

GWS Programming Challenge Overview

Summary

Genioo Workforce Solutions is looking for a talented and creative programmer to push forward existing web applications and drive the development for new and exciting web and mobile solutions. Your task in this contest is to write a small web based survey system that satisfies the requirements and constraints described below. Your main goal should be to create a flexible, secure and fast core system – the focus of this challenge is functionality and security, not design.

Background information

GWS' online based systems handle large amounts of sensitive, person-related data collected in a variety of different surveys. The survey systems are hosted on proprietary servers, dedicated or virtual servers maintained and managed by third party service providers with fixed locations (i.e. "standard" web hosting), client-managed intranet servers, or cloud based virtual servers such as the Amazon Web Services (EC2). The choice of hosting depends on the application, underlying legislation and accessibility requirements of the specific project.

As a consequence, the data must be protected from (a) unauthorized users such as external attackers to the database, server or system, (b) authorized users that only have access to a certain subset of data (e.g. survey participants or survey administrators with limited access), (c) server administrators that have root access to the systems code and database (as far as possible), (d) users eligible to view results, but only in an aggregated state.

A second consequence of the requirements laid down by the desired use-cases is the need for flexibility and a high level of standardization. All systems are written in PHP5, Javascript (jQuery) and CSS3 and leverage standard web techniques such as AJAX. MySQL databases are used to temporarily or permanently store data. This setup ensures that our systems can easily be transported, set up and maintained on almost any machine running a server OS (Unix, Windows Server) with an HTTP web server (Apache, IIS) featuring PHP and MySQL.

Due to the individual requirements of each client and project, a dedicated administration system ensures that different surveys (i.e. different questions for each participant or sets of participants) can easily be created and maintained either by the clients themselves, or centrally by a GWS operative.

Access to the surveys and administration systems is given by a secure combination of username and password. Each combination is unique, but anonymous – i.e. no conclusions regarding the participant's person, the project or authorizing client may be drawn from the username.

Task information

Your task is to create a small, PHP, Javascript (jQuery), CSS and MySQL based survey system for participants that includes the following components:

- (1) A MySQL database that holds all relevant information (authentication, survey data, etc.)
- (2) A dedicated script file that handles the database connection
- (3) A secure sign in script that matches a username/password combination against an existing database of eligible participants
- (4) A survey script that
 - a. loads an individual survey for each participants (individual meaning a subset of all available questions)
 - b. displays a predefined number of questions per page as well as
 - c. securely stores the given answers upon submit

No administration or result extraction is necessary at this point. While designing the architecture of the system and database, keep in mind the requirements regarding security and flexibility described in the "Background information" section of this document. The focus of this challenge is functionality, not design – no images, extensive layout are necessary unless they serve a specific purpose.

Sample input data consisting of a set of username/password combinations, a set of survey questions and the range of possible answers will be provided together with this document in a separate Excel file.

What to submit

Please submit the following files:

- (1) A SQL script that will create the database(s) and tables for your system, including predefined information such as the sign in info and survey data (these scripts can easily be created from the “phpMyAdmin > Export” functionality available for most hosting providers)
- (2) All PHP script files that are necessary to run your system on a dedicated server (online resources such as jQuery libraries etc. do not have to be submitted if they are pulled from external sources by the system)
- (3) All resource files (additional libraries, images, etc.)

Please submit the files as a compressed archive (any widely supported format will do).

Platforms

We will be testing your system on a Windows Server 2012 R2 platform with IIS, PHP5 (all extensions) and a local MySQL 5.1 database (the dedicated database connection file will be edited by us). All common MySQL extensions are available.

Technologies

You are free to use PHP object-orientated or functional programming. If you utilize jQuery, please make sure to use the latest stable version. Any PHP frameworks that you feel comfortable with can be used, with the restriction that the sign in script and the survey script should be developed by yourself and not be included as part of a framework extension.

Questions

If you have any additional questions or feel that a relevant piece of information is missing in this document, please contact us at m.lammerding@genioo.com.