Java Auto Grader

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Abstract

The aim of the project is to develop a “Java Automatic Grader” for java project assignment. It ensures that every assignment or work given to the students is done in the right way. The student should get automatic evaluation after submitting the assignment. We are implementing each test case in such a way that student should only get marks for satisfying all the requirements of the project assignment in fruitful manner i.e. If the student submits the assignment by reaching all the requirements and the expected result is achieved in the right way, then only the student will get full marks.
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1 feature description

In this project we are developing a website with the help of moodle, which will help the teachers and professors in grading student’s assignments automatically when they submit the assignment. This will have done based on the test cases written by the professor for each assignment he/she posted on the website.

1.1 Competitive Information

SWAD (Shared Workspace at Distance) is the competitor for moodle. But moodle is more user friendly compared to SWAD

1.2 Relationship to other application

This project does not relate any other projects

1.3 Assumptions and Dependencies

Moodle is an open source software, so anyone can make changes to the functionalities of the website and make it better to use.

1.4 Future Enhancements

As of now we are concentrating only on auto grading of the assignments, apart from this the moodle software can offer so many features like a complete blackboard software

1.5 Definitions and Acronyms

We did not use any acronyms in this project
2 Technical Description

2.1 Application Architecture

In order to work the moodle software we need WAMP server and moodle server to be installed in the system.

2.2 Application Information flows

When the professor posts the assignment then the student must submit it within the deadline by logging through his account, also student can access the resources that are available under the course in which he/she enrolled.

2.3 Interactions with other Projects

This project does not interact with any other projects

2.4 Interactions with other Applications

This project does not interact with any other applications
2.5 Capabilities

All the plugins must work properly i.e. VPL should be able to add any number of assignments and Junitest plugin must test the programs correctly.

2.6 Risk Assessment and Management

The test cases should write in a proper way that any student must awarded with full points if and only if he/she submits the work by fulfilling all the requirements.

3 Project Requirements

3.1 Identification of Requirements

This project requires following software to be installed:

**Moodle Installation:**

To install moodle we need three things

1) WAMP server
2) Moodle software
3) Visual C++

WAMP server installation

- Downloading WAMP server

Download the installer file for the latest version of WampServer from [http://www.wampserver.com/en/#download-wrapper](http://www.wampserver.com/en/#download-wrapper), and save the file to your computer.
Make sure you select the correct installer file for your version of Windows. If you don’t know if your system is 32-bit or 64-bit, right-click on My Computer, and then click Properties.

- **Installing WAMP server**

  To start the installation process, you need to open the folder where you saved the file, and double-click the installer file. A security warning window will open, asking if you are sure you want to run this file. Click Run to start the installation process.

  Next you will see the Welcome to The WampServer Setup Wizard screen. Click Next to continue the installation.
The next screen you are presented with is the License Agreement. Read the agreement, check the radio button next to **I accept the agreement**, then **click Next** to continue the installation.
Next you will see the Select Destination Location screen. Unless you would like to install WampServer on another drive, you should not need to change anything. Click Next to continue.
The next screen you are presented with is the Select Additional Tasks screen. You will be able to select whether you would like a Quick Launch icon added to the taskbar or a Desktop icon created once installation is complete. Make your selections, then click Next to continue.
Next you will see the Ready to Install screen. You can review your setup choices, and change any of them by **clicking Back** to the appropriate screen, if you choose to. Once you have reviewed your choices, **click Install** to continue.
WampServer will begin extracting files to the location you selected.
Once the files are extracted, you will be asked to select your default browser. WampServer defaults to Internet Explorer upon opening the local file browser window. If your default browser isn’t IE, then look in the following locations for the corresponding .exe file:

- **Opera**: `C:\Program Files (x86)\Opera\opera.exe`
- **Firefox**: `C:\Program Files (x86)\Mozilla Firefox\firefox.exe`
- **Safari**: `C:\Program Files (x86)\Safari\safari.exe`
- **Chrome**: `C:\Users\xxxxx\AppData\Local\Google\Chrome\Application\chrome.exe`

Select your default browser’s .exe file, then **click Open** to continue.
A Windows Security Alert window will open, saying that Windows Firewall has blocked some features of the program. Check whether you want to allow Apache HTTP Server to communicate on a private or public network, then **click Allow Access**.

The Setup screen will appear next, showing you the status of the installation process.
Once the progress bar is completely green, the PHP Mail Parameters screen will appear. Leave
the SMTP server as **localhost**, and change the email address to one of your choosing. **Click
Next** to continue.
The Installation Complete screen will now appear. **Check the Launch WampServer Now** box, then **click Finish** to complete the installation.
Downloading Microsoft visual C++ redistributable file


Visual C++ Redistributable for Visual Studio 2012 Update 4

The Visual C++ Redistributable Packages install runtime components that are required to run C++ applications built with Visual Studio 2012.
Select the windows version and click on download

Click on Repair if you already installed it otherwise click install
Installer will begin installing the software

![Installation Progress](image1)

After the installation it will ask to restart the computer click on restart

![Successful Setup](image2)

You must restart your computer before you can use the software.
- Moodle installation

Download moodle from downloads.moodle.org

Extract the file and click start moodle

<table>
<thead>
<tr>
<th>File</th>
<th>Date/Time</th>
<th>Type</th>
<th>Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>README</td>
<td>4/16/2016 8:50 AM</td>
<td>Text Document</td>
<td>2 KB</td>
</tr>
<tr>
<td>Start Moodle</td>
<td>4/16/2016 8:50 AM</td>
<td>Application</td>
<td>25 KB</td>
</tr>
<tr>
<td>Stop Moodle</td>
<td>4/16/2016 8:50 AM</td>
<td>Application</td>
<td>16 KB</td>
</tr>
</tbody>
</table>
Enter localhost/moodle in the browser and follow the instructions to set up

Choose language as English

Confirm paths
The next screen will prompt you to Confirm the installation paths for the Moodle installation. The **Web Address** and the **Moodle directory** should be set by the install script by default. The **Data Directory** will be set as well; except it can be changed if you want the installation in a different directory location on your server. Leave the default paths and click **Next**.

<table>
<thead>
<tr>
<th>Setting</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Web address</td>
<td>![Web address field]</td>
</tr>
<tr>
<td>Moodle directory</td>
<td>![Moodle directory field]</td>
</tr>
<tr>
<td>Data directory</td>
<td>![Data directory field]</td>
</tr>
</tbody>
</table>

**Database settings**
Use the Database settings that were set on **step 3 Create the Database for the Installation**. Enter the database name, username, and password. Leave the table prefix as is as this is set for the database table names. Leave the Unix Socket setting unchecked and click **Next**.
This page is for accepting the General Public License. Select Continue to go to the next install screen.

Server checks
It checks for the required settings
For information about this version of Moodle, please see the online Release Notes

### Server checks

<table>
<thead>
<tr>
<th>Name</th>
<th>Information</th>
<th>Report</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>php_extension</td>
<td>installing</td>
<td>Should be installed and enabled for business use.</td>
<td>Check</td>
</tr>
<tr>
<td>php_extension</td>
<td>unsafe</td>
<td>Should be installed and enabled for business use.</td>
<td>Check</td>
</tr>
<tr>
<td>php_extension</td>
<td>safe</td>
<td>Should be installed and enabled for business use.</td>
<td>Check</td>
</tr>
<tr>
<td>arc</td>
<td>must be installed and enabled</td>
<td></td>
<td></td>
</tr>
<tr>
<td>db</td>
<td>must be installed and enabled</td>
<td></td>
<td></td>
</tr>
<tr>
<td>mysql</td>
<td>must be installed and enabled</td>
<td></td>
<td></td>
</tr>
<tr>
<td>php</td>
<td>version 5.6.0 is required and you are running 5.6.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>gd</td>
<td>must be installed and enabled for business use</td>
<td></td>
<td></td>
</tr>
<tr>
<td>php_extension</td>
<td>libxml</td>
<td>must be installed and enabled</td>
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<tr>
<td>php_extension</td>
<td>mbstring</td>
<td>must be installed and enabled</td>
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<tr>
<td>php_extension</td>
<td>mbstring</td>
<td>must be installed and enabled</td>
<td></td>
</tr>
</tbody>
</table>

*Your server environment meets all minimum requirements.*

**Server Installation**
After the **Continue** button is clicked on the Server Checks Screen, the install script will show a list of tables that are set up for the database. Each should say **Success** in green font.

When Finished Click **Continue**. The Administration set up screen will load for setting up the main administrator account. Once completed setting the administrator, click **Update Profile**.

---

**Finishing the installation**
Creating Assignment Using VPL
Select the course you want to add assignment and follow these steps

Click on add activity or resource

select virtual programming lab and click on add
VPL is a activity module for Moodle that manage programming assignments and whose salient features are:

- Enable to edit the programs source code in the browser using an applet
- Students can run interactively programs in the browser
- You can run tests to review the programs.
- Allows searching for similarity between files.
- Allows setting editing restrictions and avoiding external text pasting.

**Basic definition of a Virtual Programming Lab activity**

To access other options, a basic definition **must be saved first**.

Constraints for the submission can be set in the **Submission restrictions** panel:

- Maximum number of files to be submitted.
  You can set the file names at the "requested files" tabs.
  Submission available only by one of the

enter the details of the activity like Name and Description
3.2 Operations, Administration, Maintenance and Provisioning (OAM&P)

Regular back up and maintenance is performed at regular intervals to ensure that the website is working in the desired mechanism.

3.3 Security and Fraud Prevention

All the users must change their passwords at regular intervals to ensure that the account is secured and no other person is using it.

3.4 Release and Transition Plan

After the completion of the project the software has to be installed in the client machine and follow the procedure.
4 Project Design Description

WAMP server acts as a localhost to your machine. In that WAMP server you need to add your moodle project by copying the moodle folder to the www folder of the WAMP server file folder.

5 Internal/external Interface Impacts and Specification

we need to install two plugins to accomplish project requirement. VPL used to post assignments to the course and Junittest to test the java assignments. These two plugins are available in the moodle website.

6 Project Design Units Impacts

6.1 Functional Area A

6.1.1 Functional Overview

WAMP server acts as a source machine to the moodle which is nothing but a platform to the moodle

6.1.2 Impacts

we need to start WAMP server before opening moodle

6.1.3 Requirements

system must have 500 MB RAM and 50 GB hard disk space to install the WAMP server

6.2 Functional Area B
6.2.1 Functional overview

Moodle provides platform for online Learning Management System used in universities and educational institutes

6.2.2 Impacts

provides useful software which is easy to navigate and user friendly

6.2.3 Requirements

First we need to install WAMP server and then visual C++ redistributable file to work moodle

7 Open Issues

The test cases must be written in a proper way so that any student cannot get full marks if he does not meet the requirement

8 Acknowledgements

As moodle is open source software so many developers modified the code and made it simple to use

9 References