# How to Run the Connect 4 Application Using XAMPP

This guide provides step-by-step instructions to set up and run the **Connect 4** application on your local machine using **NetBeans IDE** and **XAMPP**. The application is built using PHP, HTML, CSS, JavaScript, and MySQL.

## Prerequisites

Before you begin, ensure you have the following software installed on your system:

1. **NetBeans IDE** with PHP support.
2. **XAMPP** (includes Apache, PHP, and MySQL).
3. A **web browser** (e.g., Chrome, Firefox).
4. **OpenOffice** or any text editor to open SQL files if needed.

## Step 1: Install NetBeans IDE with PHP Support

If you haven't already installed NetBeans:

* **Download NetBeans** from the [official website](https://netbeans.apache.org/download/index.html).
* Choose the version that includes **PHP** support.
* Install NetBeans by following the on-screen instructions.
* **Note:** For detailed instructions on setting up NetBeans, please refer to any included documentation in the project folder.

## Step 2: Install XAMPP

You need a local server environment to run PHP and MySQL:

* **Download XAMPP** from Apache Friends.
* Install XAMPP by following the installation wizard.
* After installation, open the **XAMPP Control Panel** and start the **Apache** and **MySQL** modules by clicking the **Start** buttons.

## Step 3: Configure PHP in NetBeans

1. **Open NetBeans IDE**.
2. Go to **Tools > Options**.
3. Select the **PHP** tab.
4. Ensure the correct PHP interpreter is set (e.g., C:\xampp\php\php.exe).
5. Click **OK** to save the settings.

## Step 4: Set Up the Project Directory

1. Navigate to your XAMPP installation directory: C:\xampp\htdocs.
2. **Create a new folder** named Connect4.

## Step 5: Clone or Download the Project from GitHub

### Option 1: Clone the Repository

1. **Open a command prompt**.
2. Navigate to the htdocs directory:

bash

Copy code

cd C:\xampp\htdocs

1. Run the following command:

bash

Copy code

git clone https://github.com/YourUsername/Connect4.git

1. Ensure the project files are inside the Connect4 folder.

### Option 2: Download as ZIP

1. Go to the GitHub repository page.
2. Click on **Code > Download ZIP**.
3. Extract the ZIP file contents into the Connect4 folder in htdocs.

## Step 6: Create the MySQL Database

### 1. Open phpMyAdmin

* In your web browser, go to <http://localhost/phpmyadmin/>.

### 2. Create a New Database

1. Click on the **Databases** tab.
2. Under **Create database**, enter connect\_4 as the database name.
3. Choose utf8mb4\_general\_ci as the collation.
4. Click **Create**.

### 3. Import the Database Schema

1. **Import the SQL file**:
   * The project includes an SQL script named connect\_4\_entity\_user.sql.
   * This file contains the necessary SQL commands to create the required tables for the application.
2. To import the SQL commands:
   * Click on the connect\_4 database you just created.
   * Go to the **Import** tab in phpMyAdmin.
   * Click **Choose File** and navigate to the project directory.
   * Select the connect\_4\_entity\_user.sql file.
   * Click **Go** to execute the SQL commands.
3. **Verify the Tables**:
   * Ensure that the necessary tables (e.g., entity\_user) are created and the data is imported successfully.

## Step 7: Configure Database Connection in dbconnect.php

1. **Open NetBeans IDE**.
2. Go to **File > Open Project**.
3. Navigate to C:\xampp\htdocs\Connect4 and select the project.
4. Open the dbconnect.php file located in the includes directory.
5. Ensure the database connection parameters match your setup:

php

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<?php

$dsn = "mysql:host=localhost;dbname=connect\_4";

$dbusername = "root"; // Default XAMPP MySQL username

$dbpassword = ""; // Default XAMPP MySQL password is empty

try {

$pdo = new PDO($dsn, $dbusername, $dbpassword);

$pdo->setAttribute(PDO::ATTR\_ERRMODE, PDO::ERRMODE\_EXCEPTION);

} catch (PDOException $e) {

echo "Connection Failed: " . $e->getMessage();

}

?>

1. If you've set a password for the root user or are using a different user, update $dbusername and $dbpassword accordingly.
2. **Save** the file.

## Step 8: Configure Project in NetBeans

1. **Right-click** on the project in the **Projects** pane and select **Properties**.
2. Under **Sources**:
   * Set the **Project Folder** to C:\xampp\htdocs\Connect4.
   * Ensure the **Web Root** is set to the same directory.
3. Under **Run Configuration**:
   * Set the **Run As** option to **Local Web Site (running on local web server)**.
   * Set the **Project URL** to http://localhost/Connect4/.
4. Click **OK** to save the settings.

## Step 9: Start Apache and MySQL Services

1. Open the **XAMPP Control Panel**.
2. Start the **Apache** and **MySQL** modules by clicking the **Start** buttons next to each.

## Step 10: Run the Application

1. **In NetBeans**, right-click on the project and select **Run**.
2. Alternatively, **open a web browser** and navigate to http://localhost/Connect4/index.php.

## Step 11: Use the Application

### Register a New User

1. On the homepage, you have options to **Login** or **Register**.
2. Click on **Register**.
3. Fill in the registration form:
   * **Username**: Must be 3-20 alphanumeric characters or underscores.
   * **Password**: Must be at least 5 characters.
   * **First Name** and **Last Name**: Required fields.
   * **Admin**: Choose whether the user is an admin.
4. Click **Register** to create a new account.

### Login

1. Return to the **homepage**.
2. Enter your **Username** and **Password**.
3. Click **Login**.

### For Regular Users

* After logging in, you will be directed to your **User Stats** page.
* You can:
  + **Play a Game**: Start a new Connect 4 game.
  + **View Your Stats**: See your wins, losses, and ties.
  + **Logout**: End your session.

### For Admin Users

* After logging in, you will have additional options:
  + **View All Users**: Access a list of all users.
    - **Edit Users**: Modify user details.
    - **Delete Users**: Remove users from the system.
  + **Logout**: End your session.

### Playing the Game

1. Click on **Play a Game**.
2. Choose the game mode:
   * **1. Player vs Player**
   * **2. Player vs Computer**
3. Enter the corresponding number to select the mode.
4. The Connect 4 game board will display.
5. To make a move:
   * Enter a column number (1-7) where you want to drop your piece.
   * Click **Place**.
6. The game will indicate whose turn it is and display messages accordingly.
7. The game ends when there's a winner or a tie.

## Additional Notes

* **Session Management**: Ensure that session\_start(); is included at the beginning of PHP files that use sessions.
* **File Paths**: Verify that all include paths are correct, especially in header.php and other included files.
* **Assets**: Make sure that image files like circle.png, red.png, and yellow.png are correctly placed in the project directory and referenced properly in the code.