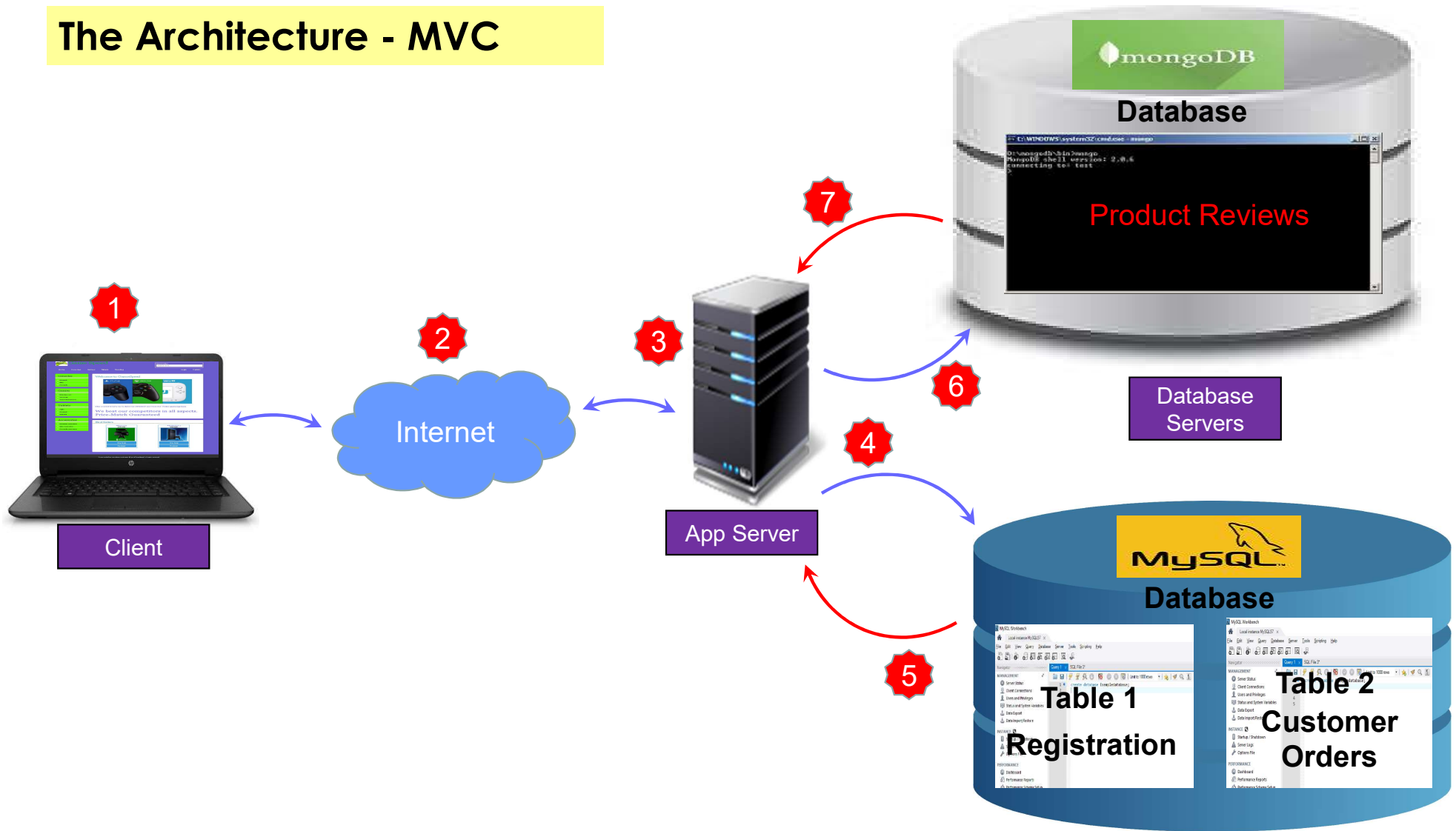


Tutorial #2

MySQL

Datastore

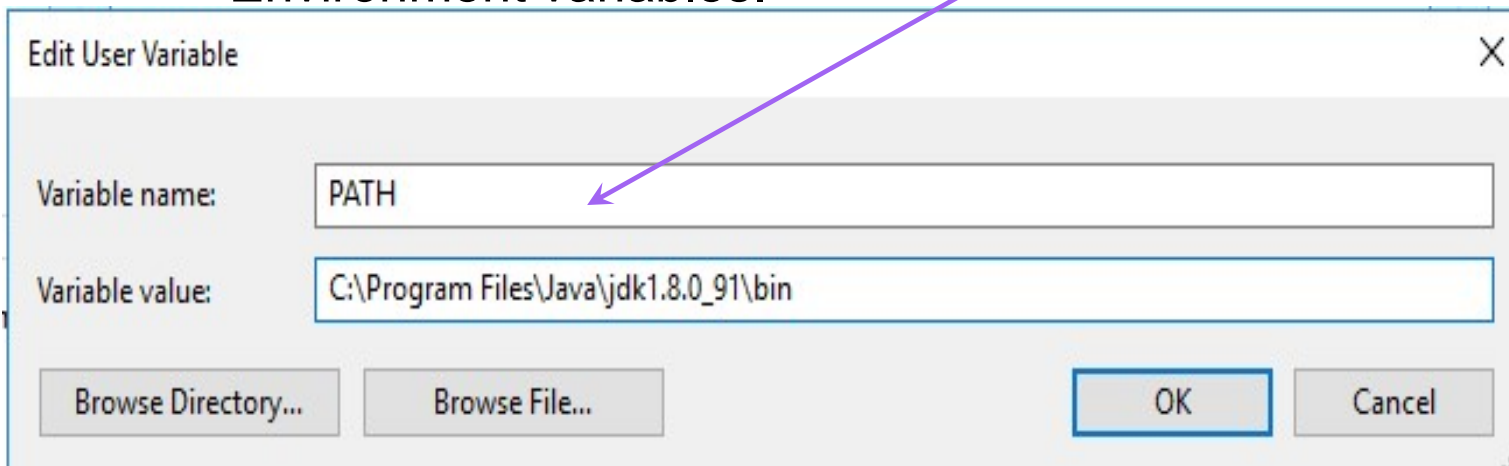
The Architecture - MVC



Pre-Requisites:

- Install Java latest version into your system.
- Set the PATH system variable in your local system under
Control Panel → system → Advanced system
settings →
Environment variables.

Example PATH
variable



Platforms supported in MySQL

Please report any bugs or inconsistencies you observe to our [Bugs Database](#).

Thank you for your support!

[Generally Available \(GA\) Releases](#) [Development Releases](#)

MySQL Community Server 5.7.20

Select Operating System:

Microsoft Windows

Select Operating System...

Microsoft Windows

Ubuntu Linux

Debian Linux

SUSE Linux Enterprise Server

Red Hat Enterprise Linux / Oracle Linux

Fedora

Linux - Generic

Oracle Solaris

macOS


FreeBSD

Source Code

Looking for previous GA versions?

Starting with MySQL 5.6 the MySQL Installer package replaces the standalone MSI packages.

Windows (x86, 32 & 64-bit), MySQL Installer MSI [Go to Download Page >](#)



Download and Install MySQL Server

- Download the MySQL installer from <http://dev.mysql.com/downloads/installer/> (Choose the my-installer-web-community file)

Generally Available (GA) Releases | **Development Releases**

MySQL Installer 5.7.19

Select Operating System:
Microsoft Windows

Looking for previous GA versions?

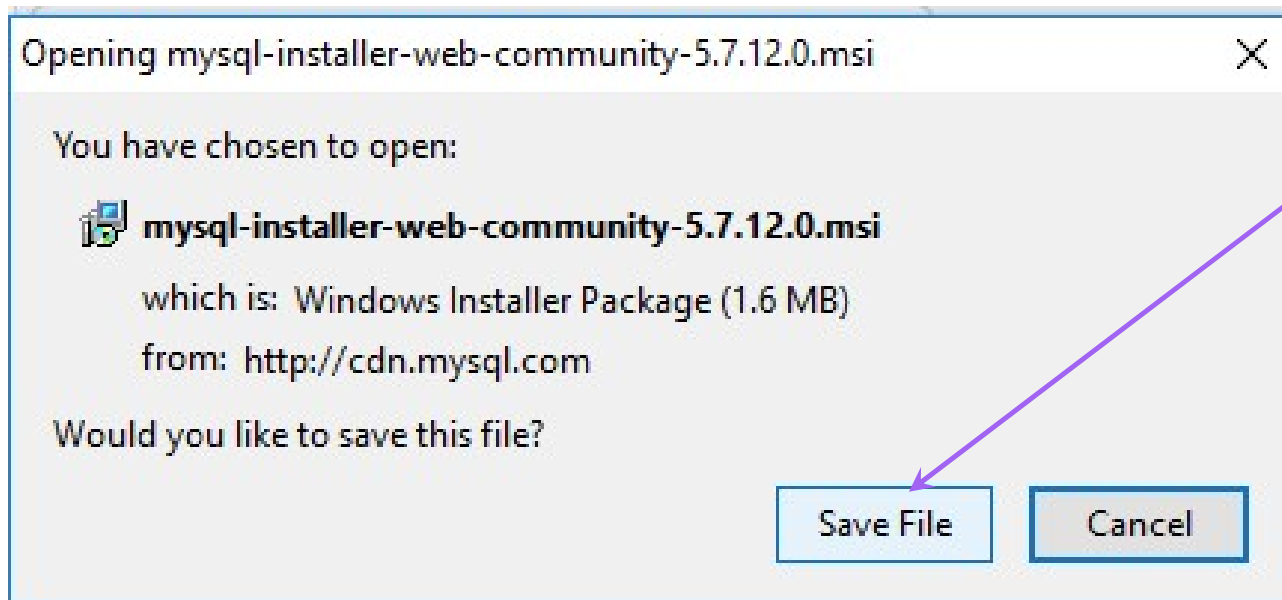
Windows (x86, 32-bit), MSI Installer (mysql-installer-web-community-5.7.19.0.msi)	5.7.19	18.5M	Download
MD5: 28e66ad90bb79afa2e11583b6ad327a7 Signature			
Windows (x86, 32-bit), MSI Installer (mysql-installer-community-5.7.19.0.msi)	5.7.19	378.8M	Download
MD5: 2578bfc3c30273cee42d77583b8596b5 Signature			

We suggest that you use the [MD5 checksums](#) and [GnuPG signatures](#) to verify the integrity of the packages you download.

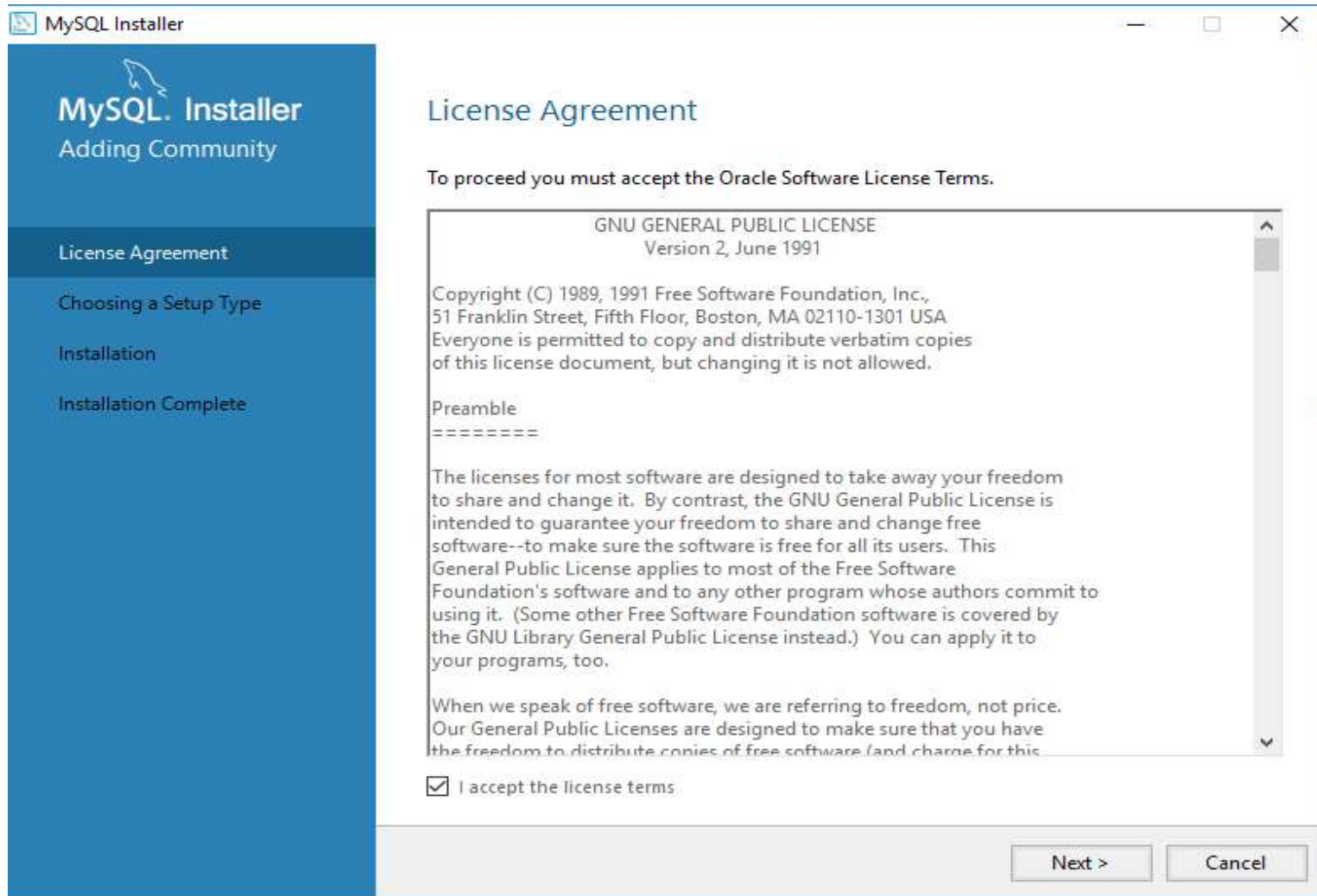
Select this file to download

Open file and follow the steps :

Step 1: Save file to download the installer.



Select Save file
option



MySQL Installer

Adding Community

License Agreement

Choosing a Setup Type

Installation

Installation Complete

License Agreement

To proceed you must accept the Oracle Software License Terms.

GNU GENERAL PUBLIC LICENSE Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc.,
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble
=====

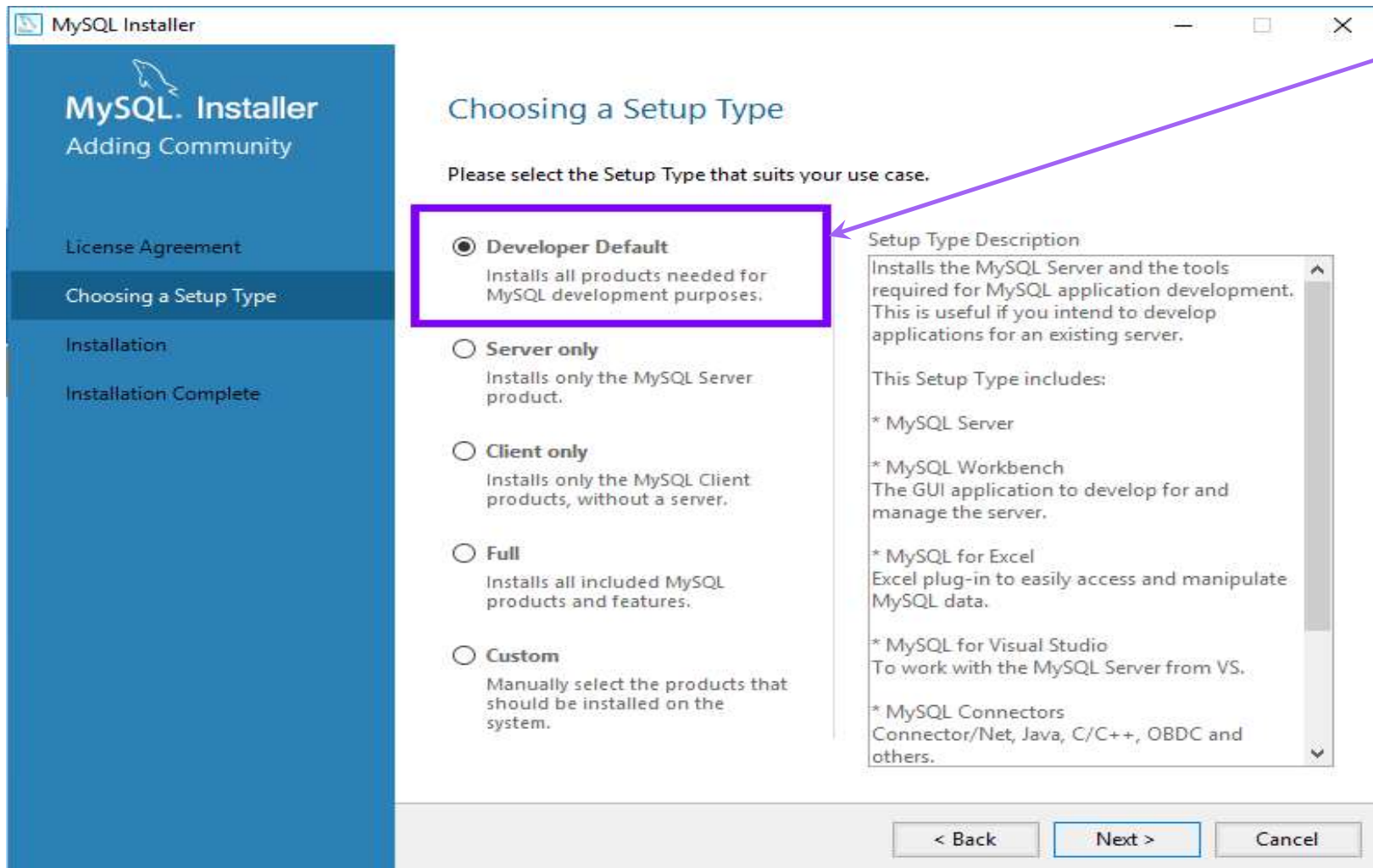
The licenses for most software are designed to take away your freedom
to share and change it. By contrast, the GNU General Public License is
intended to guarantee your freedom to share and change free
software--to make sure the software is free for all its users. This
General Public License applies to most of the Free Software
Foundation's software and to any other program whose authors commit to
using it. (Some other Free Software Foundation software is covered by
the GNU Library General Public License instead.) You can apply it to
your programs, too.

When we speak of free software, we are referring to freedom, not price.
Our General Public Licenses are designed to make sure that you have
the freedom to distribute copies of free software (and charge for this

☒ I accept the license terms

Next >

Cancel



Select the setup type as "Developer Default"

MySQL Installer

MySQL. Installer

Adding Community

License Agreement

Choosing a Setup Type

Path Conflicts














Installation

Product Configuration

Installation Complete

Installation

Press Execute to upgrade the following products.

Product	Status	Progress	Notes
 MySQL Server 5.7.19	Downloading	98%	
 MySQL Workbench 6.3.9	Downloaded		
 MySQL Notifier 1.1.7	Downloaded		
 MySQL Utilities 1.6.5	Downloaded		
 MySQL Shell 1.0.10	Downloaded		
 MySQL Router 2.1.4	Downloaded		
 Connector/ODBC 5.3.9	Downloaded		
 Connector/C++ 1.1.9	Downloaded		
 Connector/J 5.1.44	Downloaded		
 Connector/NET 6.9.9	Downloaded		
 MySQL Connector/C 6.1.11	Downloaded		
 MySQL Documentation 5.7.19	Downloaded		
 Samples and Examples 5.7.19	Error		Try again

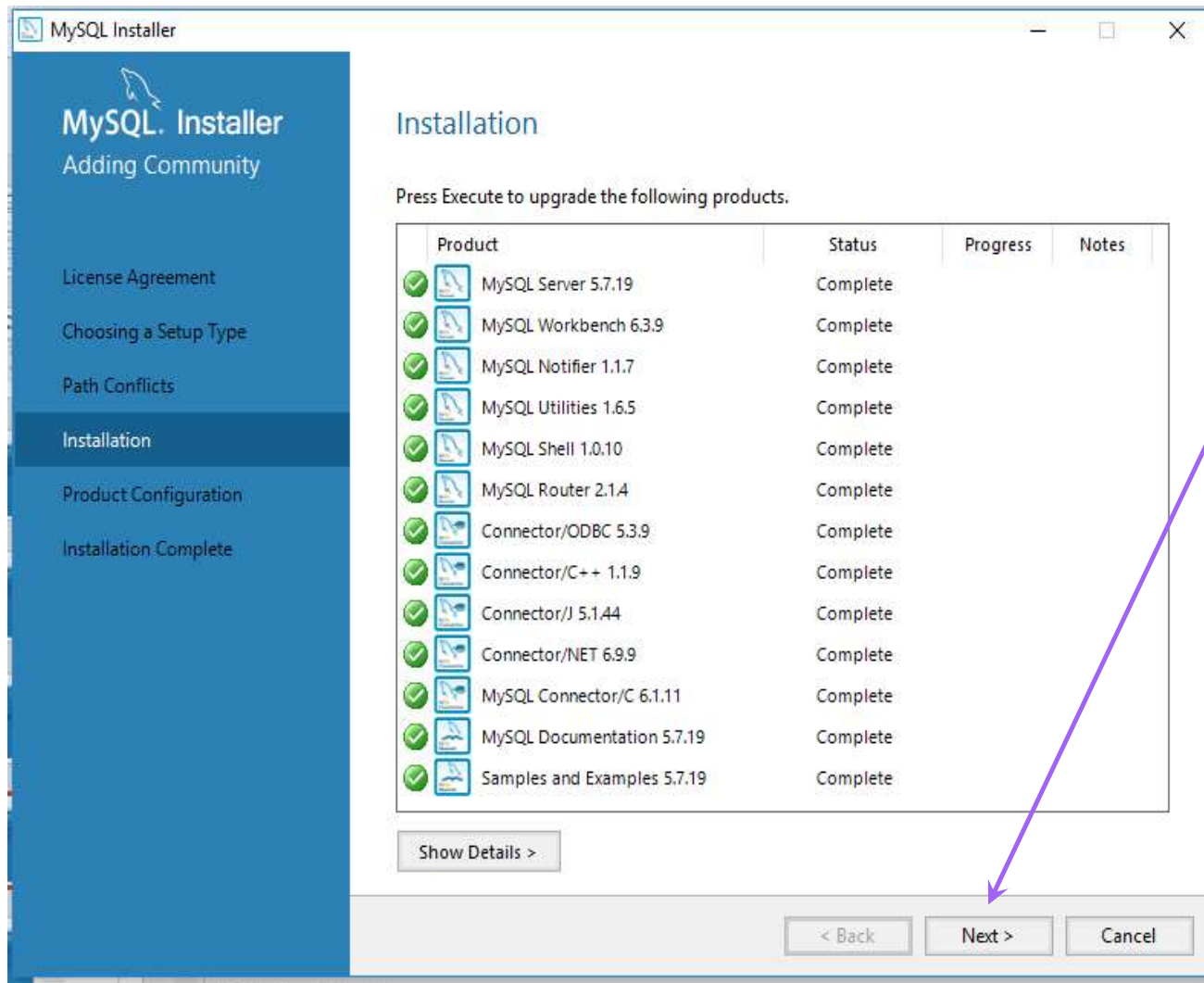
Show Details >

< Back

Execute

Cancel

If you get a "Try Again" option here instead, then click on the try again option to download the products.



Once all the products are installed and the status is shown as "complete" proceed with the next option

MySQL Installer

MySQL. Installer

MySQL Server 5.7.12

- Type and Networking
- Accounts and Roles
- Windows Service
- Plugins and Extensions
- Apply Server Configuration

Type and Networking

Server Configuration Type
Choose the correct server configuration type for this MySQL Server installation. This setting will define how much system resources are assigned to the MySQL Server instance.

Config Type:

Connectivity
Use the following controls to select how you would like to connect to this server.

☒ TCP/IP

☒ Open Firewall port for network access

☐ Named Pipe Pipe Name:

☐ Shared Memory Memory Name:

Advanced Configuration
Select the checkbox below to get additional configuration page where you can set advanced options for this server instance.

☐ Show Advanced Options

Next > Cancel

Port to
connect to
MYSQL

MySQL Installer

MySQL Server 5.7.12

Type and Networking

Accounts and Roles

Windows Service

Plugins and Extensions

Apply Server 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 Username	Host	User Role
----------------	------	-----------

Add User

Edit User

Delete

< Back Next > Cancel

Enter the password. You will need to store these credentials as you need them to access MySQL.

MySQL Installer

MySQL. Installer

MySQL Server 5.7.12

Type and Networking

Accounts and Roles

Windows Service

Plugins and Extensions

Apply Server Configuration

Windows Service

☒ 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.

< Back

Next >

Cancel

MySQL Installer

MySQL Server 5.7.12

Type and Networking

Accounts and Roles

Windows Service

Plugins and Extensions

Apply Server Configuration

Plugins and Extensions

MySQL as a Document Store

Use the following controls to select how you would like to connect to this server.

☐ Enable X Protocol / MySQL as a Document Store

Port Number:

33060

☐ Open Firewall port for network access

Starting with MySQL Server 5.7, MySQL supports document store development. In order to provide a complete document store/NoSQL experience there is a new communications protocol called the X Protocol. The expanded capabilities of the X Protocol enable us to provide modern developer APIs with features such as asynchronous calls, pipelining, and more. In addition to implementing document collections, the new X DevAPI also supports relational and combined document store/relational capabilities. Now developers, designers and DBAs can deploy MySQL databases that implement document store, relational, or hybrid document/relation models.

[Click here to view MySQL as a Document Store online documentation](#)

< Back

Next >

Cancel

MySQL Installer

MySQL Server 5.7.12

Type and Networking

Accounts and Roles

Windows Service

Plugins and Extensions

Apply Server Configuration

Apply Server Configuration

The following configuration steps are being executed.

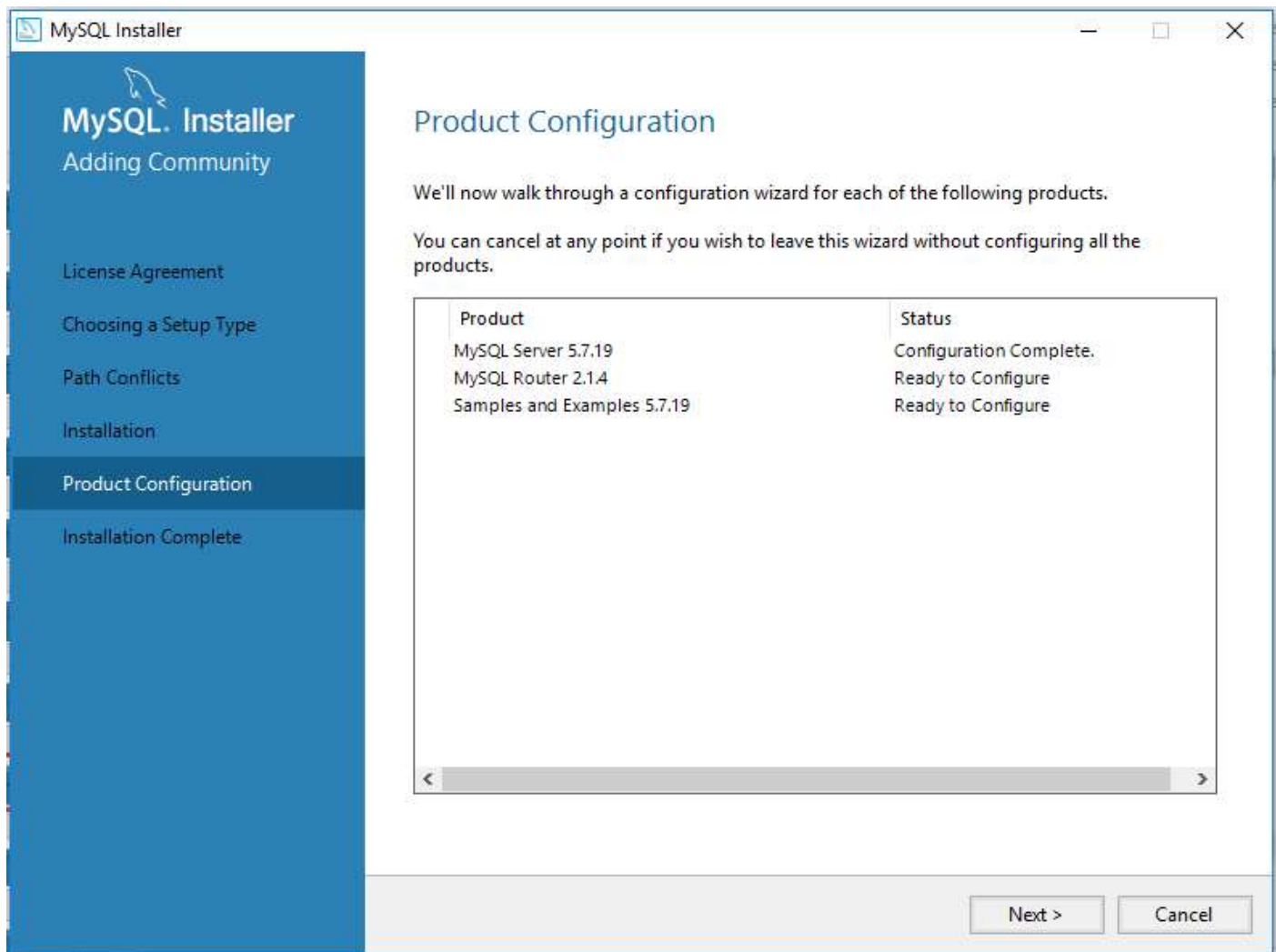
Configuration Steps

Log

- ☒ Stopping Server [if necessary]
- ☒ Writing configuration file
- ☒ Updating firewall
- ☒ Adjusting Windows service [if necessary]
- ☒ Initializing Database [if necessary]
- ☐ Starting Server
- ☐ Applying security settings
- ☐ Creating user accounts
- ☐ Updating Start Menu Link
- ☐ Updating Firewall for MySQL Document Data Feature Set

Execute

Cancel



MySQL Installer

MySQL. Installer
Samples and Examples

Connect To Server

Apply Server Configuration

Connect To Server


Here are the compatible servers installed. If more than one, please select one.

Server	Architecture	Status
MySQL Server 5.7.12	X64	Running

Now give us the credentials we should use (needs to have root privileges). Click check to make sure they work.

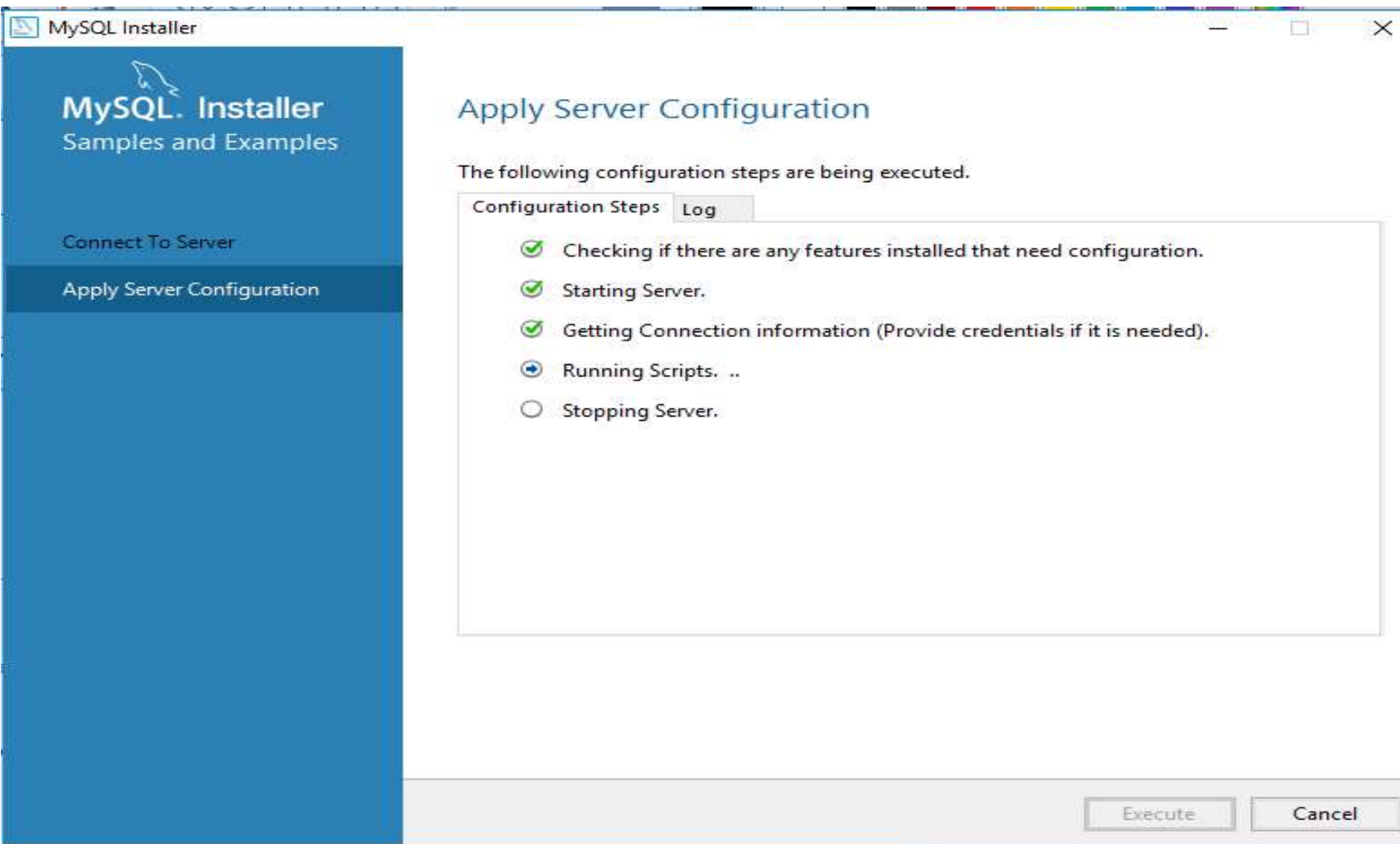
User: Credentials provided in Server configuration

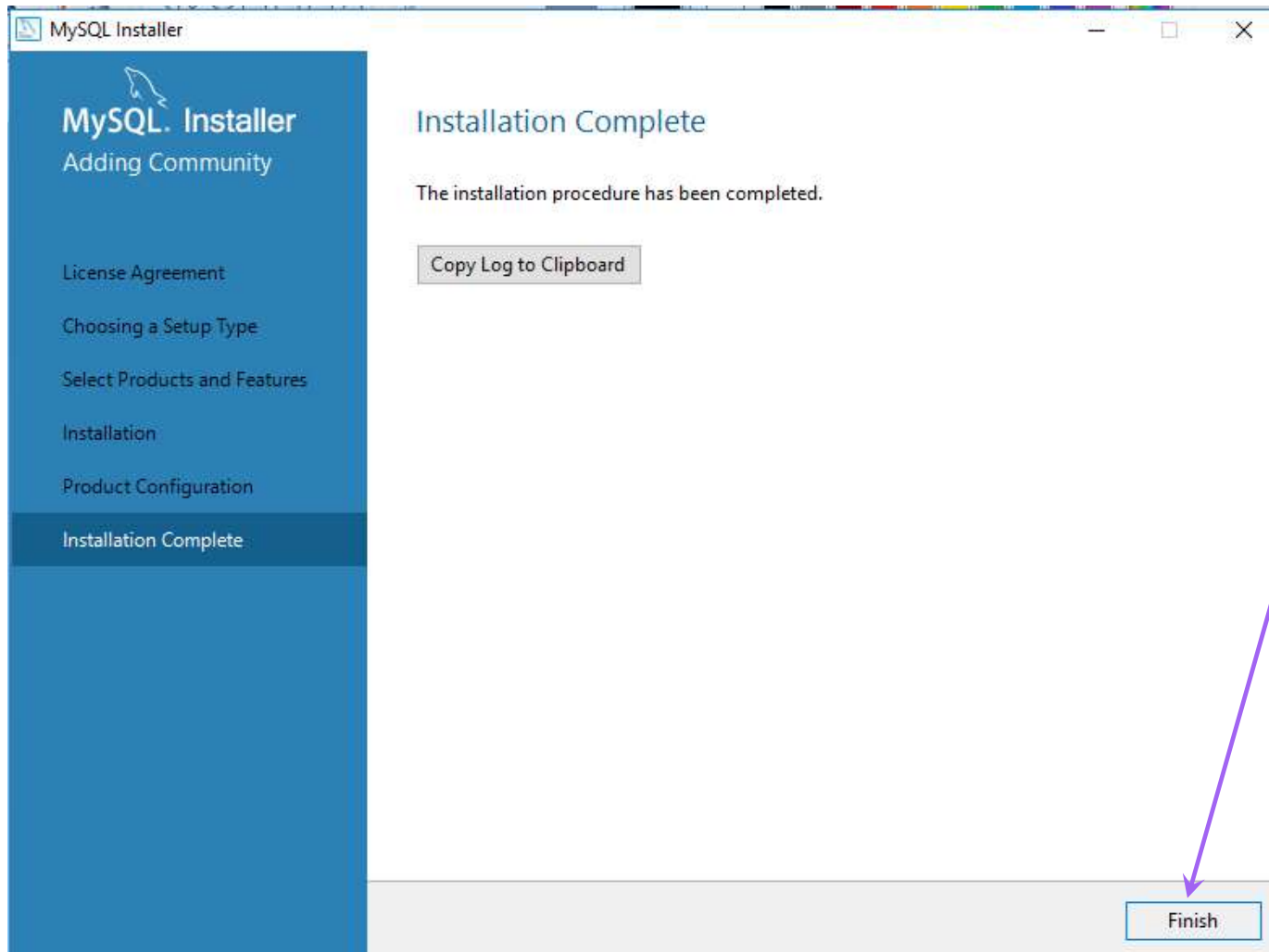
Password:

 Connection successful.

Next > Cancel

Before proceeding, make sure you check the connection by providing required credentials.

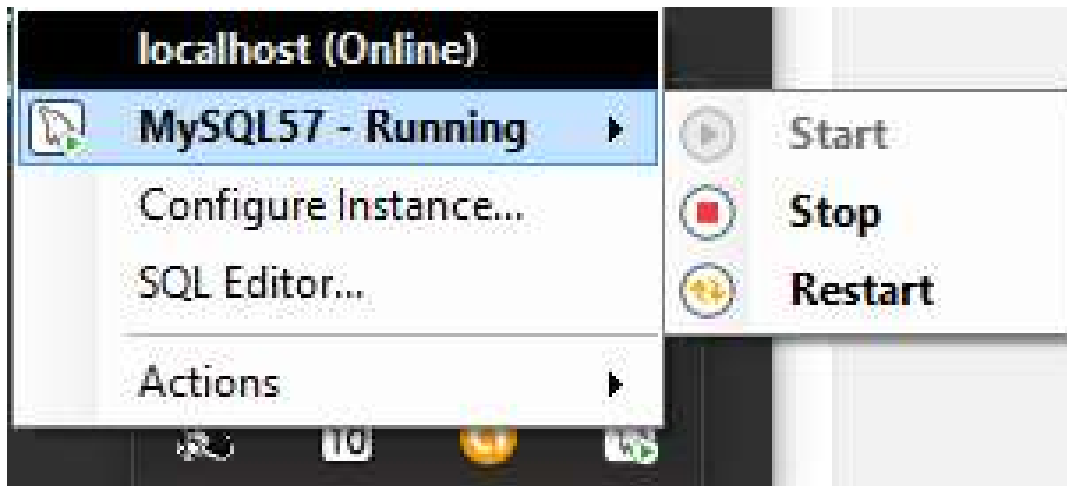




Now, the
installation is
completed.

Post Installation...

After the installation, we can monitor MySQL server by accessing MySQL notifier from the task bar.



Through the MySQL notifier, we could start, stop or restart MySQL components.

To open the Workbench, where we write and execute several queries, we should click on “SQL Editor”.



Once the workbench is opened, we need to enter the credentials (used during installation) to access workbench. Following screenshot exhibits the same.

MySQL Connections + ⓘ

Filter connections

Local instance MySQL57

root
localhost:3306

Connect to MySQL Server

Please enter password for the following service:

Service: Mysql@localhost:3306
User: root
Password:

☐ Save password in vault

OK Cancel

Models + ⓘ ➤

sakila_full

MySQL Workbench 6.3 CE/extras
sakila
10 Dec 15, 13:46

Shortcuts



MySQL Utilities



Database Migration



MySQL Bug Reporter



Workbench Blogs



Planet MySQL



Workbench Forum

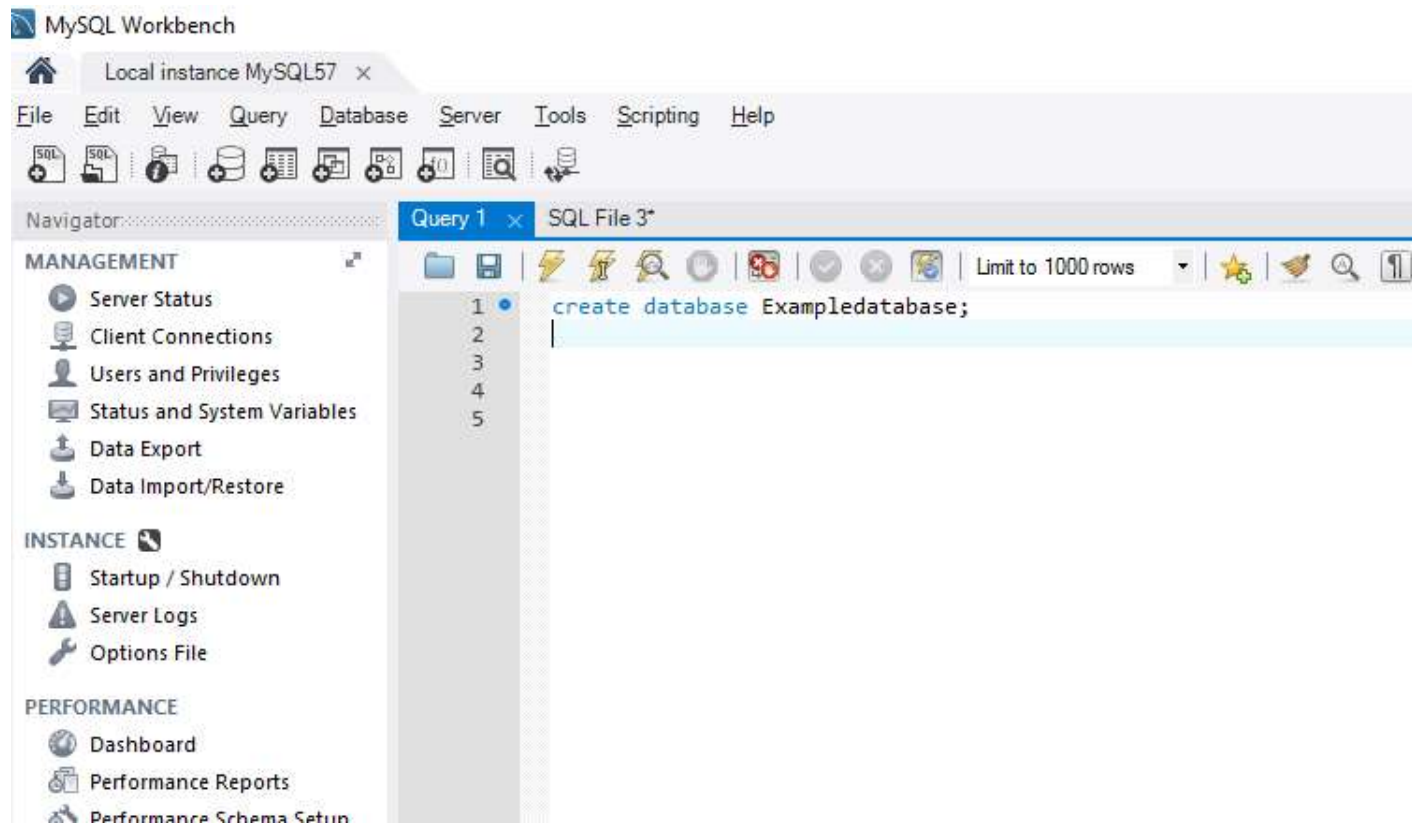


Scripting Shell

Enter the
Password used
while installation

Executing queries in MySQL Workbench

Goto File and select “New Query Tab “ to write and execute the queries.

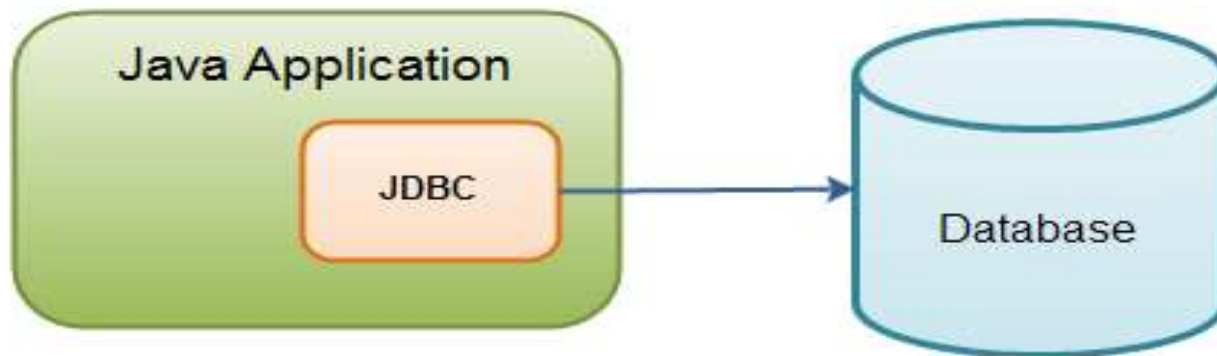


Executing queries using a Java Application

Now let us write and execute the SQL queries using a Java Application.

How do we do it?

-> By using a JDBC Driver. JDBC stands for Java Database Connectivity.



JDBC Driver Types

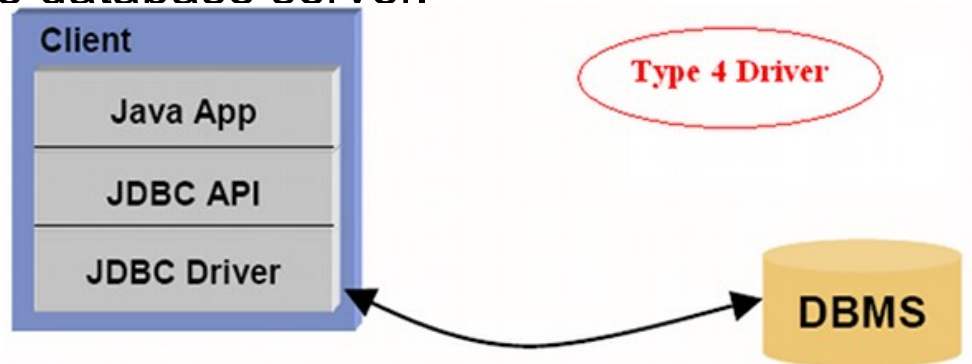
Type 1: JDBC-ODBC Bridge driver (Bridge)

Type 2: Native-API/partly Java driver (Native)

Type 3: All Java/Net-protocol driver (Middleware)

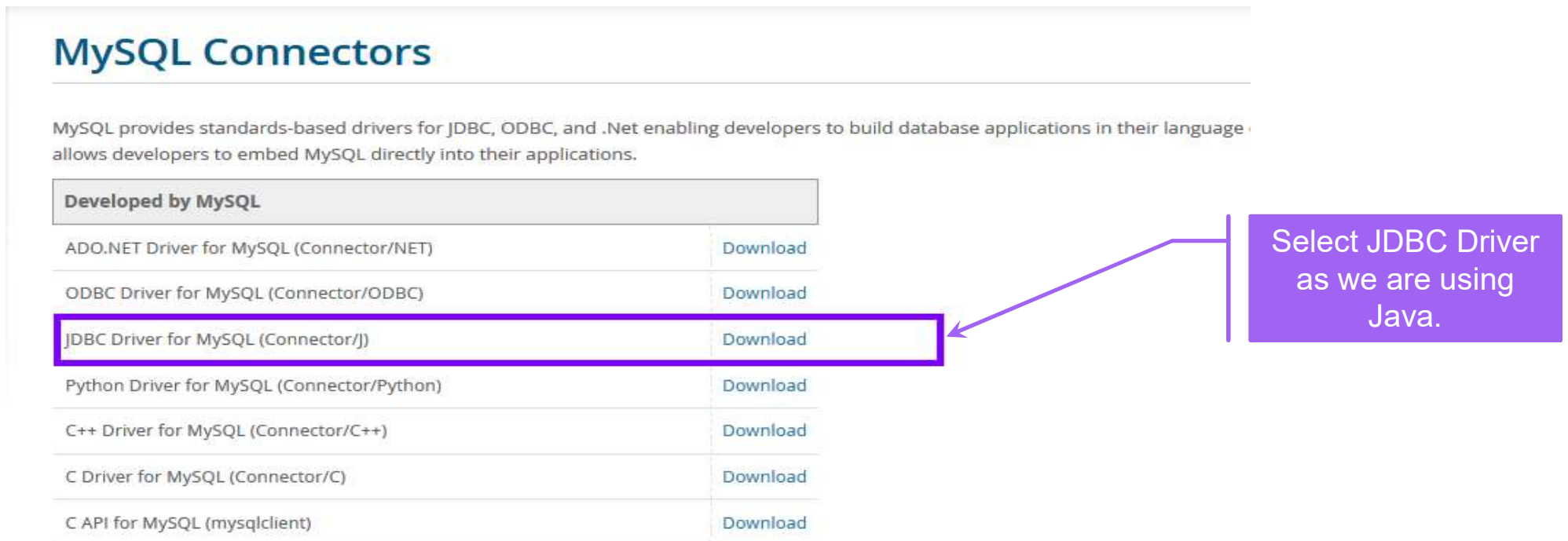
Type 4: All Java/Native-protocol driver (Pure)

We will be using the Type 4 driver , as we use libraries to communicate directly with the database server.



Download the Jar file:

We need a jar file `mysql-connector-java-5.1.39-bin.jar` to compile and execute a application. If you want to compile the examples from the command line, go to the site <http://www.mysql.com/products/connector/> and download the MySQL connector for the Java language.



The screenshot shows the 'MySQL Connectors' page. A table lists various drivers, with the 'JDBC Driver for MySQL (Connector/J)' row highlighted by a red box. A red arrow points from a text box on the right to this row.

Developed by MySQL	
ADO.NET Driver for MySQL (Connector/NET)	Download
ODBC Driver for MySQL (Connector/ODBC)	Download
JDBC Driver for MySQL (Connector/J)	Download
Python Driver for MySQL (Connector/Python)	Download
C++ Driver for MySQL (Connector/C++)	Download
C Driver for MySQL (Connector/C)	Download
C API for MySQL (mysqlclient)	Download

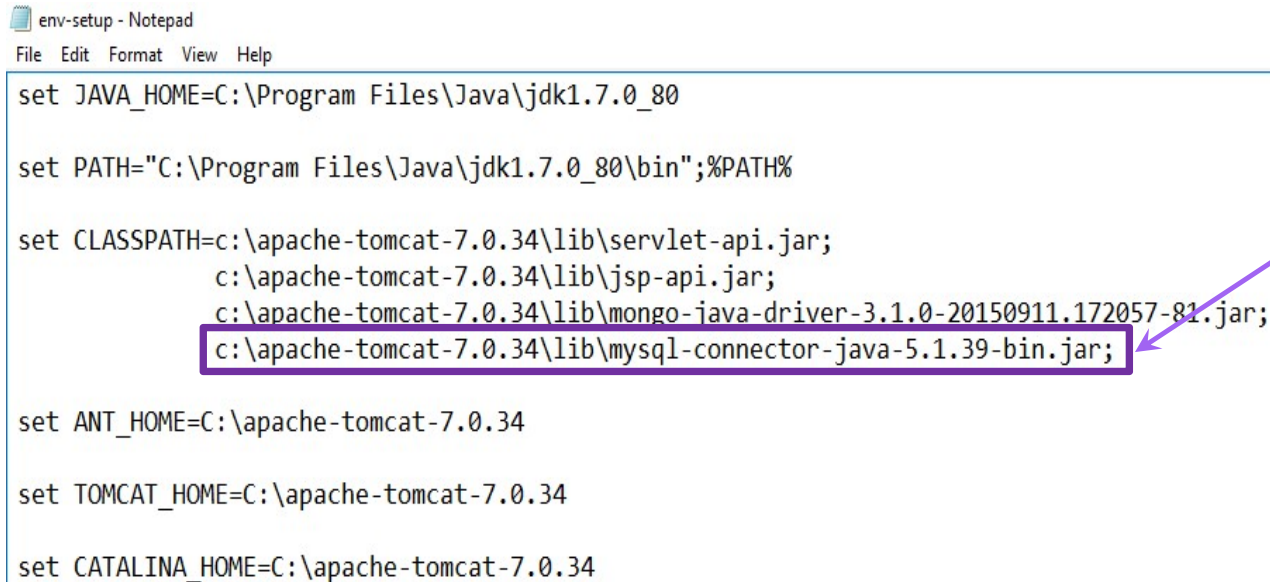
Select JDBC Driver as we are using Java.

Steps to Execute the application

Option 1: Executing the Program by adding the jar file path in a bat file .

Add the whole path for jar file in CLASSPATH inside your env-setup.bat file

The location of the JAR files highlighted will differ based on where they are present on your computer
Please make sure you do the changes accordingly



```
env-setup - Notepad
File Edit Format View Help

set JAVA_HOME=C:\Program Files\Java\jdk1.7.0_80

set PATH="C:\Program Files\Java\jdk1.7.0_80\bin";%PATH%

set CLASSPATH=c:\apache-tomcat-7.0.34\lib\servlet-api.jar;
               c:\apache-tomcat-7.0.34\lib\jsp-api.jar;
               c:\apache-tomcat-7.0.34\lib\mongo-java-driver-3.1.0-20150911.172057-81.jar;
               c:\apache-tomcat-7.0.34\lib\mysql-connector-java-5.1.39-bin.jar;

set ANT_HOME=C:\apache-tomcat-7.0.34

set TOMCAT_HOME=C:\apache-tomcat-7.0.34

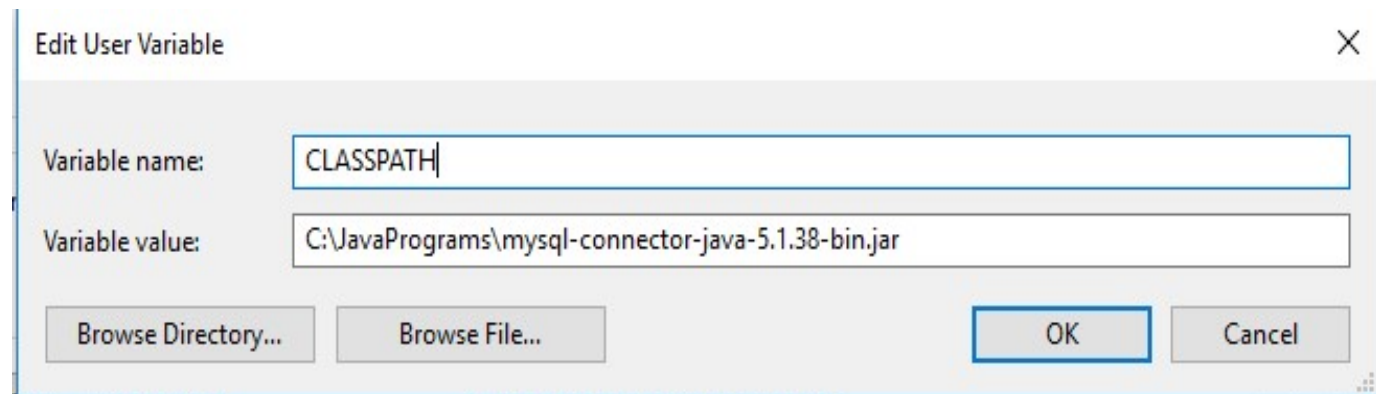
set CATALINA_HOME=C:\apache-tomcat-7.0.34
```

Executing by
adding jar file in
class path in
env-setup.bat file

Option 2 : By setting a classpath variable.

Steps:

- Goto Control Panel -> system -> Advanced system settings -> Environment Variables.
- Under User variables, choose new, and create a new variable called
Classpath = “The full pathname where jar file is present in the system “
- Click on save.
- Then OK.



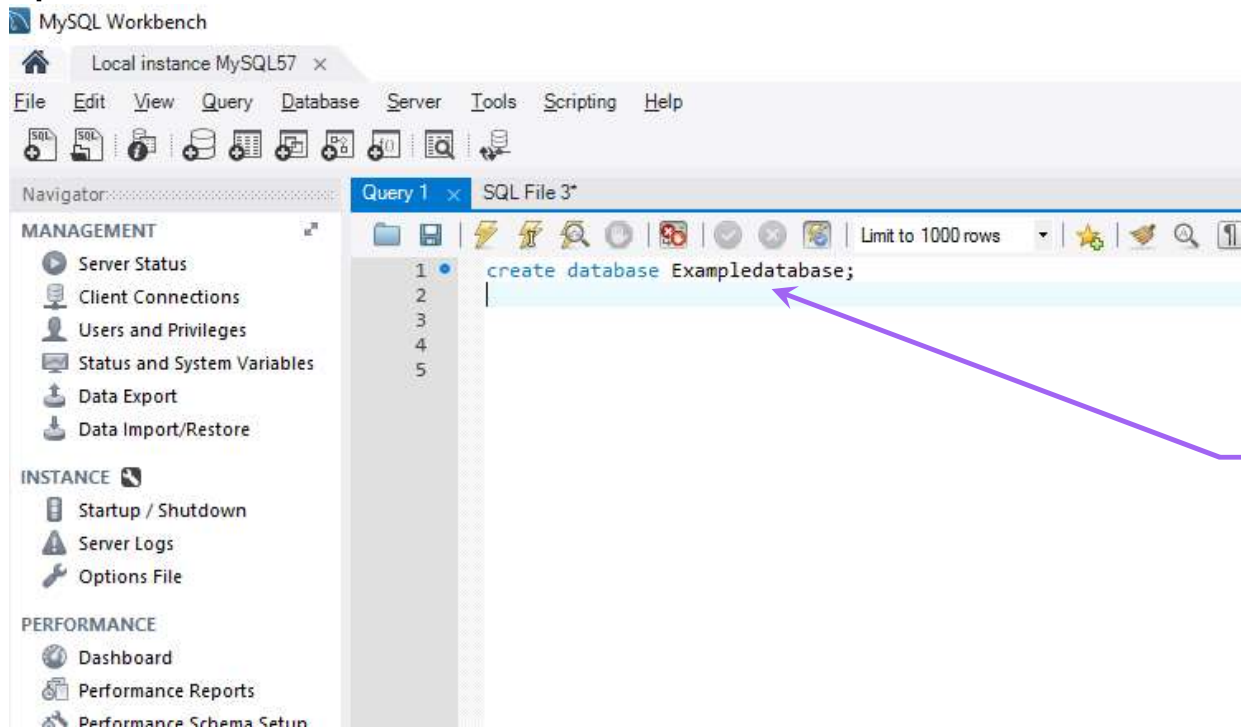
A walkthrough example

In this example,

- First, we will create a database called “exampledatabase” using MySQL workbench.
- Secondly, we will create a table “Registration” within the exampledatabase and store customer login details
- Third, we will create a table “CustomerOrders” within the exampledatabase and store order details for game speed application.

A walkthrough example

- **Step 1:** Create a database called “exempldatabase” in the workbench space, and execute the SQL command.

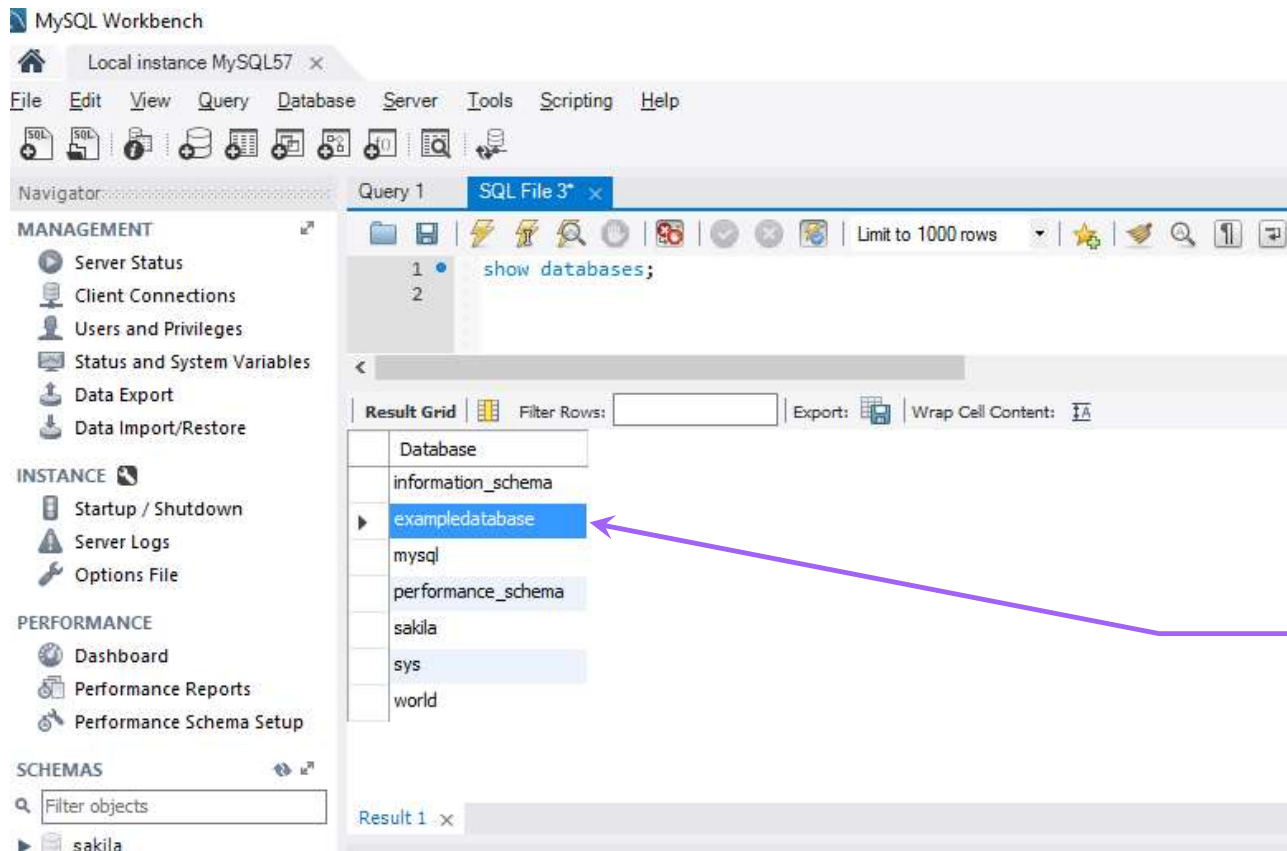


Query to create a
new database

A walkthrough example

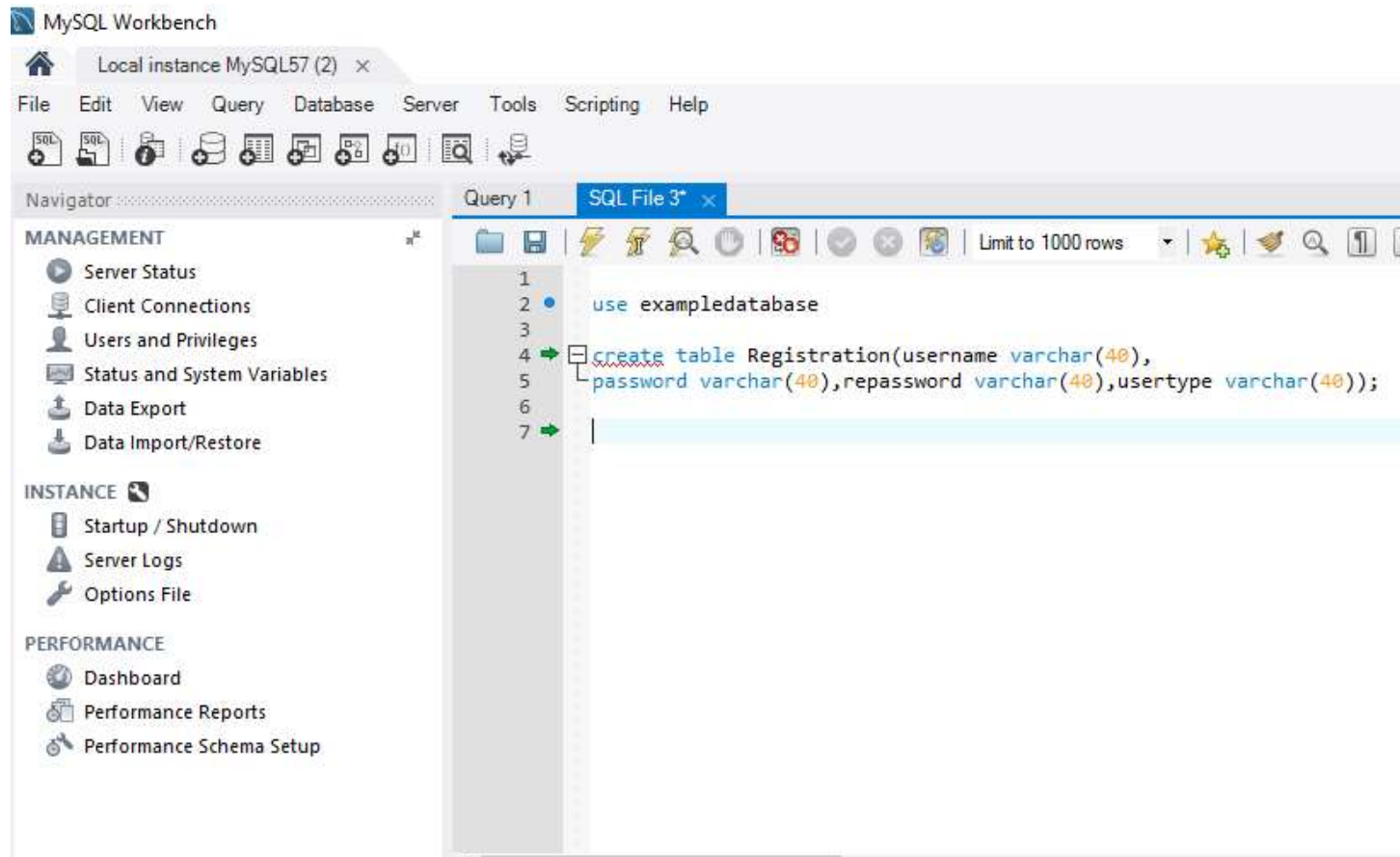
Write and execute the following commands to check if the database is created.

-> show databases;



Our
Exampledatabase is
created

Step 2: Create a table “Registration” in the workbench space, and execute the SQL command.



Step 3: Create a table called “CustomerOrder” in the workbench space, and execute the SQL command.
Specify the id as primary key for table

The screenshot displays the MySQL Workbench interface. The central editor shows the following SQL command:

```
1 Create table CustomerOrders
2 (
3   OrderId integer,
4   userName varchar(40),
5   orderName varchar(40),
6   orderPrice double,
7   userAddress varchar(40),
8   creditCardNo varchar(40),
9   Primary key(orderid,userName,orderName)
10 );
11
```

The right-hand pane, titled "SQLAdditions", provides the syntax for the **CREATE TABLE** statement:

```
Topic: CREATE TABLE
Syntax:
CREATE [TEMPORARY] TABLE [IF NOT EXISTS] tbl_name
  [(create_definition,...)]
  [table_options]
  [partition_options]

CREATE [TEMPORARY] TABLE [IF NOT EXISTS] tbl_name
  [(create_definition,...)]
  [table_options]
  [partition_options]
  [IGNORE | REPLACE]
  [AS] query_expression

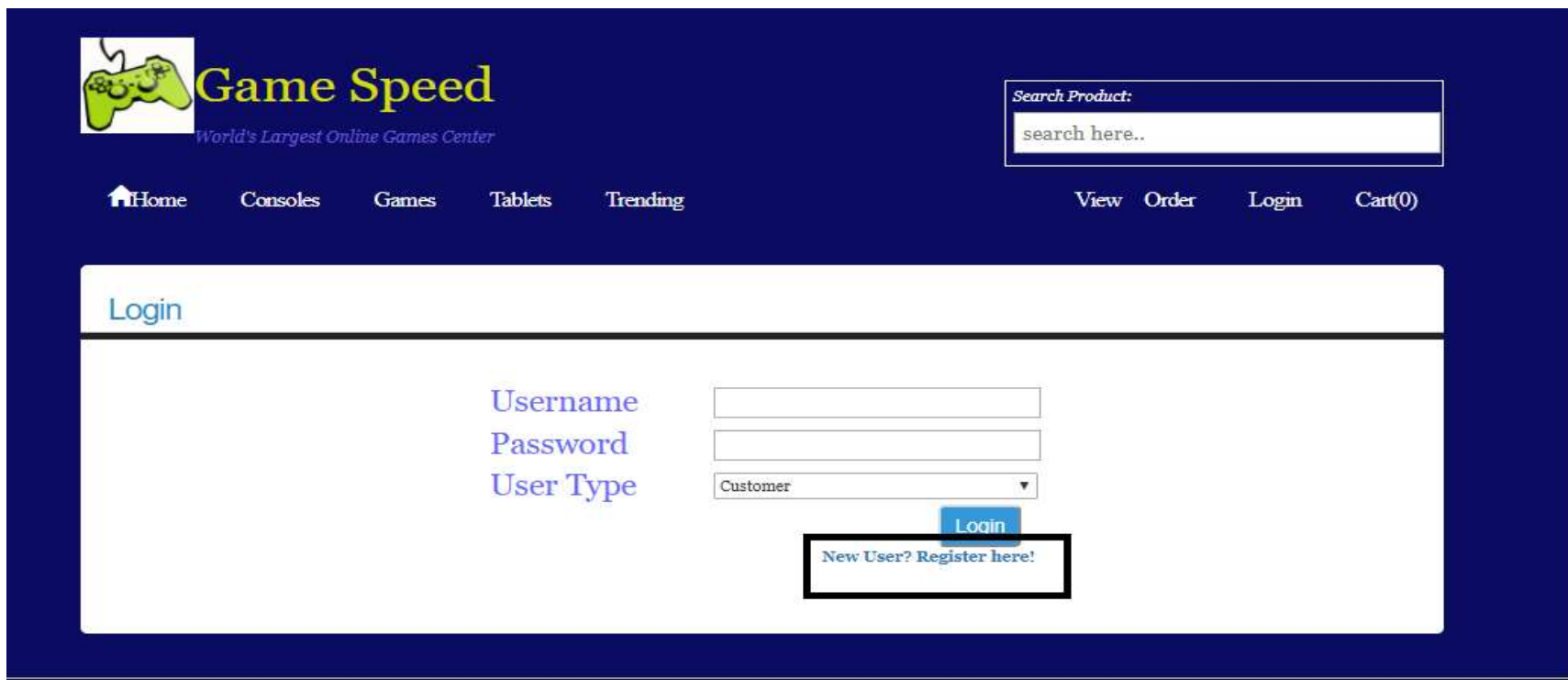
CREATE [TEMPORARY] TABLE [IF NOT EXISTS] tbl_name
  { LIKE old_tbl_name | (LIKE old_tbl_name) }
```

The bottom pane, "Output", shows the execution log:

#	Time	Action	Message	Duration / Fetch
1	16:05:47	drop table CustomerOrders	Error Code: 1046. No database selected Select the default DB to be used by double-clicki...	0.046 sec
2	16:05:58	drop table CustomerOrders	Error Code: 1046. No database selected Select the default DB to be used by double-clicki...	0.000 sec
3	16:09:45	use exampledatabase	0 row(s) affected	0.000 sec
4	16:09:48	drop table CustomerOrders	0 row(s) affected	0.390 sec
5	16:13:34	Create table CustomerOrders (OrderId integer, userName varchar(40), orderName varchar(...	0 row(s) affected	0.375 sec

Example –Registration

New User can Register into Website by Clicking on the Register here link
On clicking the button user is directed to Registration page



The screenshot shows the 'Game Speed' website interface. The header is dark blue with a logo of a green game controller and the text 'Game Speed' in yellow, with the tagline 'World's Largest Online Games Center' in small white text below it. To the right of the logo is a search bar with the placeholder text 'Search Product:' and 'search here..'. Below the header is a navigation menu with links: Home, Consoles, Games, Tablets, Trending, View, Order, Login, and Cart(0). The main content area is white and contains a 'Login' section. The 'Login' section has three labels: 'Username', 'Password', and 'User Type'. Each label is followed by a corresponding input field. The 'User Type' field is a dropdown menu with 'Customer' selected. Below the input fields is a blue 'Login' button. Below the 'Login' button is a link that says 'New User? Register here!'. The entire page is framed by a dark blue border.

Game Speed
World's Largest Online Games Center

Search Product:
search here..

Home Consoles Games Tablets Trending View Order Login Cart(0)

Login

Username
Password
User Type

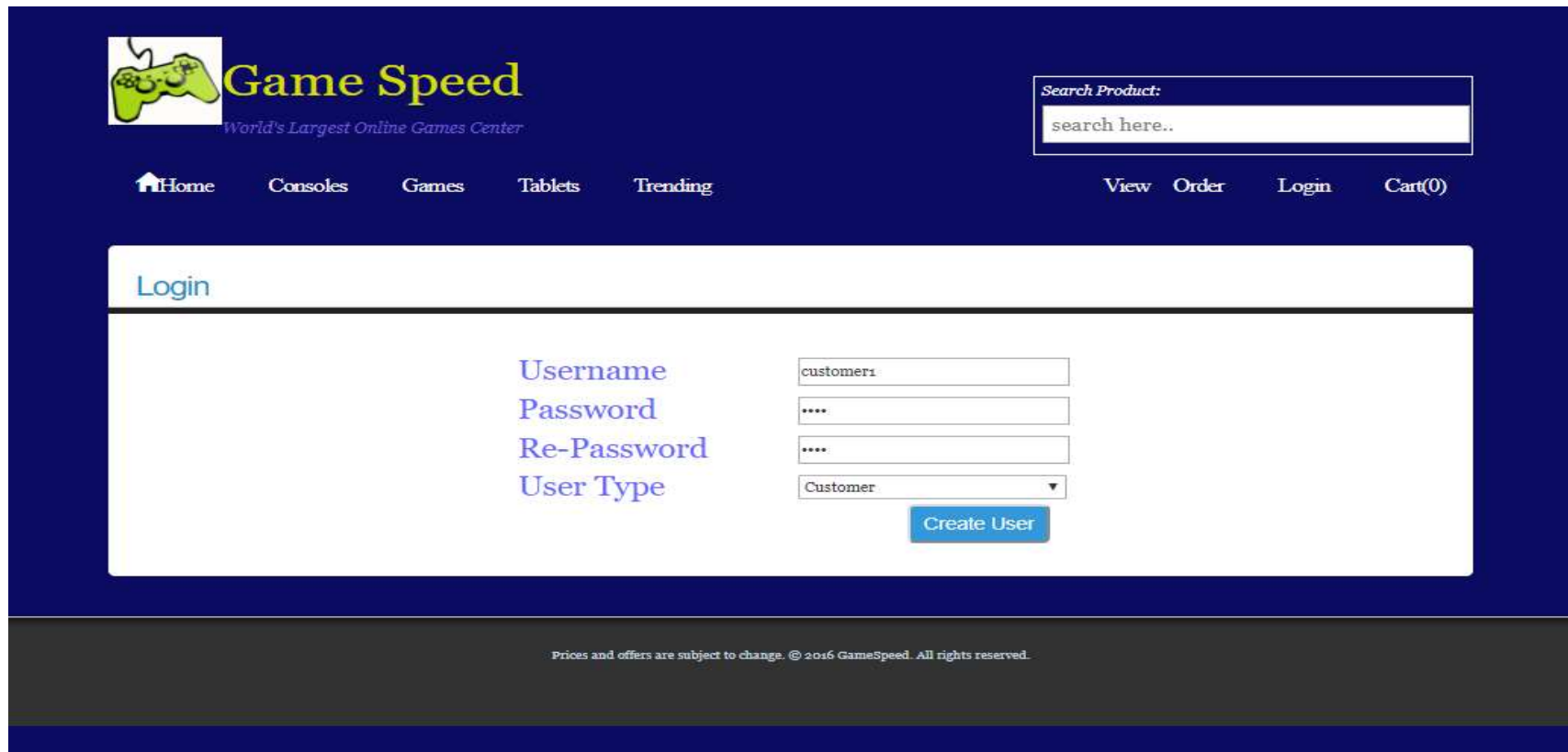
Customer

Login

New User? Register here!

User provides the login information

On clicking create user button data is stored in Registration Table of My sql



The screenshot shows the 'Game Speed' website with a dark blue header. The logo features a green game controller and the text 'Game Speed' in yellow, with the tagline 'World's Largest Online Games Center' in white. A search bar is located in the top right corner. The navigation menu includes 'Home', 'Consoles', 'Games', 'Tablets', 'Trending', 'View', 'Order', 'Login', and 'Cart(0)'. The main content area is titled 'Login' and contains a registration form with the following fields: 'Username' (text input with 'customer1'), 'Password' (password input with four dots), 'Re-Password' (password input with four dots), and 'User Type' (dropdown menu with 'Customer' selected). A blue 'Create User' button is positioned below the form. The footer is dark gray and contains the text: 'Prices and offers are subject to change. © 2016 GameSpeed. All rights reserved.'

Game Speed
World's Largest Online Games Center

Search Product:
search here..

Home Consoles Games Tablets Trending View Order Login Cart(0)

Login

Username customer1
Password
Re-Password
User Type Customer ▼

Create User


Prices and offers are subject to change. © 2016 GameSpeed. All rights reserved.

User data is stored in Registration table you can check using the select query in workbench to check if all the column values are stored properly

The screenshot shows the MySQL Workbench interface. The left sidebar contains a 'Navigator' pane with sections for 'MANAGEMENT' (Server Status, Client Connections, Users and Privileges, Status and System Variables, Data Export, Data Import/Restore), 'INSTANCE' (Startup / Shutdown, Server Logs, Options File), and 'PERFORMANCE' (Dashboard, Performance Reports, Performance Schema Setup). The main editor area is titled 'SQL File 2' and contains the query `select * from Registration`, which is highlighted with a red box. Below the query editor, the 'Result Grid' is displayed, showing the results of the query. The first row contains the column names: username, password, repassword, and usertype. The second row contains the values: customer1, customer1, customer1, and customer. This result grid is also highlighted with a red box. At the bottom of the interface, there is a tab labeled 'Registration 1' and an 'Output' pane.

username	password	repassword	usertype
customer1	customer1	customer1	customer

After an Account is created for user in Registration table user can login into website with the credentials



Game Speed

World's Largest Online Games Center

[Home](#) [Consoles](#) [Games](#) [Tablets](#) [Trending](#) [View](#) [Order](#) [Login](#) [Cart\(0\)](#)

Login

Your customer account has been created. Please login

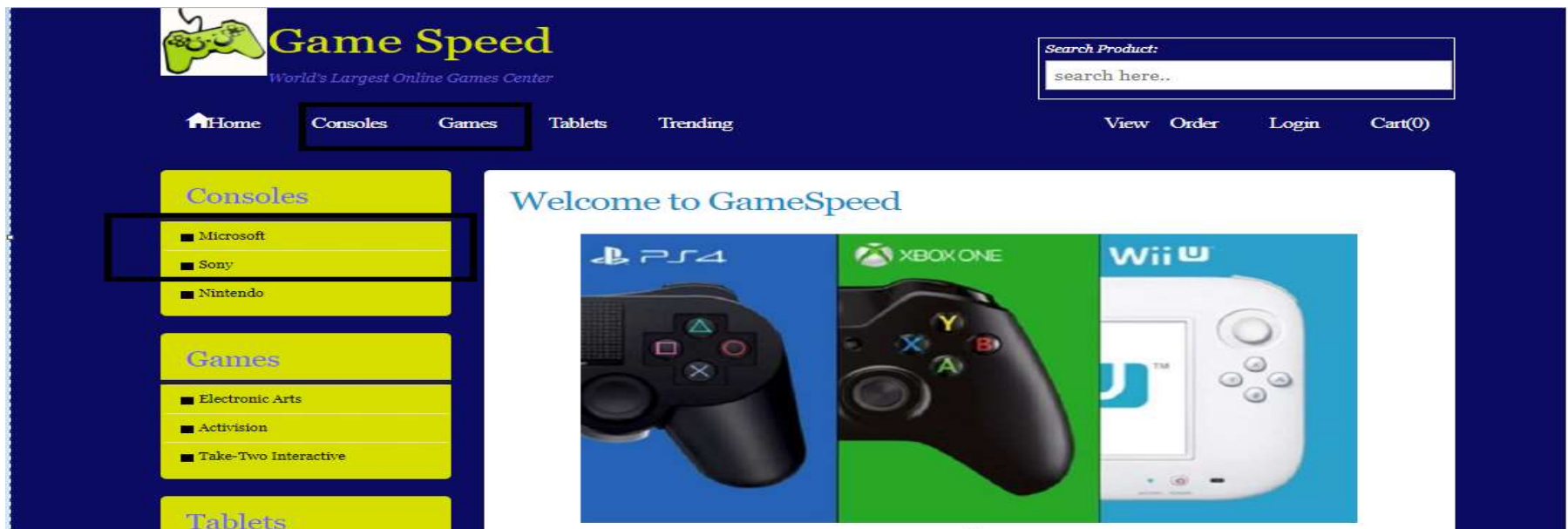
Username	<input type="text" value="customer1"/>
Password	<input type="password" value="...."/>
User Type	<input type="text" value="Customer"/>

[New User? Register here!](#)

Prices and offers are subject to change. © 2016 GameSpeed. All rights reserved.

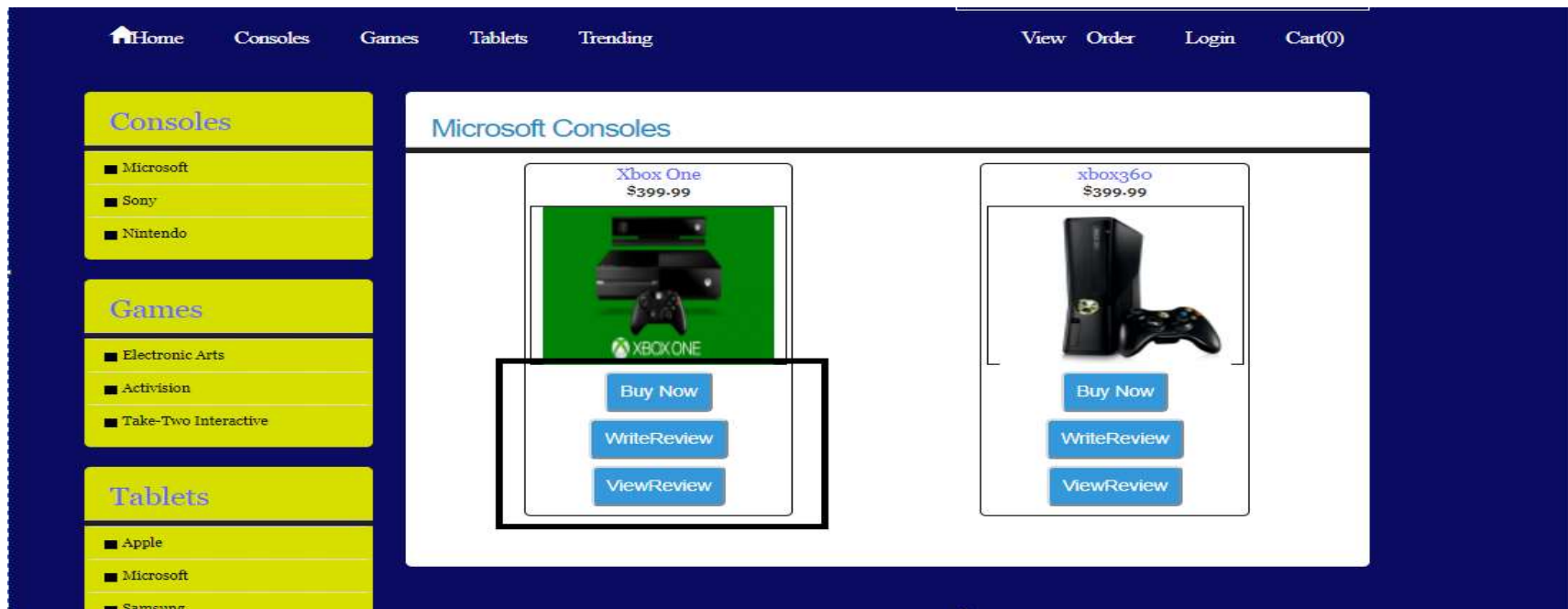
Example –Place Order

- Click on the products available in the navigation bar
- You can also select the products from the left navigation bar



Example – Place Order:

- Clicking on a product type will take you to the product page
- You have different options available such as buy a product , write reviews.



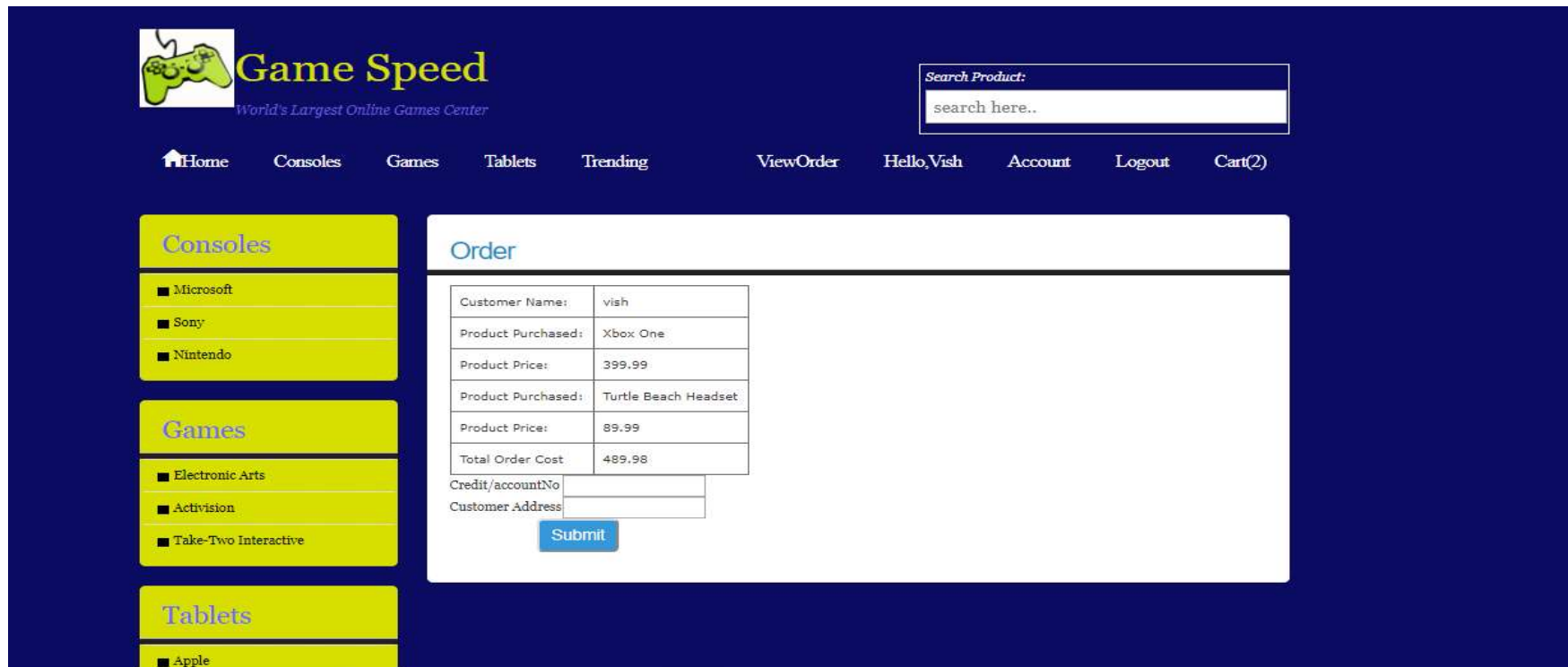
Example – Place Order:

- Click on 'Buy' button on the products page to purchase the product
- This should take you to a new page (Cart Servlet) where you can purchase the product
- Click on 'Check Out' to place the order for the selected product.



Example – Place Order:

- Clicking on CheckOut Button will take you to the CheckOut webpage where you have to provide your credit card no and address information.



The screenshot shows the Game Speed website with a dark blue background. The header includes the Game Speed logo, a search bar, and navigation links. The left sidebar lists categories: Consoles, Games, and Tablets. The main content area displays an 'Order' summary table and checkout fields.

Game Speed
World's Largest Online Games Center

Search Product:
search here..

Home Consoles Games Tablets Trending ViewOrder Hello,Vish Account Logout Cart(2)

Consoles

- Microsoft
- Sony
- Nintendo

Games

- Electronic Arts
- Activision
- Take-Two Interactive

Tablets

- Apple

Order

Customer Name:	vish
Product Purchased:	Xbox One
Product Price:	399.99
Product Purchased:	Turtle Beach Headset
Product Price:	89.99
Total Order Cost	489.98

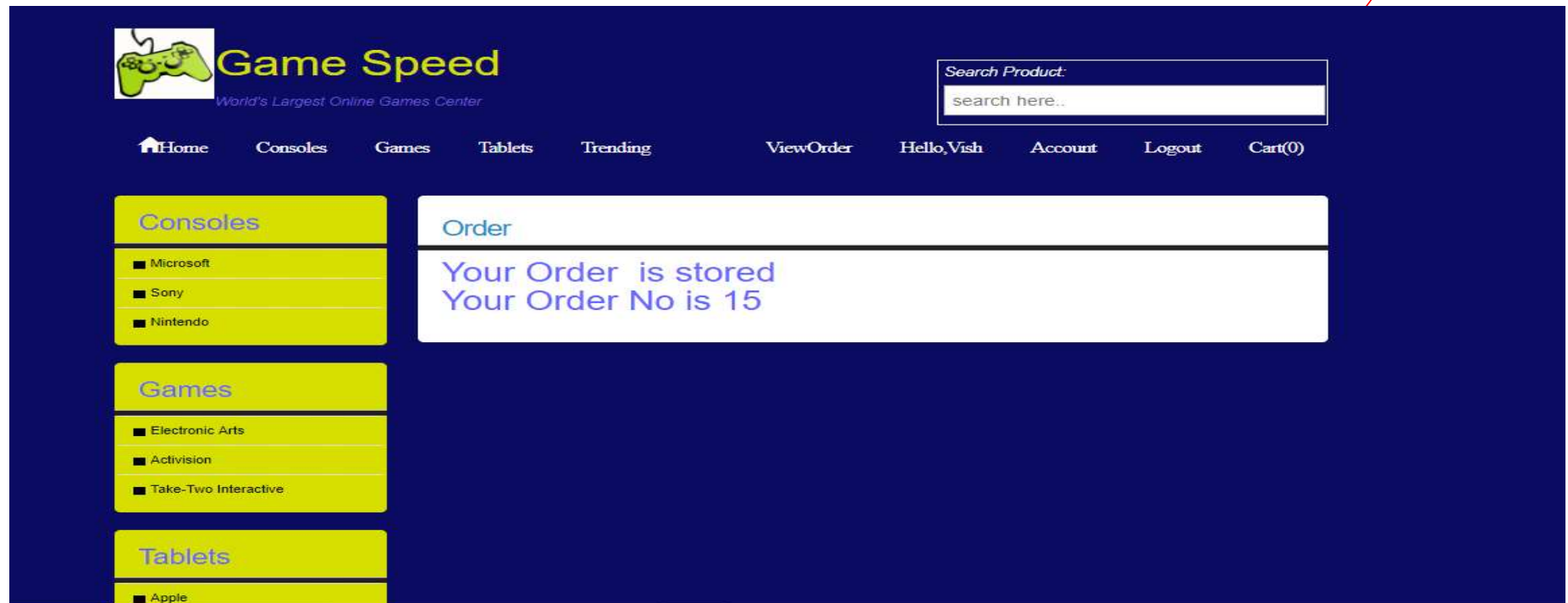
Credit/accountNo

Customer Address

Example – Place Order:

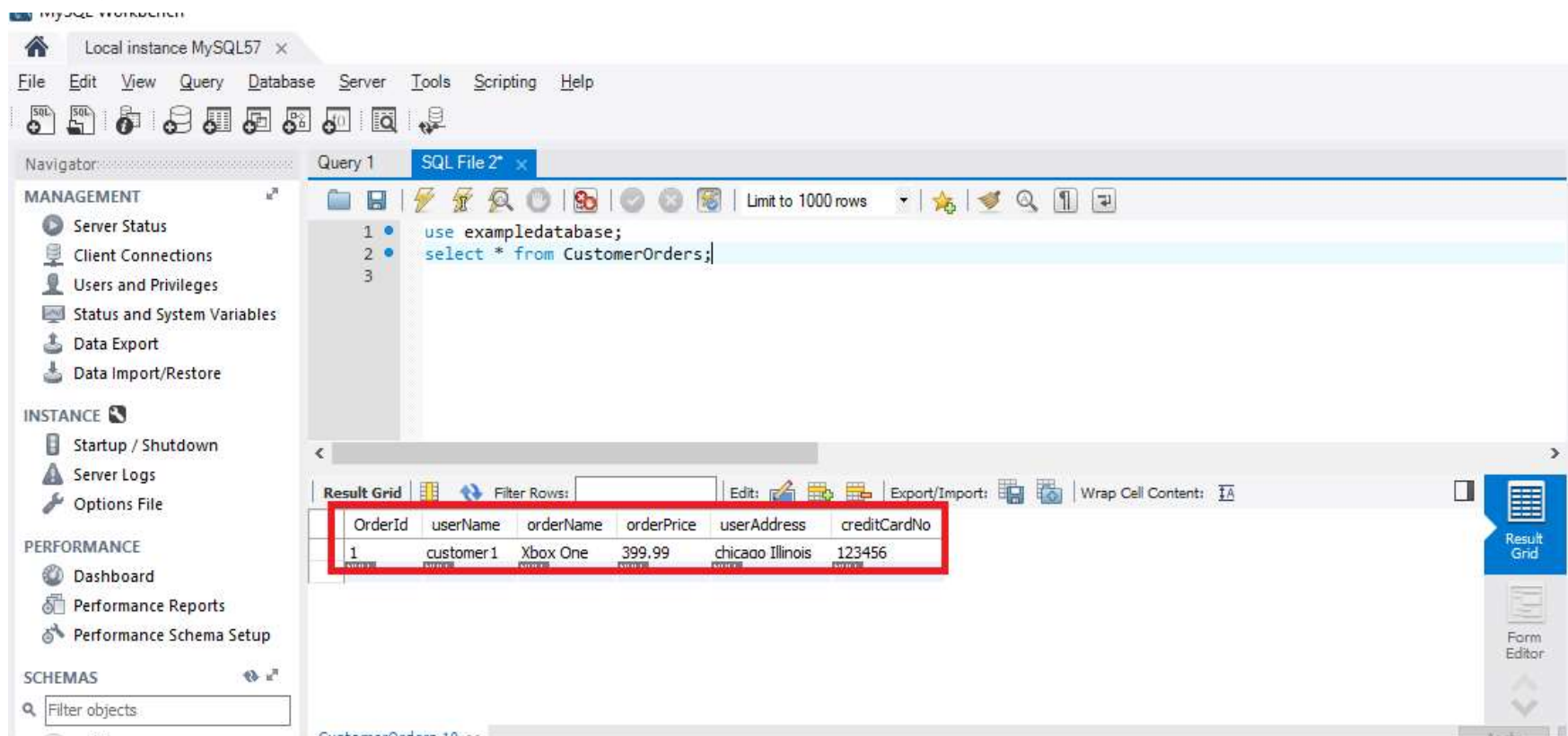
- On clicking the submit button from check out page order will be stored in My Sql database and order no will be generated

Order is Deleted
from the cart



Example - Place Order:

You can Check if the order Stored by executing select Query in database using sql workbench



The screenshot displays the MySQL Workbench interface. The left sidebar contains navigation panels for MANAGEMENT, INSTANCE, PERFORMANCE, and SCHEMAS. The central area shows a SQL query in the 'Query 1' tab:

```
1 • use exempladb;
2 • select * from CustomerOrders;
3
```

Below the query editor, the 'Result Grid' is visible, showing the results of the executed query. The grid has columns: OrderId, userName, orderName, orderPrice, userAddress, and creditCardNo. The first row of data is highlighted with a red border:

OrderId	userName	orderName	orderPrice	userAddress	creditCardNo
1	customer1	Xbox One	399.99	chicago Illinois	123456

The status bar at the bottom indicates 'CustomerOrders 10'.

Servlets MySql Connection

We will be using com.mysql.jdbc.Driver for connecting mysql from servlets

Syntax:

Connection `conn=`

`Class.forName("com.mysql.jdbc.Driver").newInstance();`

DriverManager.getConnection() method is used to connect to my sql database

Specify the database url , user name and password as parameter to the getConnection() method

```
conn=DriverManager.getConnection("jdbc:mysql://localhost:3306/exampledatabase","root","root");
```

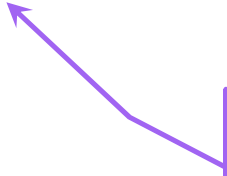
Prepared Statement Execution

- Prepared Statement are used to generate Sql statement for a Query String in java
- Syntax:
Prepared Statement `ps=conn.prepareStatement("select * from Registration where username=? And usertype=?")`
- Specify the Query String as parameter inside `conn.prepareStatement()` to perform insert or select into database from java
- ? Are place holder where we need to provide the value for a particular query
- In the next line ? We will replace with actual parameter value As
`ps.setString(1,"customer1")` – 1 denotes the first ? Place
`ps.setString(2,"customer")` – 2 denotes the second ? Place

Walkthrough to get connect to Database from Servlet

MySqlDataStoreUtilities class to connect Database from Servlet

```
public class MySqlDataStoreUtilities
{
    Connection conn = null;
    public void getConnection()
    {
        try
        {
            Class.forName("com.mysql.jdbc.Driver").newInstance();
            conn=
            DriverManager.getConnection("jdbc:mysql://localhost:3306/exampledatabase"
                                       , "root", "root");
        }
        catch (Exception e)
        {}
    }
}
```

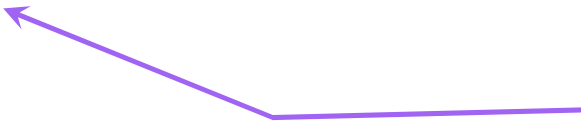


Connecting to
example
database

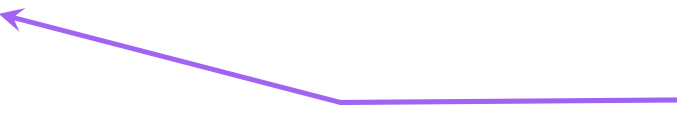
Walkthrough for User Registration Code Snippet

User Registration Sample Code

```
HashMap<String, User> hm=new HashMap<String, User>();
    try
    {
hm=MySQLDataStoreUtilities.selectUser();
    }
    catch(Exception e){}
    if(hm.containsKey(username))
    error_msg = "Username already exist as " + usertype;
    else
    {
    User user = new User(username,password,usertype);
    hm.put(username, user);
    MySQLDataStoreUtilities.insertUser(...);
    }
```



Calling utility function
to select data from
database and storing
orders in hashmap



Calling utility function
to insert user details in
database

Utility Function For Registration

```
public static void insertUser(String username,String password,String
usertype){
try{
    Class.forName("com.mysql.jdbc.Driver").newInstance();
    conn =
    DriverManager.getConnection("jdbc:mysql://localhost:3306/exampleda
tabase","root","root")

    String insertIntoCustomerRegisterQuery = "INSERT INTO
Registration(username,password,usertype) "
        + "VALUES (?, ?, ?)";
    PreparedStatement pst =
    conn.prepareStatement(insertIntoCustomerRegisterQuery);
        pst.setString(1,username);
        pst.setString(2,password);
        pst.setString(3,usertype);
        pst.execute();
    }
    catch(Exception e){}
}
```

Connecting to
example
database

Query to insert
data to table

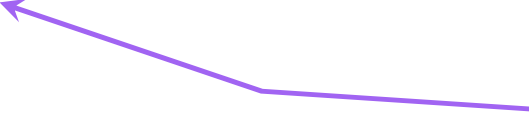
Setting Value for Each
Parameter

Execute method will
insert data into
database


Walkthrough for Inserting Order Code Snippet

Storing Order Payments

```
public void storePayment(int orderId,String orderName,double orderPrice,String
userAddress,String creditCardNo){
    HashMap<Integer, ArrayList<OrderPayment>> orderPayments= new HashMap<Integer,
    ArrayList<OrderPayment>>(); try
    {orderPayments= MySqlDataStoreUtilities.selectOrder();
    }
    catch(Exception e){}
    if(!orderPayments.containsKey(orderId)){
    ArrayList<OrderPayment> arr = new ArrayList<OrderPayment>();
    orderPayments.put(orderId, arr);
    }
    ArrayList<OrderPayment> listOrderPayment = orderPayments.get(orderId)
    OrderPayment orderpayment = new OrderPayment (...);
    listOrderPayment.add(orderpayment);
    try
    {MySqlDataStoreUtilities.insertOrder(...);
    }
    }
```



Calling utility function
to select data from
database and storing
orders in hashmap



Calling utility function
to inserting orders in
database

Utility Function for Select Order into hashmap

```
public static HashMap<Integer, ArrayList<OrderPayment>> selectOrder()
{
    HashMap<Integer, ArrayList<OrderPayment>> orderPayments=new
        HashMap<Integer, ArrayList<OrderPayment>>();
    try{ getConnection();
        String selectOrderQuery ="select * from customerorders";
        PreparedStatement pst = conn.prepareStatement(selectOrderQuery);
        ResultSet rs = pst.executeQuery();
        ArrayList<OrderPayment> orderList=new ArrayList<OrderPayment>();
        while(rs.next())
        {if(!orderPayments.containsKey(rs.getInt("OrderId")))
            {ArrayList<OrderPayment> arr = new ArrayList<OrderPayment>();
            orderPayments.put(rs.getInt("orderId"), arr);}
        ArrayList<OrderPayment> listOrderPayment =orderPayments.get(rs.getInt("OrderId"));
        OrderPayment order= new
            OrderPayment(rs.getInt("OrderId"),rs.getString("userName"),rs.getString("orderName"));
        listOrderPayment.add(order);
        }
    }catch (...) {}
    return orderPayments;}

```

ResultSet used to store table data obtained from database in servlet

Iterate through ResultSet and Store each order into class object

Utility Function for storing orders

```
public static void insertOrder(int orderId,String userName,String orderName)
{
    try
    {
        Class.forName("com.mysql.jdbc.Driver").newInstance();
        conn =
        DriverManager.getConnection("jdbc:mysql://localhost:3306/exampledatabase"
            ,"root","root");
        String insertIntoCustomerOrderQuery = "INSERT INTO
        customerOrders (OrderId,UserName,OrderName) " + "VALUES (?, ?, ?)";
        PreparedStatement pst =
        conn.prepareStatement(insertIntoCustomerOrderQuery);
        pst.setInt(1,orderId);
        pst.setString(2,userName);
        pst.setString(3,orderName);
        pst.execute();
    }

    catch(Exception e){}
```

Connecting to
example
database

Query to insert
data to table

Setting Value for Each
Parameter

Execute method will
insert data into
database