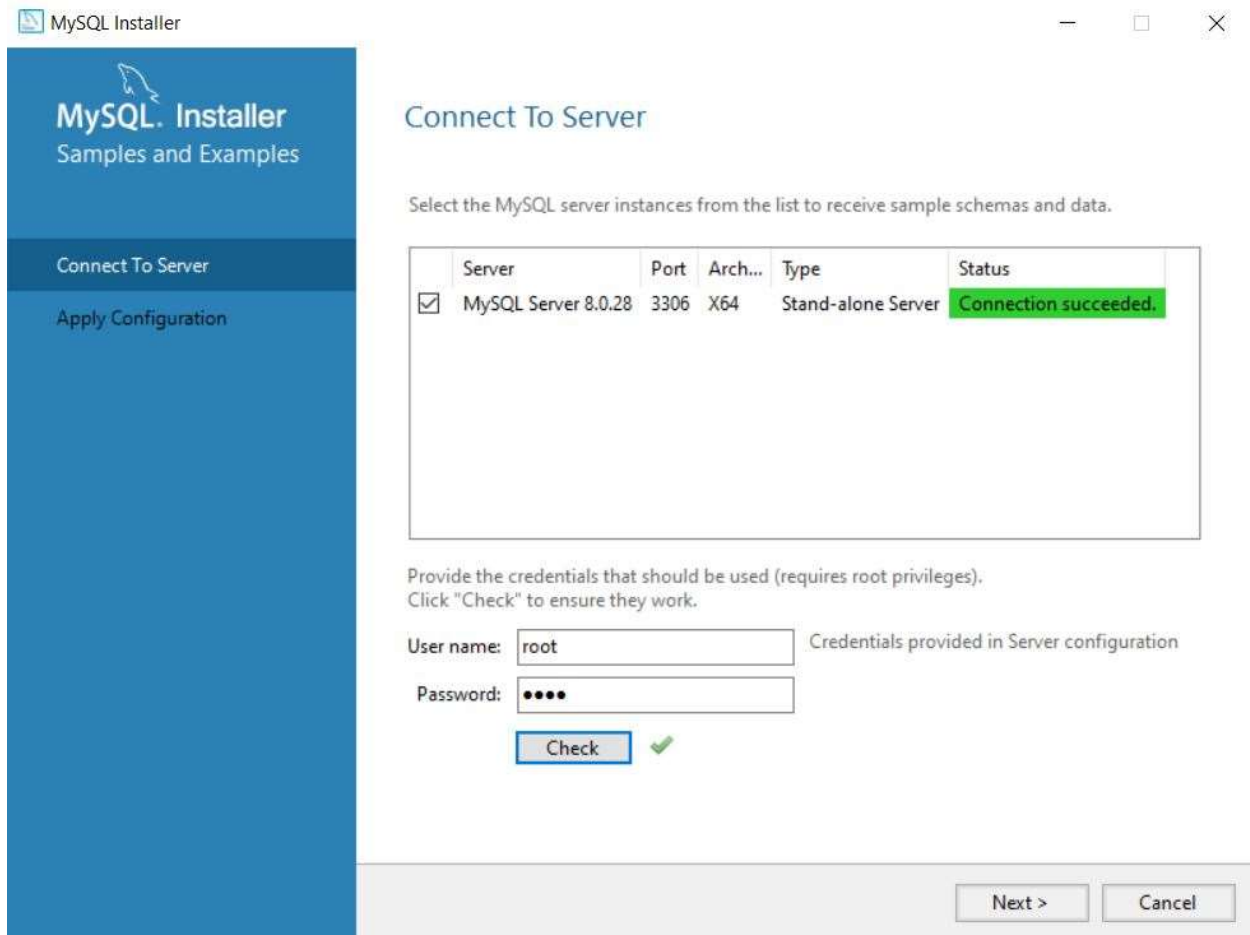


The screenshot shows the 'Connect To Server' window of the MySQL Installer. The left sidebar has three options: 'MySQL. Installer Samples and Examples', 'Connect To Server' (which is selected), and 'Apply Configuration'. The main area is titled 'Connect To Server' and contains the following elements:

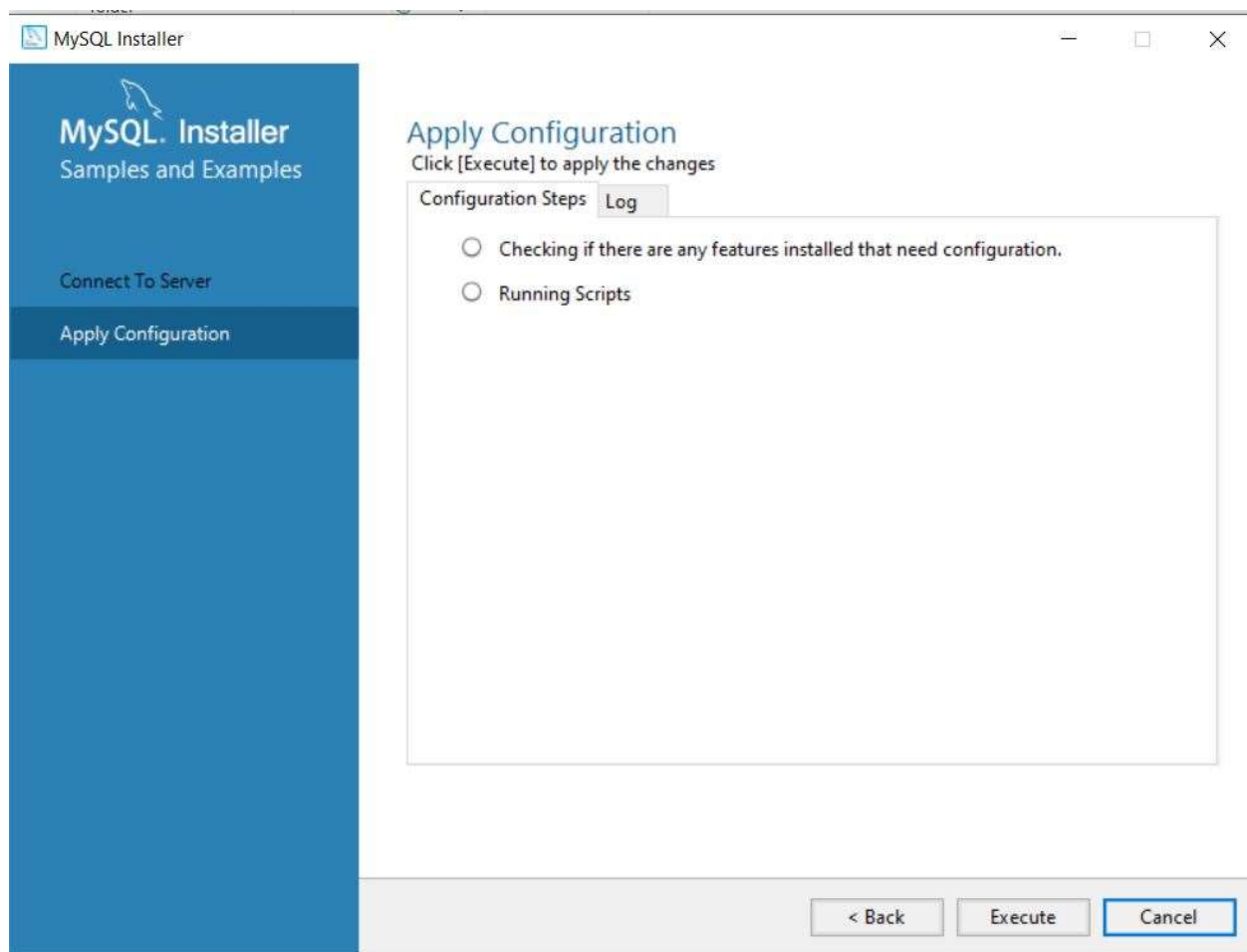
- A text instruction: 'Select the MySQL server instances from the list to receive sample schemas and data.'
- A table with the following data:

	Server	Port	Arch...	Type	Status
<input checked="" type="checkbox"/>	MySQL Server 8.0.28	3306	X64	Stand-alone Server	Running
- A text instruction: 'Provide the credentials that should be used (requires root privileges). Click "Check" to ensure they work.'
- Input fields for 'User name:' (containing 'root') and 'Password:' (empty).
- A 'Check' button.
- A note: 'Credentials provided in Server configuration'.
- At the bottom right, there are 'Next >' and 'Cancel' buttons.

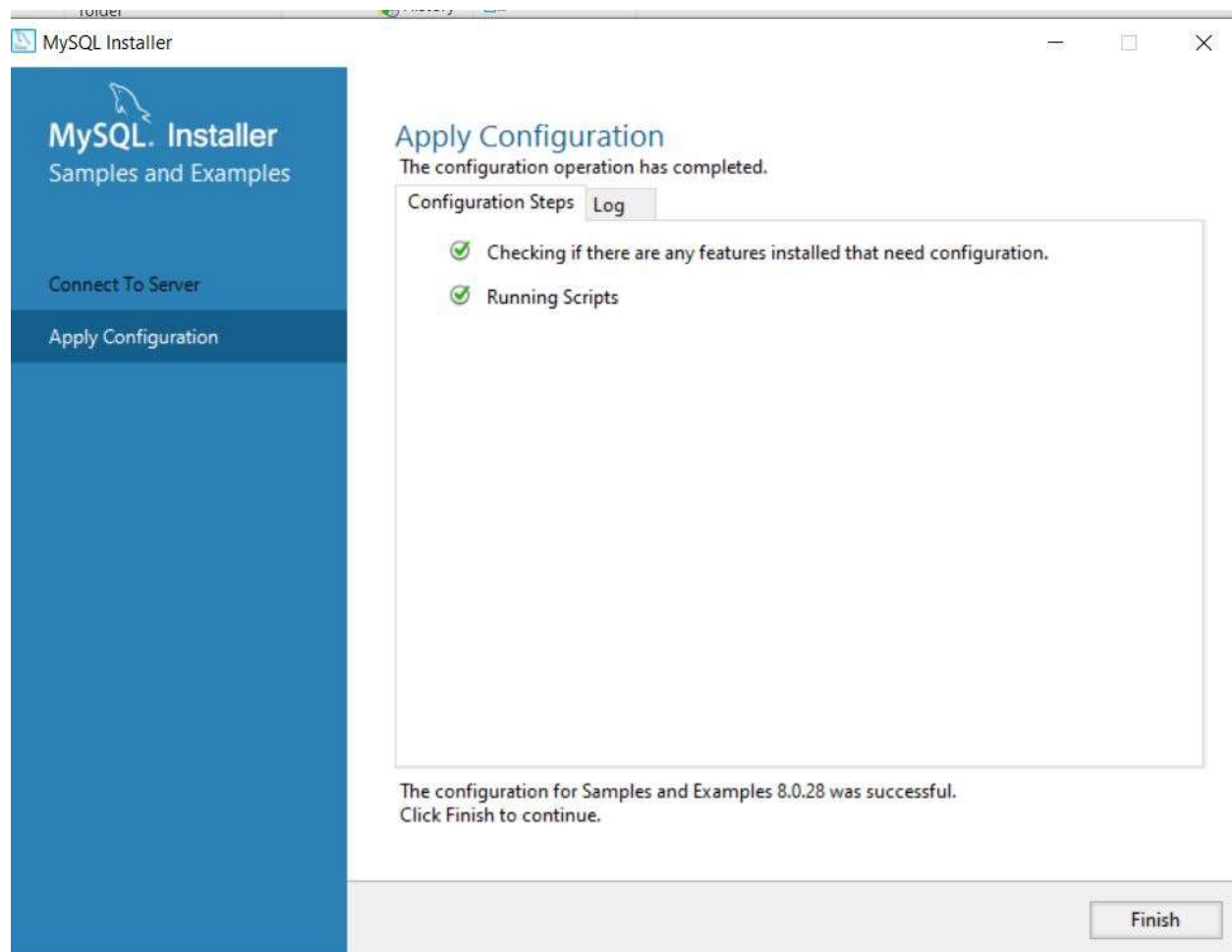
Step19 : Click on Next Button.



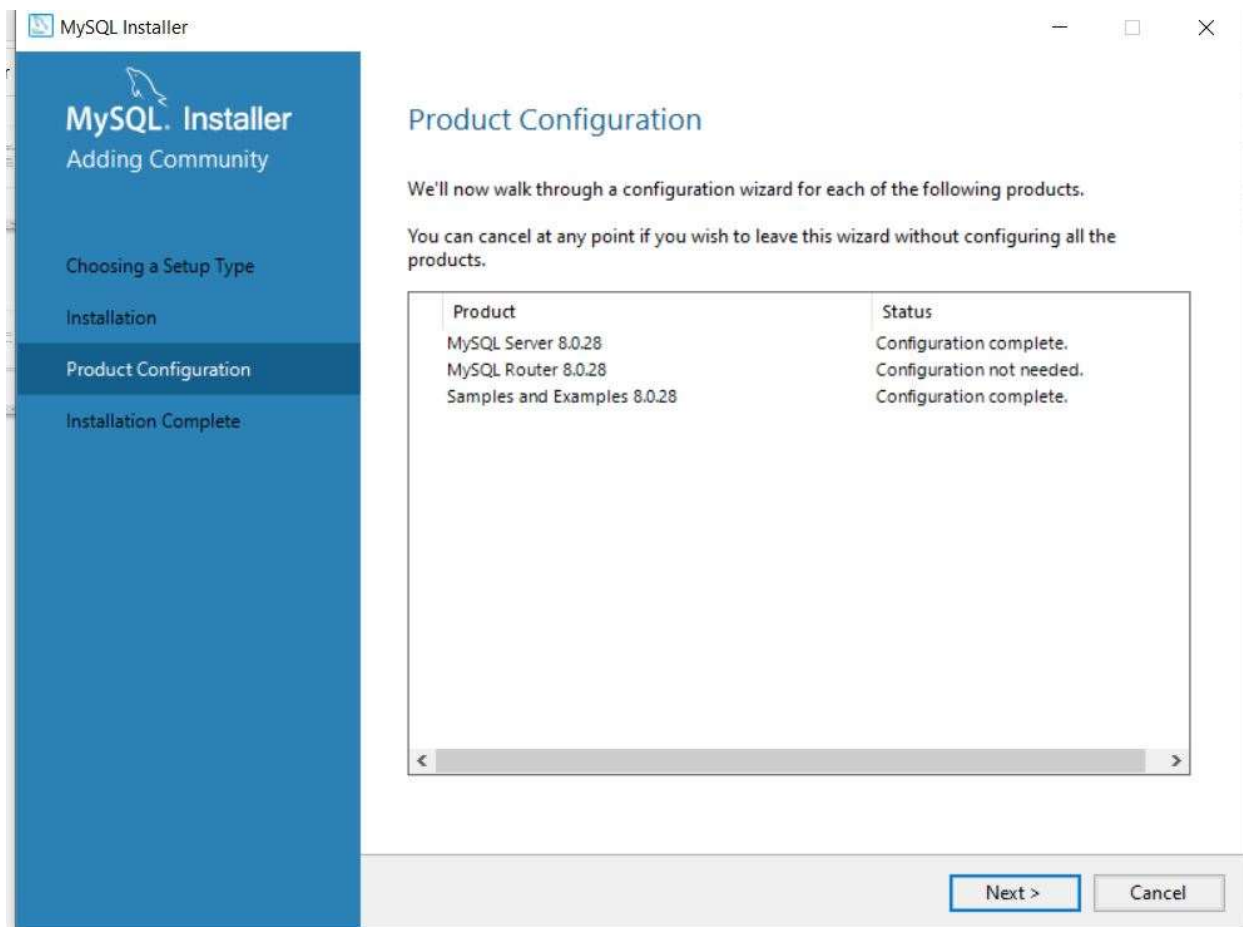
Step19 : Click on Execute Button.



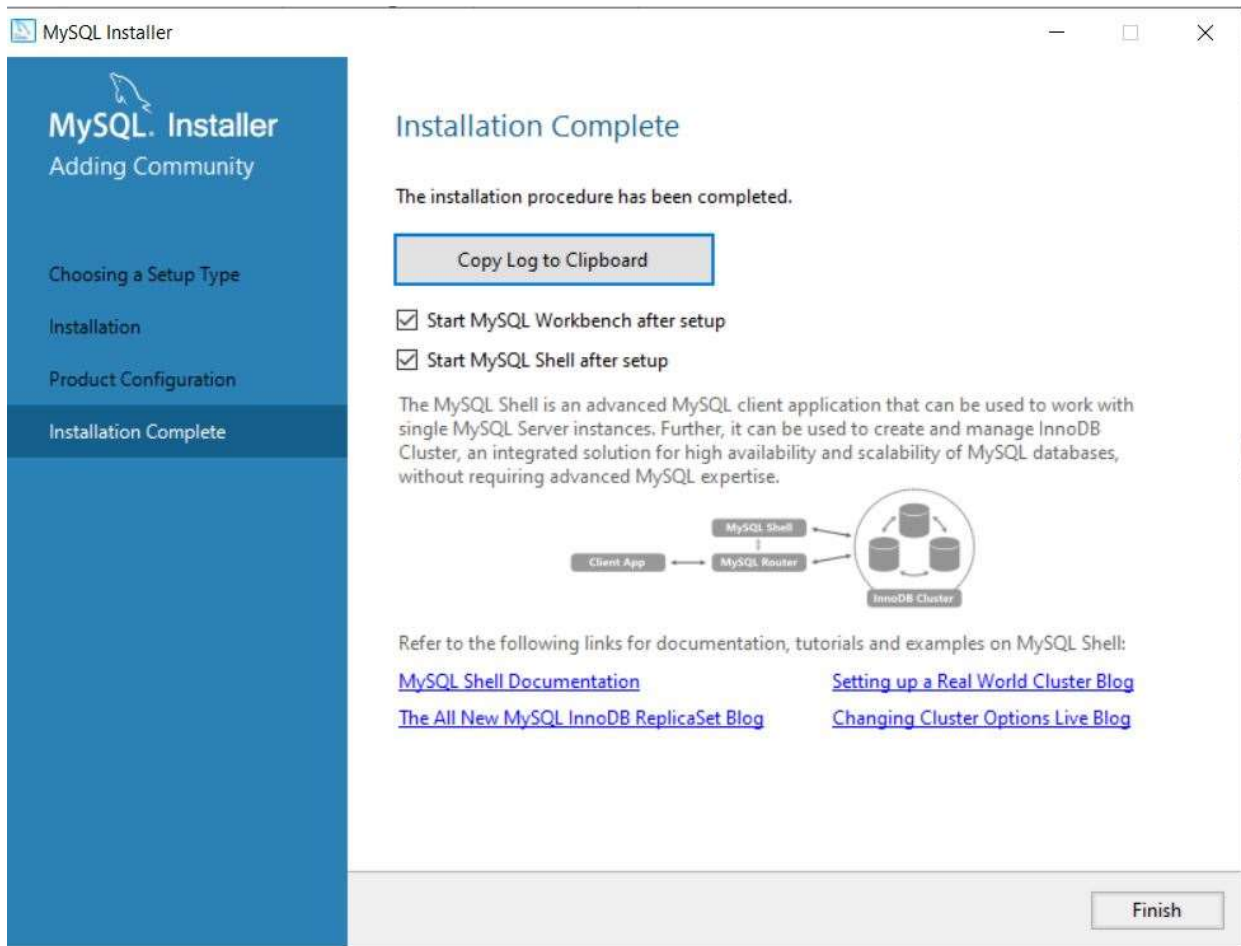
Step20: Click on Finish Button.



Step21 : Click on Next Button.



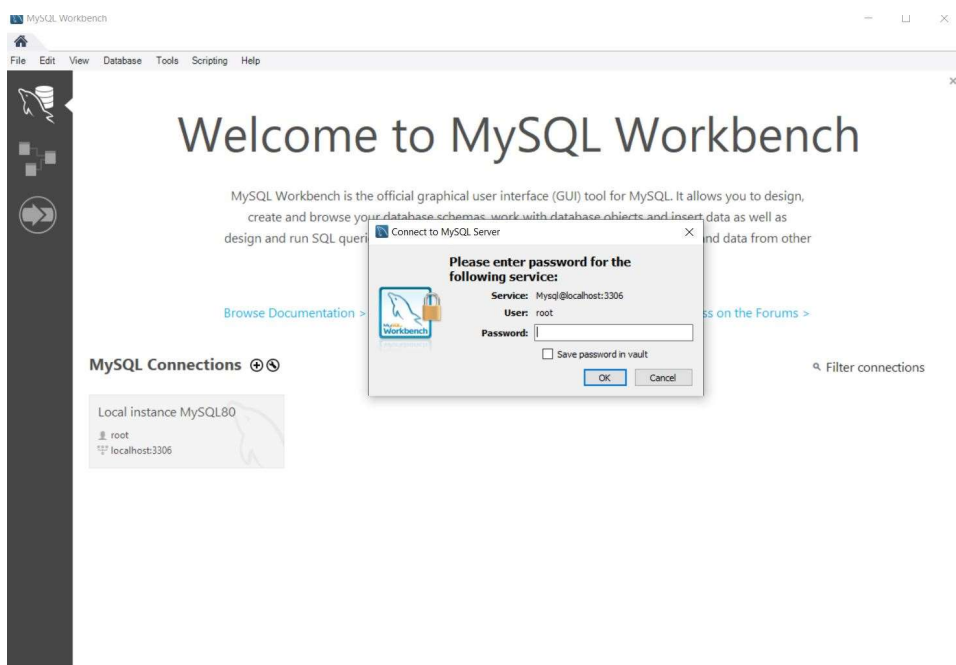
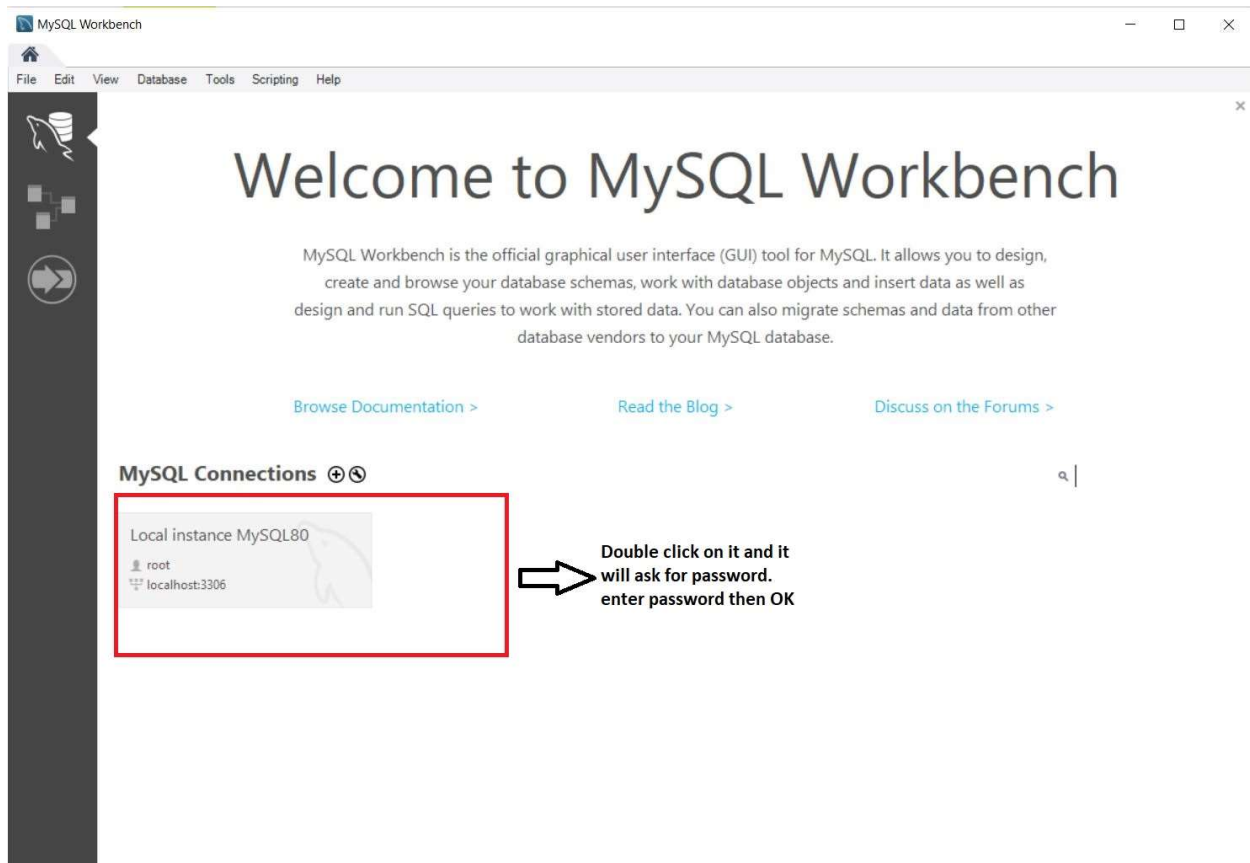
Step22 : Click on Finish Button.



Install is successfully completed.

Then go start option,type Mysql workbench,open it.

The below screen shown



There You go to create Database in console

