

INFORMATION TECHNOLOGY PROJECT

ZEIT3118

USER GUIDE

Project 7: Master Learning in Python Programming
Group 9

DOCUMENT INFORMATION AND APPROVALS

VERSION HISTORY

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*This document has been developed for Group 9 as part of the course ZPEM3118 IT Project 1.
The system was developed by a team of students to assist in the master learning of Python programming.*

Introduction

Scope:

This user manual is written for the purpose of teaching users how to use the master learning system that our group developed. The system may be complex to navigate for some users, so a manual is necessary in order to allow for ease-of-use and a smooth learning experience for students. The manual covers the following functions:

- *Opening the system on the web*
- *Opening the database backend*
- *Account creation*
- *Talk about errors*
- *Application log-in*
- *Web page navigation*
- *Completing quizzes/Progressing through levels*
- *Checking progress*
- *Accessing teacher account*

Process overview:

The system is used to test students' capabilities and understandings within the topic of cybersecurity. There are 3 levels, each having exams that students must complete. These exams are marked and if the student completes all tests successfully, they can move to the next level. Teachers can also create an account and view student progress at any time. Additionally, students can view their progress as they complete exams.

Workflow

Setting up system:

1. Install [XAMPP](#)
2. Save the folder "MasteryLevels" (which contains all of the CSS and PHP code) in the path "xampp" > "htdocs" (i.e. inside of the htdocs folder within the xampp folder).

Opening the system on the web:

1. To open the system, you must have XAMPP installed and all associated code within MasteryLevels stored inside of the htdocs folder. Example file paths include
"/opt/lampp/htdocs/MasteryLevels/" on Linux and
"Applications/XAMPP/xamppfiles/htdocs/MasteryLevels/" on MacOS
2. Then, open the XAMPP control panel and start both Apache and MySQL (click the start button for both)
3. Then, to run the system open any browser and use the following link:
<http://localhost/MasteryLevels/login.php>
4. This initial visit to the login page will trigger the automatic initialisation of the MySQL database.
5. Now, you can create and use student accounts (see below "Account creation" section)

Opening the database backend:

You can also open the backend SQL database that stores all user and exam data. To do this, type and enter the following link into any browser (NOTE: you must still have XAMPP running both Apache and MySQL to perform this process):

<http://localhost/phpmyadmin/index.php>

Account creation:

1. If you do not have an account (student or teacher), you must "Sign Up"

2. *Then, you will be prompted to enter an email and password*
3. *The email will need to be in the form xx@xx (it must be formatted as a valid email address, or the application will not accept it)*
4. *Once registered, you will be taken back to the log-in page where you can then enter those account credentials you just created.*

Application log-in:

1. *You can only log-in with an existing student or teacher account*
2. *If you are logging in with a teacher account, the current log-in details are – username: teacher@teacher password: password*

Student dashboard navigation:

1. *The main page after you log-in shows individual student performance and personal information*
2. *You can then go into the “Exams” tab and see what levels you have to complete*
3. *To complete a level, the student must click on whatever level they intend to complete and choose what subject they want to do within that level. Then, they can sit an exam for that subject and must achieve a minimum score of 80% in order to mark that subject as complete. Once all subjects within a level are complete, the student can then progress to the next level.*
4. *Students cannot access higher levels until they have completed all subjects in the level before – i.e. you cannot access Level 2 until you have completed Level 1*
5. *Students can also view their individual progress and performance by selecting the “Progress” tab*

Completing an exam:

1. *Exams are multiple choice and students must select an answer to all questions and then “Submit Exam” at the end of the quiz.*
2. *You can exit an exam at any time, and it will save your answers*
3. *You can also “Resit Exam” after you have completed an exam in order to achieve a higher score.*

Completing Python Learning Levels:

1. Python Learning Levels can be reached by clicking the “Learn Python” option in the dashboard header.
2. The first Learning Level will be available automatically. Subsequent Learning Levels will only become available after a score of 70% or greater has been achieved in the previous Level.
3. To begin, select Level 1. You will be presented with a number of pages of curriculum content to learn from, which can be navigated using the Previous and Next Buttons.
4. You will also have access to an AI Chatbot, accessed by selecting the dialogue button in the bottom-right.
5. Once all pages of curriculum content have been read through, the test will become available and replace the Next button.
6. Tests are a mixture of multiple choice questions, and a coding question. This coding question will require composing and submitting some Python code in response to the question prompt.
7. These questions will be automatically marked, with results displayed on the Thank You page, and the Review Exam page.
8. Once complete with >70% the next Learning Level will become available.

Teacher dashboard navigation:

1. As a teacher, you can view all student progression
2. In the “Manage Students” tab, you can add new students using a valid email and password, and you can delete existing students from the system (they will no longer be able to log-in)
3. In the “Manage Quizzes” tab, you can also create new quizzes and view or delete existing quiz questions
4. The “Reports” tab will show you an overall view of student progression. It will show a graph of student performance as well as details about top performing students and lowest performing students.

Notes for Administrators

To view and edit the database, tables and raw data within the backend of the system, you access these items using this link: <http://localhost/phpmyadmin/index.php> This link will bring you to a dashboard where you can navigate to specific tables (on the left panel) and view user data as well as alter and delete tables as necessary. The “exam_website” database is the main database used for this system and within it are the tables you will need for the system’s

operations. Backups to this data should be made periodically (such as every week or month) to prevent data loss if errors or corruptions occur.

Notes for Developers

The current system is only a prototype of what the actual system will look and perform like. It includes all of the main features required in the final product, but several security components will still need to be addressed if the system is to be deployed and used publicly/commercially. In future, if the system is to be developed further it is designed to be uploaded to and hosted on a webserver – currently you can only access the system locally and through the use of XAMPP. You need all necessary PHP and CSS files to make changes to the system, which are all stored within the “MasteryLevels” folder inside of the “htdocs” folder. All PHP files correlate to the relevant web pages that are shown when the system is running, so to make changes just edit the corresponding PHP file and save it.