Department of Electrical and Information Technology (EIT)

Master of Science in Sensor Systems Technology

Com. And Vis. Assignment

XML Data Extraction, Storing in DB and Plotting

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Submitted To:

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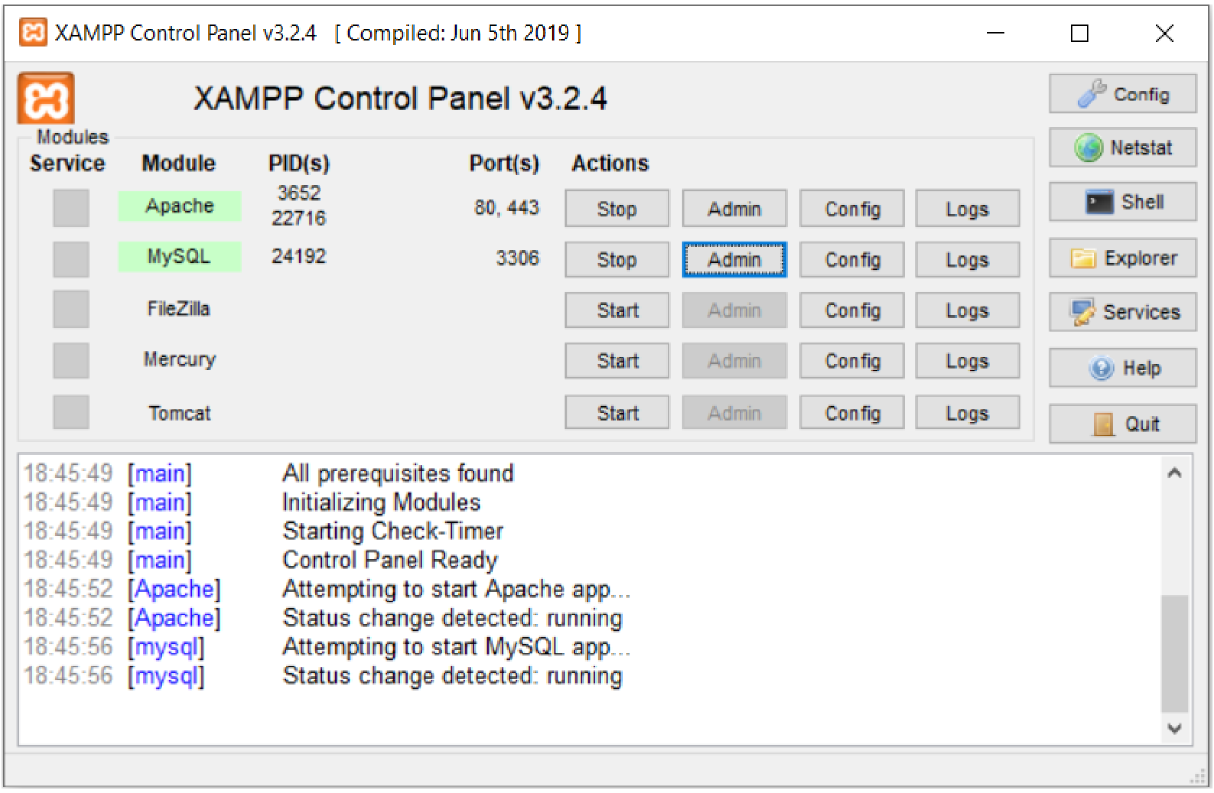
1. Preparing the Environment:

For this task, XAMPP has been used and downloaded from here! it is completely free, easy to install Apache distribution containing MySQL and PHP. The XAMPP open source package has been set up to be incredibly easy to install and to use.

Requirements:

- PHP development environment such as localhost
- XAMPP (Windows)
- MySQL
- jQuery
- ChartJS

After installing successfully, Apache and MySQL have been started by clicking "Start" button. In bellow Figure we can see that Apache is running on Port: 80 and MySQL is running on Port: 3306.



XAMPP Control Panel v3.2.4 [Compiled: Jun 5th 2019]

XAMPP Control Panel v3.2.4

Modules

Service	Module	PID(s)	Port(s)	Actions
	Apache	3652 22716	80, 443	Stop · Admin · Config · Logs
	MySQL	24192	3306	Stop · Admin · Config · Logs
	FileZilla			Start · Admin · Config · Logs
	Mercury			Start · Admin · Config · Logs
	Tomcat			Start · Admin · Config · Logs

```
18:45:49  [main]      All prerequisites found
18:45:49  [main]      Initializing Modules
18:45:49  [main]      Starting Check-Timer
18:45:49  [main]      Control Panel Ready
18:45:52  [Apache]    Attempting to start Apache app...
18:45:52  [Apache]    Status change detected: running
18:45:56  [mysql]     Attempting to start MySQL app...
18:45:56  [mysql]     Status change detected: running
```

Fig-01: Apache and MySQL is started

2. Extracting XML Data and Storing into Database:

In this task PHP script with Ajax JQuery has been used to fetch data from XML file and insert into Mysql database table.

2.1 Steps and methods:

- For Import or Insert XML file data into Msyql table, simple form to upload xml file has been used. After making form, to submit XML file to server, Ajax request is used.
- In Ajax, FormData()object is used to submit selected file to PHP script and in script it will validate file is selected or not and selected file XML or not.
- If selected file is XML then simplexml_load_file() PHP function is triggered, this function will convert selected XML file into Simple XML Element object.
- From this object data is fetched in PHP by using loop and after this it will insert into Mysql table.
- So, this way Import or Insert XML file data into Mysql table by using PHP script with Ajax JQuery has been done.

2.2 Resources:

1. index.php
   a. https://ajax.googleapis.com/ajax/libs/jquery/3.1.0/jquery.min.js
   b. "https://maxcdn.bootstrapcdn.com/bootstrap/3.3.6/css/bootstrap.min.css"
2. importData.php

Both PHP scripts should be stored into “C:\xampp\htdocs” folder.

2.3 Selecting and storing XML data via Webpage:

a. XML file should be selected by clicking on “**Select Data**” button
b. By clicking “**Import XML**” button, XML data will be stored into MySQL database

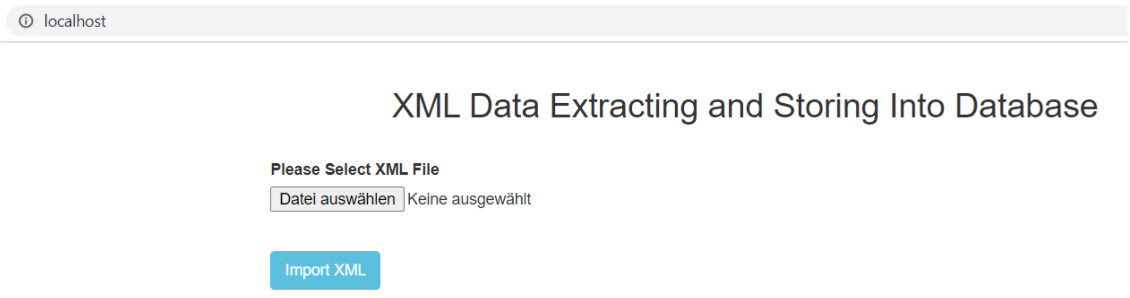


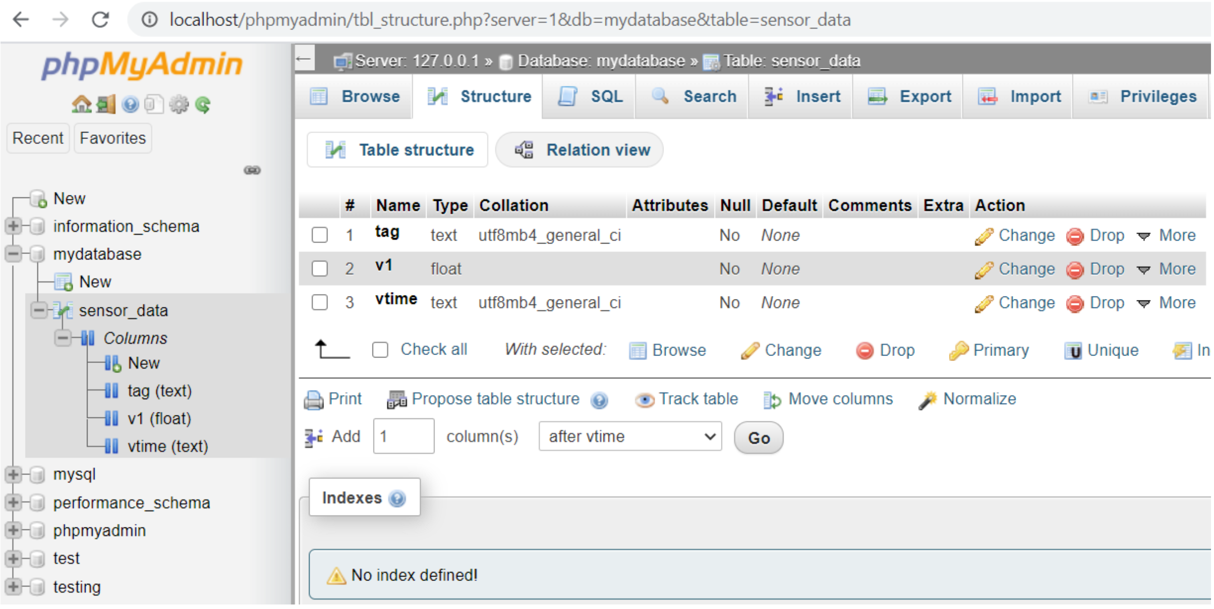
Fig-02: Webpage for Extracting and storing XML data into MySQL Database

2.4 Database and Data Table:

a. A Database has been created named “mydatabase”

b. A data table has been also created named “sensor_data”

c. Three columns (tag, v1, vtime) have been created to store sensor data as well



localhost/phpmyadmin/tbl_structure.php?server=1&db=mydatabase&table=sensor_data

	#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
□	1	**tag**	text	utf8mb4_general_ci		No	*None*			Change Drop More
□	2	**v1**	float			No	*None*			Change Drop More
□	3	**vtime**	text	utf8mb4_general_ci		No	*None*			Change Drop More

Add 1 column(s) after vtime

No index defined!

Fig-03: Database Table

After triggering “**Import XML**” button from Fig-02, it is shown that three columns have been created such as tag, v1, and vtime. All imported data will be stored in the corresponding rows.

3. Fetching Data from Database and Plotting on Webpage:

3.1 Creating Project Folder

A project folder named “**chartjs”** has been created (N.B.: Any other name will be possible). Inside the chartjs project folder, a subfolder and name it “**js”** is created. This “**js”** will hold all the javascript files such as “**Chart.min.js”**, “**jquery.min.js”,** and **linechart.js**. This will contain all the javascript code that are going to be executed.

3.2 Fetching data from MySQL Database using PHP script

The file “fetch_data.php” should be stored inside the chartjs/api folder. This file is going to contain php code that will fetch data from the “**sensor_data**” table and display it in JSON format.

3.3 Creating Line Chart

To create the chat on web page, “linechart-db-php.html” should be open on localhost and an AJAX call from “**linechart.js**” script to “fetch_data.php” file to fetch the JSON data will be used to draw the line graph.

3.4 Resources

• fetch_data.php;	folder location: * \htdocs\chartjs\api
• Chart.min.js;	folder location: * \htdocs\chartjs\js
• jquery.min.js;	folder location: * \htdocs\chartjs\js
• linechart.js;	folder location: * \htdocs\chartjs\js
• linechart-db-php.html;	folder location: * \htdocs \chartjs

4. Chart Output

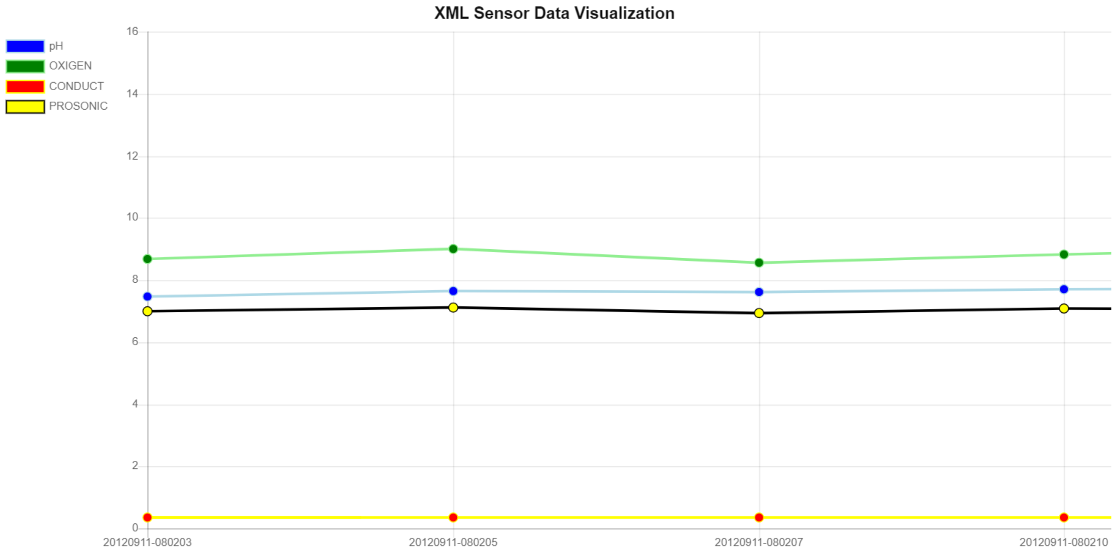


Fig-04: Sensor Data Visualization