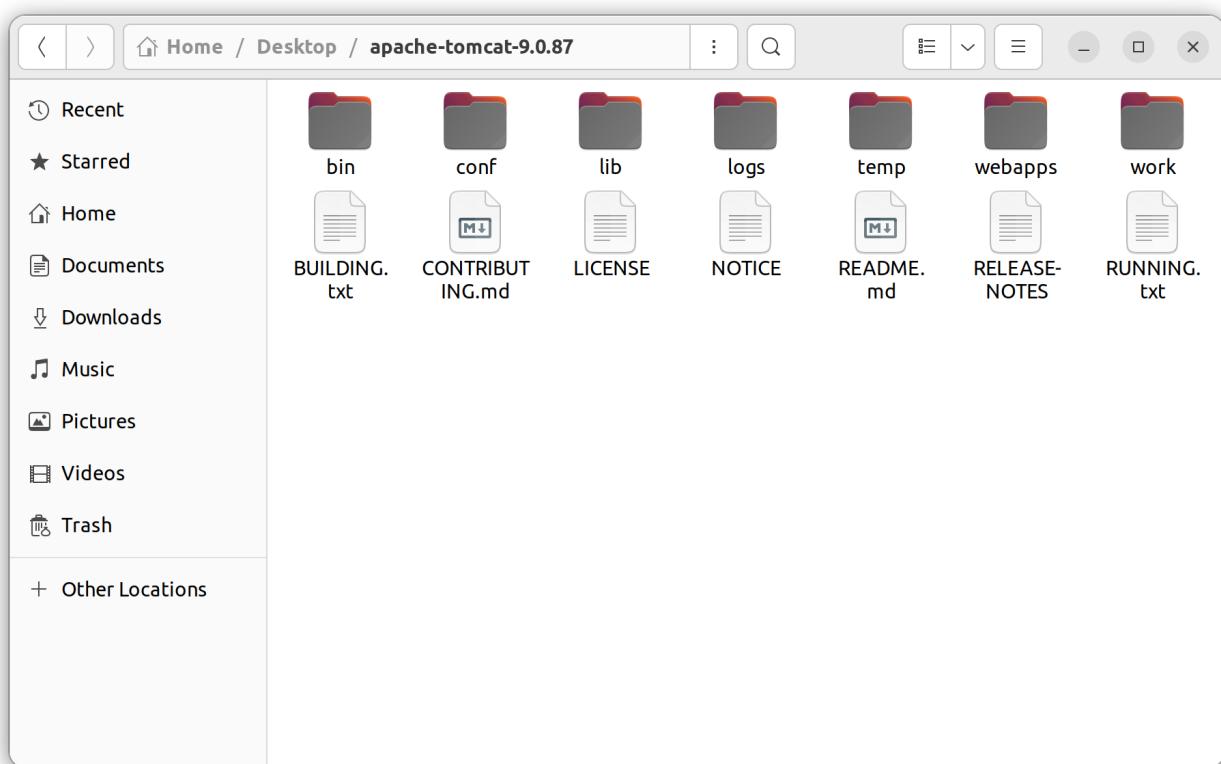
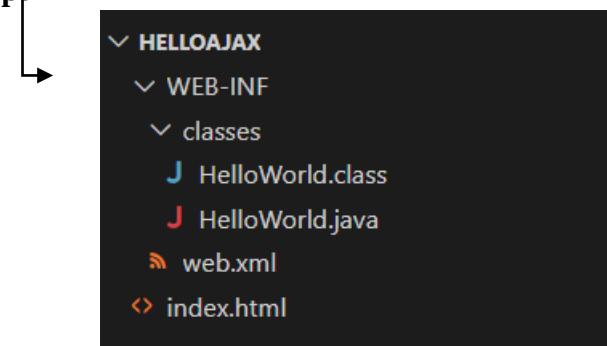


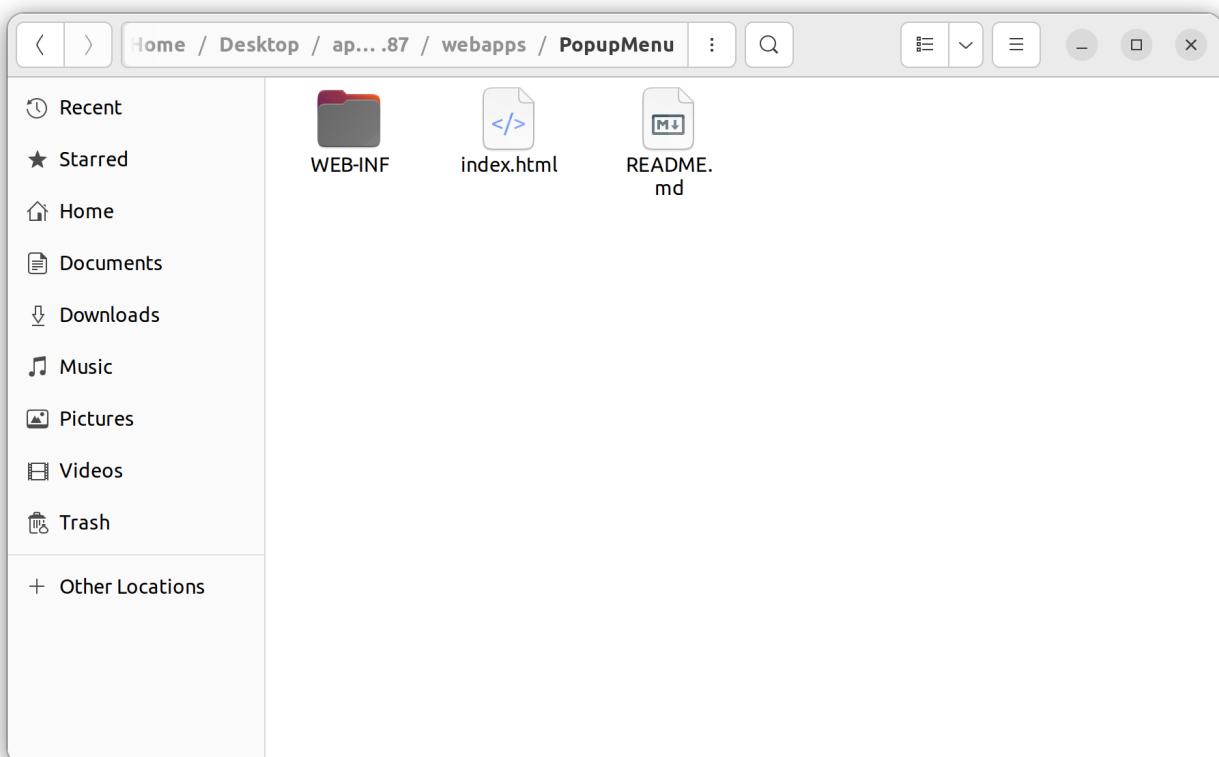
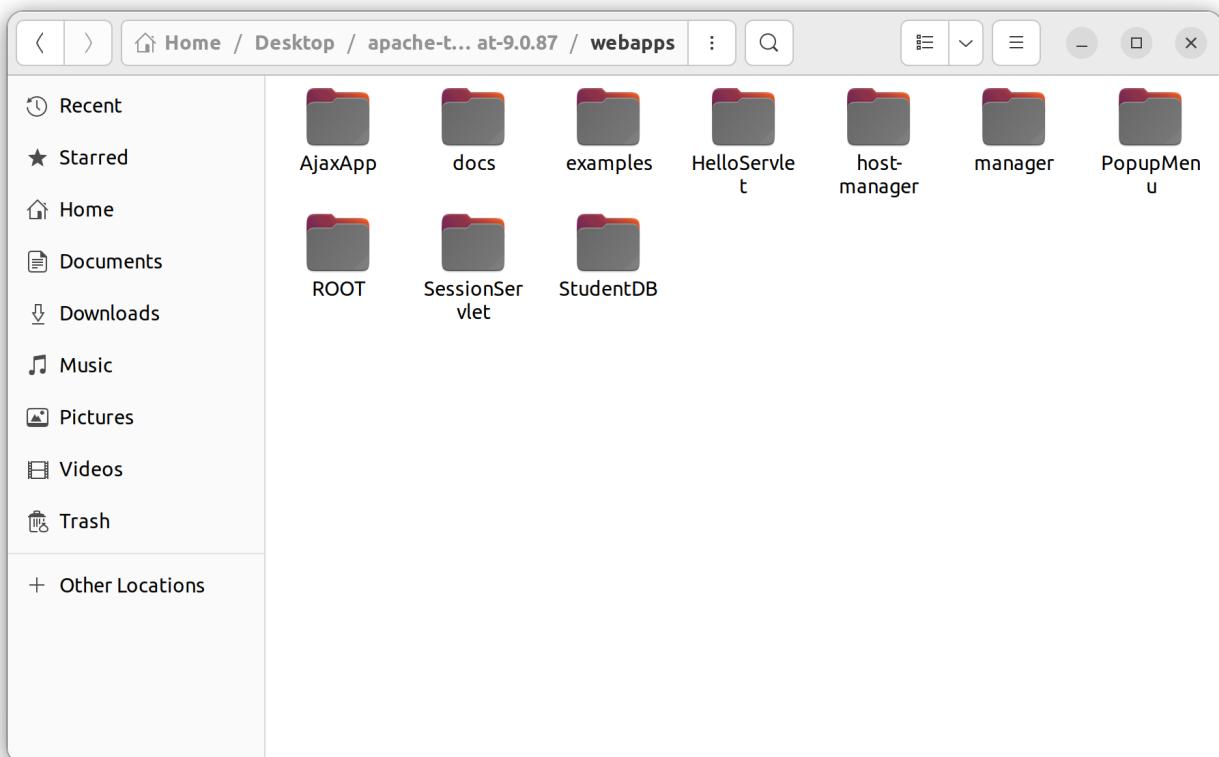
Exercise-8 (Dynamic Dropdown Menu)

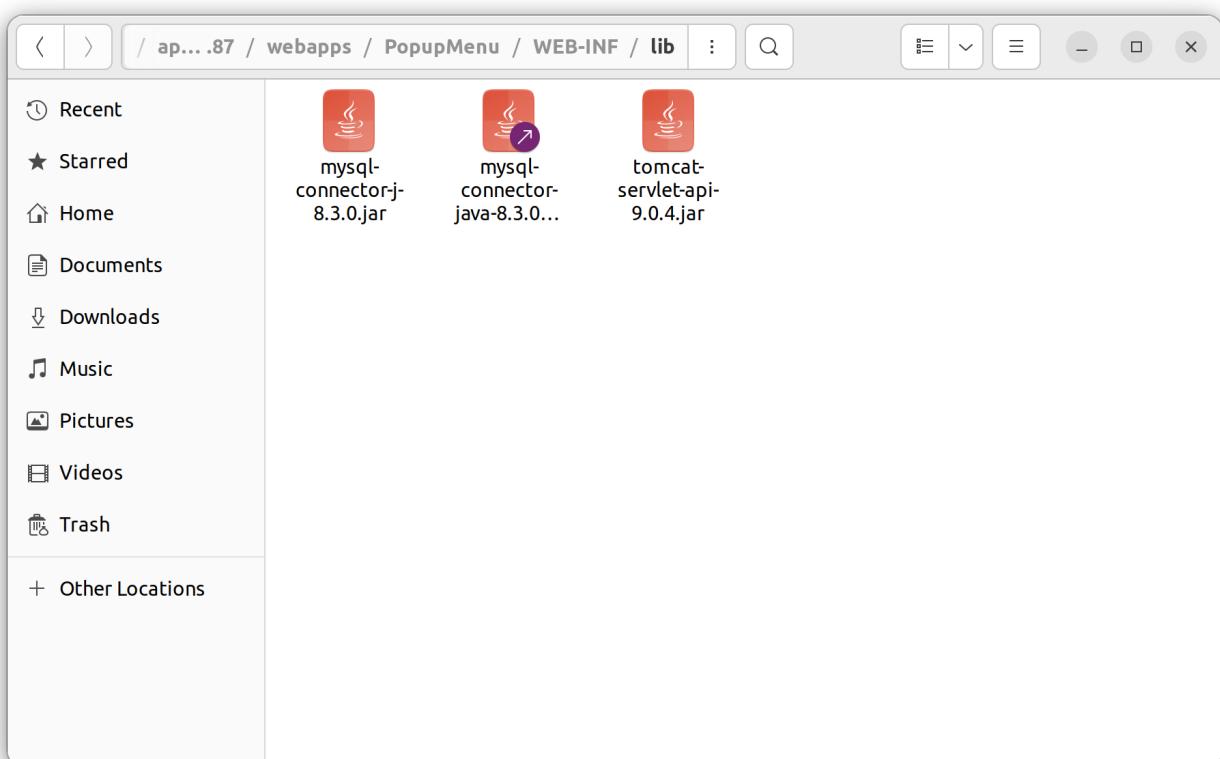
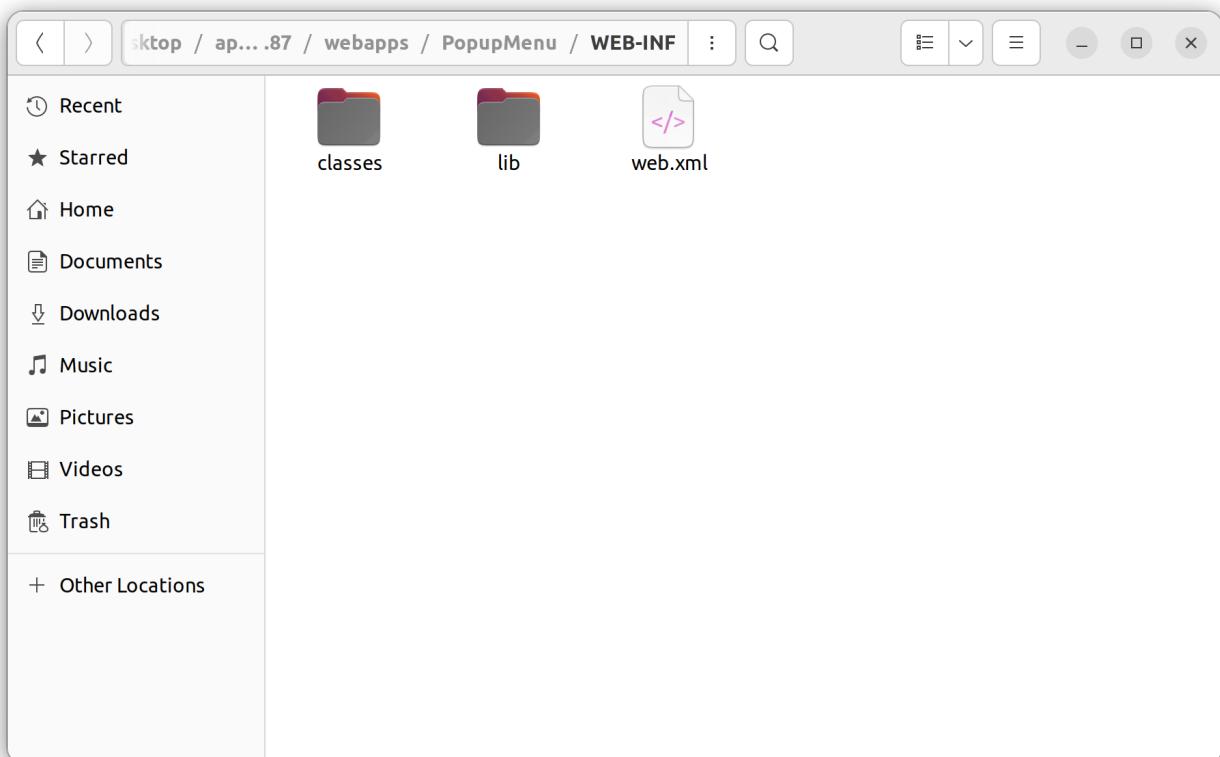
Develop a dynamic Dropdown Menu web application using AJAX with Servlets. Use the given sample code and modify the display content as dropdown menu instead of table and apply an event to dropdown, as it displays the selected item value in paragraph tag:

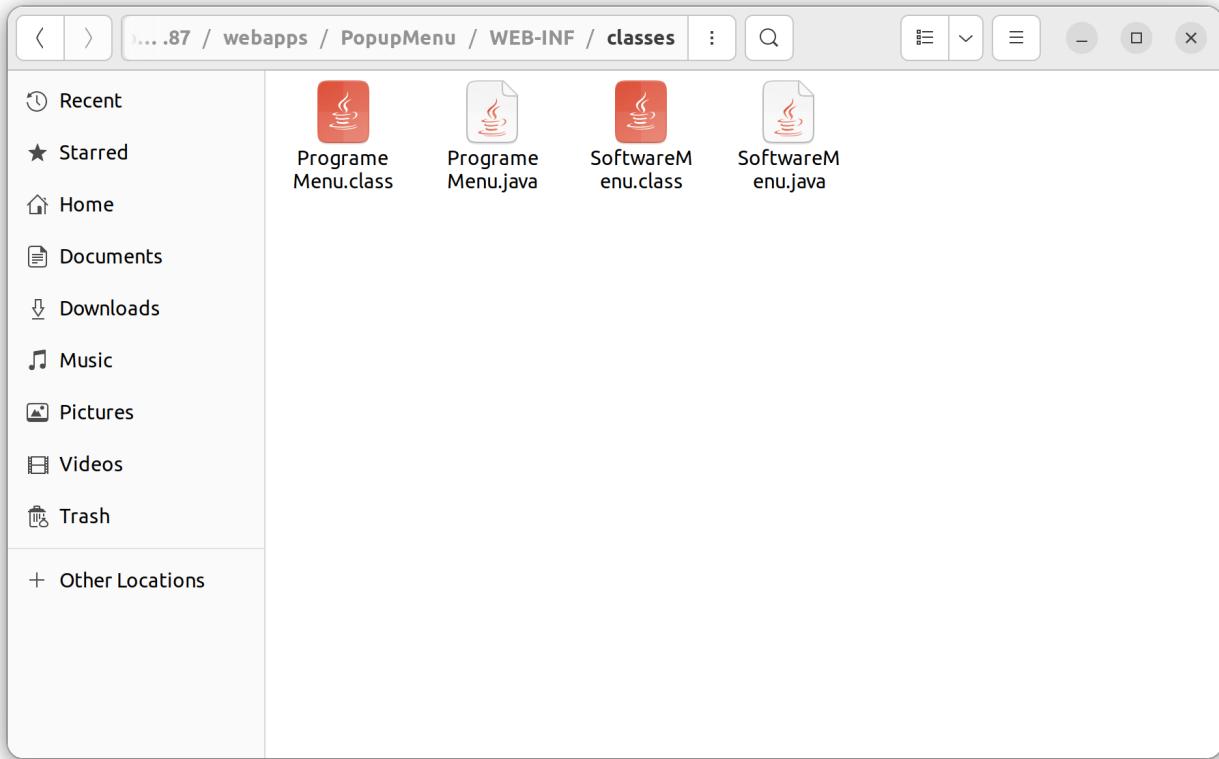
WebApp Structure:

ApacheTomcat → webapps









Program code:

ProgramMenu.java

```
import java.io.*;
import javax.servlet.*;
import javax.servlet.http.*;
import java.sql.*;

public class ProgramMenu extends HttpServlet {

    static {
        try {
            Class.forName("com.mysql.cj.jdbc.Driver");
        } catch (ClassNotFoundException e) {
            throw new RuntimeException("Error loading MySQL JDBC driver", e);
        }
    }

    public void doGet(HttpServletRequest request, HttpServletResponse response) throws
    IOException, ServletException {
        response.setContentType("text/html");
        PrintWriter out = response.getWriter();

        try (
            Connection conn =
DriverManager.getConnection("jdbc:mysql://localhost:3306/popupmenu", "user",
"password");
```

```

        Statement stmt = conn.createStatement();
        String sql = "SELECT toolname FROM development WHERE type='programming'";
        ResultSet result = stmt.executeQuery(sql);
        int rowCount = 0;

        while (result.next()) {
            String toolName = result.getString("toolname");
            out.println("<p>" + toolName + "</p>");
        }
    } catch (Exception e) {
        // TODO: handle exception
    }

    out.close();
}
}

```

SoftwareMenu.java

```

import java.io.*;
import javax.servlet.*;
import javax.servlet.http.*;
import java.sql.*;

public class SoftwareMenu extends HttpServlet {

    static {
        try {
            Class.forName("com.mysql.cj.jdbc.Driver");
        } catch (ClassNotFoundException e) {
            throw new RuntimeException("Error loading MySQL JDBC driver", e);
        }
    }

    public void doGet(HttpServletRequest request, HttpServletResponse response) throws
    IOException, ServletException {
        response.setContentType("text/html");
        PrintWriter out = response.getWriter();

        try {
            Connection conn =
DriverManager.getConnection("jdbc:mysql://localhost:3306/popupmenu", "user",
                "password");
            Statement stmt = conn.createStatement();
            String sql = "SELECT toolname FROM development WHERE type='software'";
            ResultSet result = stmt.executeQuery(sql);
            int rowCount = 0;

            while (result.next()) {
                String toolName = result.getString("toolname");
                out.println("<p>" + toolName + "</p>");
            }
        }
    }
}

```

```
    } catch (Exception e) {
        // TODO: handle exception
    }

    out.close();
}

}
```

web.xml

```
<web-app>
  <servlet>
    <servlet-name>ProgrameMenu</servlet-name>
    <servlet-class>ProgrameMenu</servlet-class>
  </servlet>
  <servlet-mapping>
    <servlet-name>ProgrameMenu</servlet-name>
    <url-pattern>/programeMenu</url-pattern>
  </servlet-mapping>
```

```
<servlet>
    <servlet-name>SoftwareMenu</servlet-name>
    <servlet-class>SoftwareMenu</servlet-class>
</servlet>
<servlet-mapping>
    <servlet-name>SoftwareMenu</servlet-name>
    <url-pattern>/softwareMenu</url-pattern>
</servlet-mapping>

<welcome-file-list>
    <welcome-file>index.html</welcome-file>
</welcome-file-list>
</web-app>
```

index.html

```
<!DOCTYPE html>
<html lang="en">

<head>
  <meta charset="UTF-8">
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <title>Popup Menu App</title>
  <script>
    function showMenu(position) {
      var xhttp = new XMLHttpRequest();

      xhttp.onreadystatechange = function () {
        if (this.readyState == 4 && this.status == 200) {
          document.getElementById(position).innerHTML = this.responseText;
        }
      }
    }
  </script>
</head>
<body>
  <div id="menu">
    <ul>
      <li>Item 1</li>
      <li>Item 2</li>
      <li>Item 3</li>
    </ul>
  </div>
  <div id="content">
    <p>This is the main content area.</p>
  </div>
</body>
</html>
```

```

        }
    };
    xhttp.open("GET", "/PopupMenu/" + position, true);

    xhttp.send();
}

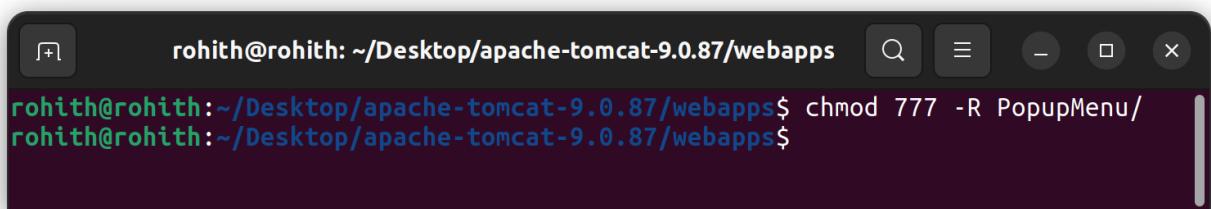
function resetMenu(position){
    document.getElementById(position).innerHTML = "";
}
</script>
</head>

<body>
<h1>Popup Menu</h1>
<section style="display: flex;">
    <h1 onclick="showMenu('programmeMenu')"
onmouseout="resetMenu('programmeMenu')">Programming <div id="programmeMenu" style="font-size: medium;">.</div>
    </h1>
    <div style="width: 100px;"></div>
    <h1 onclick="showMenu('softwareMenu')"
onmouseout="resetMenu('softwareMenu')">Software <div id="softwareMenu" style="font-size: medium;">.</div>
    </h1>
</section>
</body>

</html>

```

Output:



```

rohith@rohith: ~/Desktop/apache-tomcat-9.0.87/webapps$ chmod 777 -R PopupMenu/
rohith@rohith: ~/Desktop/apache-tomcat-9.0.87/webapps$ 

```

```
rohith@rohith:~$ mysql -u user -p
Enter password:
Welcome to the MySQL monitor. Commands end with ; or \g.
Your MySQL connection id is 63
Server version: 8.0.36-0ubuntu0.22.04.1 (Ubuntu)

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Oracle is a registered trademark of Oracle Corporation and/or its
affiliates. Other names may be trademarks of their respective
owners.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

mysql> CREATE DATABASE popupmenu
      -> ;
Query OK, 1 row affected (0.03 sec)

mysql> USE popupmenu;
Database changed
mysql>
```

```
Database changed
mysql> CREATE TABLE development(toolname VARCHAR(255),type VARCHAR(255));
Query OK, 0 rows affected (0.07 sec)

mysql> INSERT INTO development VALUES('JAVA','programming');
Query OK, 1 row affected (0.02 sec)

mysql> INSERT INTO development VALUES('JavaScript','programming');
Query OK, 1 row affected (0.02 sec)

mysql> SELECT * FROM development;
+-----+-----+
| toolname | type   |
+-----+-----+
| JAVA     | programming |
| JavaScript | programming |
| C/Cpp    | programming |
| Python   | programming |
| VScode   | software    |
| Git      | software    |
| Colab    | software    |
+-----+-----+
7 rows in set (0.00 sec)

mysql> SELECT toolname FROM development WHERE type='programming';
+-----+
| toolname |
+-----+
| JAVA     |
| JavaScript |
| C/Cpp    |
| Python   |
+-----+
4 rows in set (0.00 sec)

mysql>
```

```

rohith@rohith: ~/Desktop/apache-tomcat-9.0.87/webapps/Po...
rohith@rohith: ~/Desktop/apache-tomcat-9.0.87/webapps/PopupMenu/WEB-INF/classes$ javac -classpath ~/tomcat-servlet-api-9.0.4.jar ProgramMenu.java
rohith@rohith: ~/Desktop/apache-tomcat-9.0.87/webapps/PopupMenu/WEB-INF/classes$ javac -classpath ~/tomcat-servlet-api-9.0.4.jar SoftwareMenu.java
rohith@rohith: ~/Desktop/apache-tomcat-9.0.87/webapps/PopupMenu/WEB-INF/classes$ ${CATALINA_HOME}/bin/shutdown.sh
Using CATALINA_BASE:   /home/rohith/Desktop/apache-tomcat-9.0.87
Using CATALINA_HOME:  /home/rohith/Desktop/apache-tomcat-9.0.87
Using CATALINA_TMPDIR: /home/rohith/Desktop/apache-tomcat-9.0.87/temp
Using JRE_HOME:        /usr
Using CLASSPATH:      /home/rohith/Desktop/apache-tomcat-9.0.87/bin/bootstrap.jar:/home/rohith/Desktop/apache-tomcat-9.0.87/bin/tomcat-juli.jar
Using CATALINA_OPTS:
NOTE: Picked up JDK_JAVA_OPTIONS: --add-opens=java.base/java.lang=ALL-UNNAMED --add-opens=java.base/java.io=ALL-UNNAMED --add-opens=java.base/java.util=ALL-UNNAMED --add-opens=java.base/java.util.concurrent=ALL-UNNAMED --add-opens=java.rmi/sun.rmi.transport=ALL-UNNAMED
rohith@rohith: ~/Desktop/apache-tomcat-9.0.87/webapps/PopupMenu/WEB-INF/classes$ ${CATALINA_HOME}/bin/startup.sh
Using CATALINA_BASE:   /home/rohith/Desktop/apache-tomcat-9.0.87
Using CATALINA_HOME:  /home/rohith/Desktop/apache-tomcat-9.0.87
Using CATALINA_TMPDIR: /home/rohith/Desktop/apache-tomcat-9.0.87/temp
Using JRE_HOME:        /usr
Using CLASSPATH:      /home/rohith/Desktop/apache-tomcat-9.0.87/bin/bootstrap.jar:/home/rohith/Desktop/apache-tomcat-9.0.87/bin/tomcat-juli.jar
Using CATALINA_OPTS:
Tomcat started.
rohith@rohith: ~/Desktop/apache-tomcat-9.0.87/webapps/PopupMenu/WEB-INF/classes$
```

Apache Tomcat/9.0.87

If you're seeing this, you've successfully installed Tomcat. Congratulations!

 Recommended Reading:

- [Security Considerations How-To](#)
- [Manager Application How-To](#)
- [Clustering/Session Replication How-To](#)

[Server Status](#)

[Manager App](#)

[Host Manager](#)

Developer Quick Start

Tomcat Setup	Realms & AAA	Examples	Servlet Specifications
First Web Application	JDBC DataSources		Tomcat Versions

Managing Tomcat

For security, access to the [manager webapp](#) is restricted. Users are defined in: `${CATALINA_HOME}/conf/tomcat-users.xml`

In Tomcat 9.0 access to the manager application is split between different users. [Read more...](#)

[Release Notes](#)

[Changelog](#)

[Migration Guide](#)

[Security Notices](#)

Documentation

[Tomcat 9.0 Documentation](#)

[Tomcat 9.0 Configuration](#)

[Tomcat Wiki](#)

Find additional important configuration information in: `${CATALINA_HOME}/RUNNING.txt`

Developers may be interested in:

- [Tomcat 9.0 Bug Database](#)
- [Tomcat 9.0 JavaDocs](#)
- [Tomcat 9.0 Git Repository at GitHub](#)

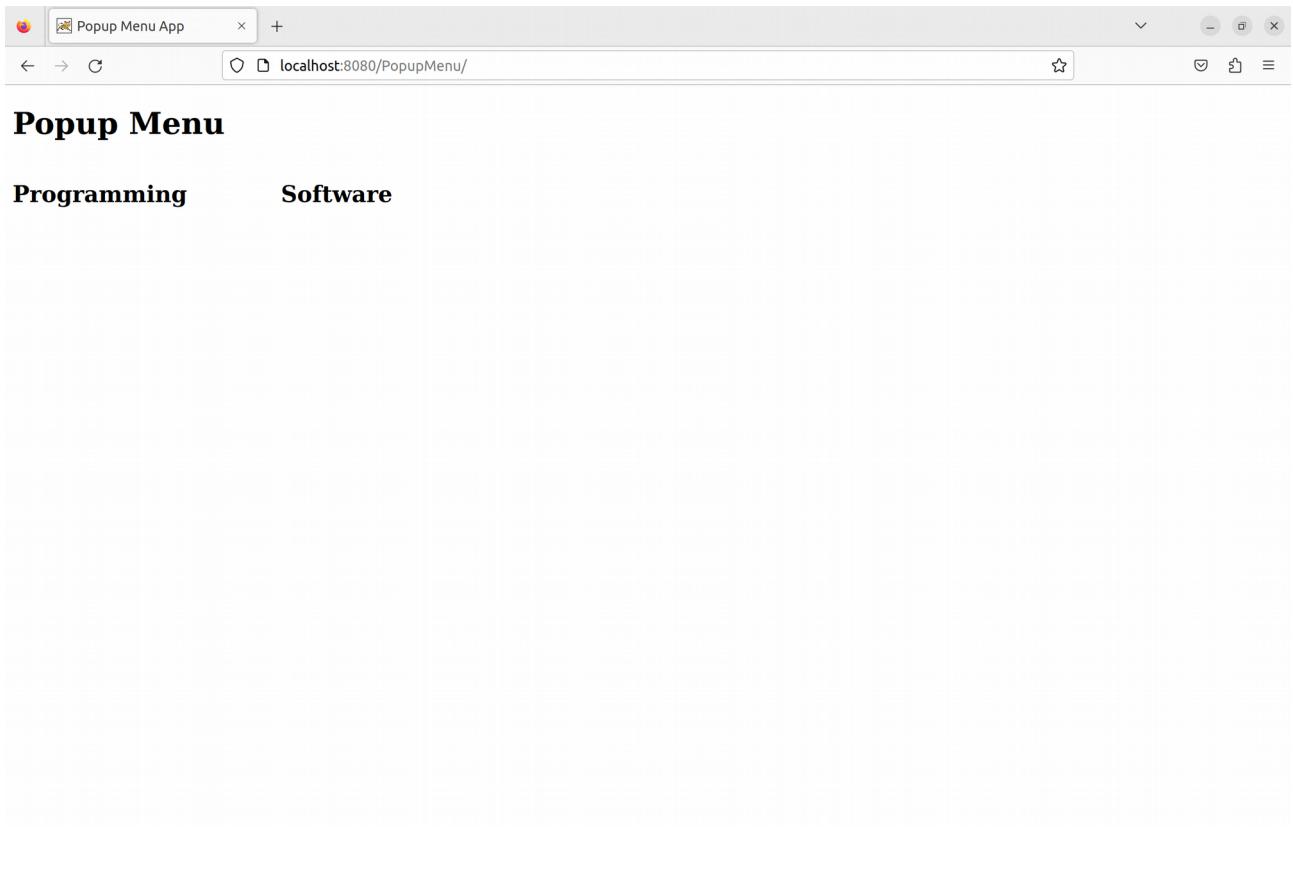
Getting Help

[FAQ and Mailing Lists](#)

The following mailing lists are available:

- [tomcat-announce](#) Important announcements, releases, security vulnerability notifications. (Low volume).
- [tomcat-users](#) User support and discussion
- [taglibs-user](#) User support and discussion for [Apache Taglibs](#)
- [tomcat-dev](#) Development mailing list, including commit messages

Other Downloads Other Documentation Get Involved Miscellaneous Apache Software Foundation



Move the mouse over “Programming” or click on it to display Programming content.



Move the mouse over “Software” or click on it to display Software content.



Popup Menu

Programming Software

VScode
Git
Colab

```
rohith@rohith: ~/Desktop/apache-tomcat-9.0.87/webapps/PopupMenu/WEB-INF/classes$ ${CATALINA_HOME}/bin/shutdown.sh
Using CATALINA_BASE:      /home/rohith/Desktop/apache-tomcat-9.0.87
Using CATALINA_HOME:      /home/rohith/Desktop/apache-tomcat-9.0.87
Using CATALINA_TMPDIR:   /home/rohith/Desktop/apache-tomcat-9.0.87/temp
Using JRE_HOME:          /usr
Using CLASSPATH:         /home/rohith/Desktop/apache-tomcat-9.0.87/bin/bootstrap.jar:/home/rohith/Desktop/apache-tomcat-9.0.87/bin/tomcat-juli.jar
Using CATALINA_OPTS:
NOTE: Picked up JDK_JAVA_OPTIONS: --add-opens=java.base/java.lang=ALL-UNNAMED --add-opens=java.base/java.io=ALL-UNNAMED --add-opens=java.base/java.util=ALL-UNNAMED --add-opens=java.base/java.util.concurrent=ALL-UNNAMED --add-opens=java.rmi/sun.rmi.transport=ALL-UNNAMED
rohith@rohith:~/Desktop/apache-tomcat-9.0.87/webapps/PopupMenu/WEB-INF/classes$
```

The screenshot shows a terminal window with the following content:

```
rohith@rohith:~$ mysql -u user -p
Enter password:
Welcome to the MySQL monitor. Commands end with ; or \g.
Your MySQL connection id is 78
Server version: 8.0.36-0ubuntu0.22.04.1 (Ubuntu)

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Oracle is a registered trademark of Oracle Corporation and/or its
affiliates. Other names may be trademarks of their respective
owners.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

mysql> exit
Bye
rohith@rohith:~$ systemctl stop mysql
rohith@rohith:~$ █
```

Best Practices to be followed:

1. Design before coding
2. Incremental coding
3. Usage of proper naming convention
4. Usage of Comments to the code
5. Indentation of code