

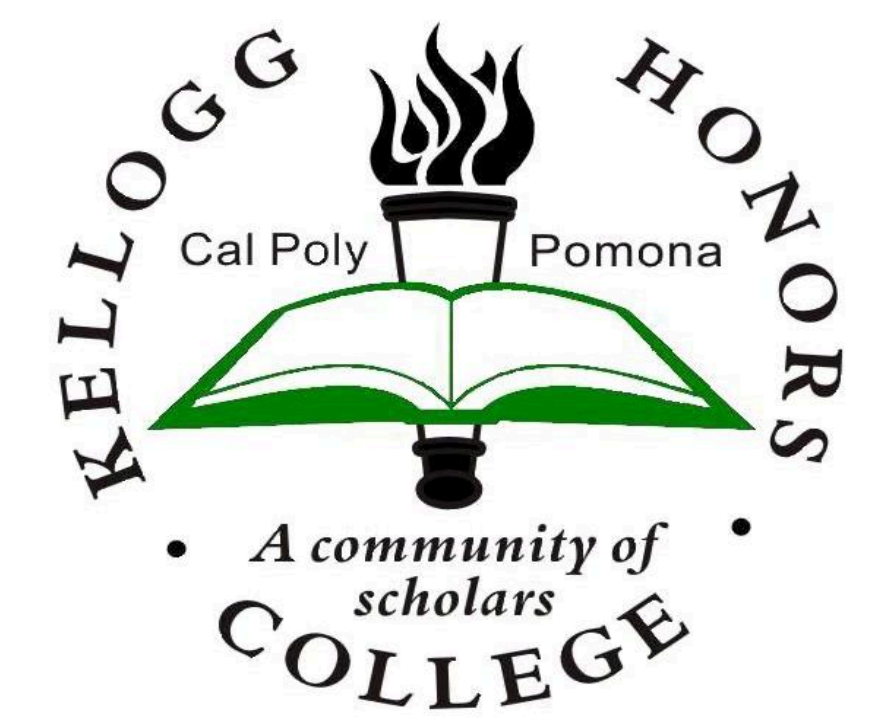
# Website Development



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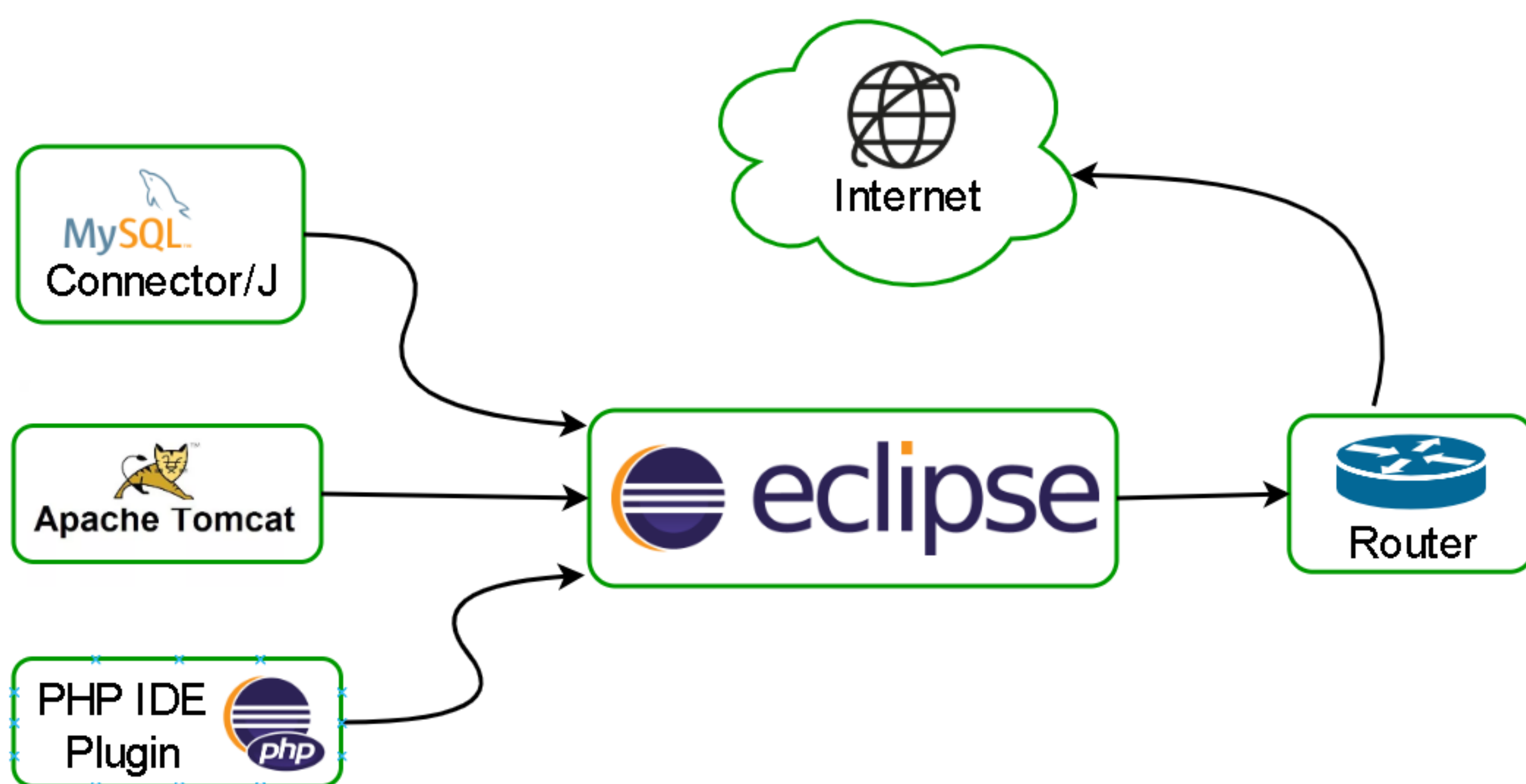
Kellogg Honors College Capstone Project



## Abstract

The purpose of this capstone is to understand and explore the backend of website development. The backend of a website is what stores and delivers web content to the consumer. Aspects of a website's backend can consist of a server, applications & API software, and databases. I'll be focusing on the server and database side of it. Another goal of mine was to collect all the tools for website development in one environment. I chose Eclipse IDE for Java Developers as my environment for my database, server and frontend code. For my database development I'm using MySQL and PHP to tie my frontend in with it. I used Apache Tomcat server to simulate hosting the website. Finally, for any frontend code, used mostly to test the backend, I used html. For gathering all these elements into Eclipse, I used plugins and connectors. Eclipse has MySQL connectors, PHP plugins and is compatible with the apache server. By collecting all these elements into one IDE I can work on every aspect of my website without leaving Eclipse.

## System Diagram



## Code

### PHP file:

```
1 <!DOCTYPE html>
2 <html lang="en">
3 <head>
4 <meta charset="utf-8">
5 <title>MySQL connection test</title>
6 </head>
7 <body>
8
9 <?php
10 $servername = "jdbc:mysql://localhost:3306/mysql";
11 $username = "root";
12 $password = "Batman432:3";
13 $dbname = "database";
14
15 // Create connection
16 $conn = mysqli_connect($servername, $username, $password, $dbname);
17
18 // Check connection
19 if (!$conn) {
20     die("Connection failed: " . mysqli_connect_error());
21 }
22 //echo "Connected successfully";
23
24 $sql = "SELECT user_id, make, model, year FROM cars";
25 $result = $conn->query($sql);
26
27 if ($result->num_rows > 0) {
28     // output data of each row
29     while($row = $result->fetch_assoc()) {
30         echo " user_id: " . $row["user_id"]. " make: " . $row["make"]. " model: "
31             . $row["model"]. " year: " . $row["year"]. "<br>";
32     }
33 } else {
34     echo "0 results";
35 }
36 $conn->close();
37
38 ?>
39 </body>
40 </html>
```

## Database:

```
Connection profile
Type: MySQL_5.1 Name: New MySQL Database: database Status: Disconnected, Auto Commi
1 drop table cars;
2
3 create table cars(
4     `user_id` int(11) NOT NULL AUTO_INCREMENT,
5     `make` varchar(45) NOT NULL,
6     `model` varchar(45) NOT NULL,
7     `year` int(11) NOT NULL,
8     PRIMARY KEY (`user_id`)
9 );
10
11 INSERT INTO cars (user_id, make, model, year) VALUES (1, 'mercury', 'sabels', 2004);
12 INSERT INTO cars (user_id, make, model, year) VALUES (2, 'Toyota', 'Camery', 2010);
13 INSERT INTO cars (user_id, make, model, year) VALUES (3, 'Toyota', 'Prius', 2016);
```

## Context.xml:

```
1 <?xml version="1.0" encoding="UTF-8"?>
2
3 <Context path="/FOO" docBase="FOO"
4     debug="5" reloadable="true" crossContext="true">
5
6     <Resource name="jdbc/database"
7
8     auth="Container"
9
10    type="javax.sql.DataSource"
11
12    username="root"
13
14    password="Batman432:3"
15
16    driverClassName="com.mysql.jdbc.Driver"
17
18    url="jdbc:mysql://localhost:3306/database"/>
19
20
21 </Context>
```

## Test Output:

```
http://localhost:8081/Test_Dynamic/PHPTest.php
user_id: 1 make: mercury model: sabels year: 2004
user_id: 2 make: Toyota model: Camery year: 2010
user_id: 3 make: Toyota model: Prius year: 2016
```

## Summary

I used a php file type to house all my front end code because php file types also support html. The front end code is html and inside that I use php code to reference the database. The example to the left calls the database I created and outputs all the fields. The database itself is coded in eclipse using MySQL, as shown above. The code propagates a table that I described. In this case I created a table to house different car information. In order for my php code to access the database I need to not only declare the database info (server name, user, password, and database name) in the main code but also in context.xml. Context.xml is a generated file in eclipse for use in web content. Inside we need to add the database recourse so the code can find it. Another file called web.xml is also required for web projects where I referenced the mysql JDBC connector. When the code is ran I can specify the apache tomcat server to run it on, this will output what the webpage would look like (along with any extra functionality) using my local host port 8081. Since I was focusing on the backend I just output a simple code that shows the contents of my database that I pulled from using php. I would like to expand on my project further by studying frontend development as well and creating a more complex and aesthetically pleasing site. I also want to host the website, the goal is to use my own router as the server and host it that way, but I could also use a provider like GoDaddy to host my website and database.