Open-Day

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INTRODUCTION

Open-Day is a project about making lab exercises for college / high school students to perform when they come to WelTec on its Open Day. There are three different types of lab exercises based on SQL, Networking and Security that the students can perform.

The Open-Day team wanted the students to give a glimpse of what practical work is taught in WelTec's IT department. Our generated labs are completely based on the studies that we have completed at WelTec during our degree studies. Using our lab exercise, students will not only learn about IT skills but will be interested to get in-depth knowledge about various aspects in Information Technology.

DEVELOPMENT

This project was developed using the 'OpenUP' project management process. We selected this particular methodology for this project as all our team members were developing lab exercises from their area of expertise. The 'OpenUP' method content is focused on the following disciplines: Requirements, Architecture, Development, Test, Project Management, and Configuration and Change Management.

The project team used Virtual machines to develop their challenges. More specifically the team used VMware workstation for developing and testing all the virtual machines. Most of the testing was Integration Testing, Recovery testing, regression testing and use case testing.

The networking lab exercise consists of teaching how to block access to different websites with the help of pfSense which is an Open-source firewall used by different institutions for safe browsing. It uses pfSense's web configurator to set up firewalls, blocklists and rules.

The SQL challenge uses an OWASP Juice Shop instance as a vulnerable web application. The users use SQL injection to attack the Juice Shop instance. This challenge is intended to show students how SQL Injection may be used to exploit vulnerabilities.

The security lab exercise has been arranged in the form of ten step-by-step activities. Every activity has a different security module that explains how a user can escalate their user access privilege skills to exploit the system. A user can use misconfigured user access to gain unauthorized access to certain parts of the system.

Lab exercises assist students to learn a variety of IT aspects to help them with their understanding of networking, security and vulnerability of systems.

CONCLUSION

The project was a success from the point of view of the project team. We faced a lot of issues in terms of development, communication, achieving the milestones and much more. We still managed to deliver the product we promised to the client with confidence that the client will appreciate the team's effort and the outcome that was delivered by the team.