CE00846-6 Building Web Applications Assignment

Demonstration	w/b 13/01/2014	face-to-face	50%
Report	20/12/2013 23.59	via Blackboard	50%

Learning Outcomes

1. Reflect on current web standards and their impact on web applications.
2. Demonstrate conceptual understanding of issues relating to web development through the implementation of a web application.
3. Investigate the security issues that you should consider when developing and deploying web applications.

Important

All work is to be completed individually.

University regulations on academic misconduct[1] and extenuating circumstances[2] apply. Please ensure that you are familiar with these regulations.

Hand-in and Assessment

Demonstration

In order to prepare for your demonstration you should arrive at least 15 minutes before your demonstration time in order to set up.

Report

You will submit your report from the 'Assessment' tab on the module's Blackboard presence. You must submit your report before the deadline given at the beginning of this document. It is suggested that you leave plenty of time to ensure that your submission is successful.

[1] http://www.staffs.ac.uk/assets/academic_misconduct_tcm44-26770.pdf
[2] http://www.staffs.ac.uk/assets/extenuating_circumstances_procedure_tcm44-25749.pdf

Scenario

You are to create a 'Car Catalogue' web site. Your web site will allow a user to register as a member and, once a member (and logged in), conduct a variety of searches against a database of cars. The user should also be able to edit their registration details.

You are also to consider the adoption of HTTPS for your web site.

Assessment Part 1: Web Application

Learning outcomes 1 and 2

Requirements

You should create a website that contains:

- A welcome page that is open to anyone
- A registration page that is open to anyone
- The ability to edit your own registration details but only if logged in
- The ability to search the car catalogue but only if logged in.

You should have a database in which you create:

- A user table that can hold (as a minimum) a surname, forename(s), date of birth, postal address, email address and a telephone number
- A vehicle table that can hold (as a minimum) a make, model, year, engine size, colour and a picture of the car (could be a URL to an image).

You should make use of HTML, CSS, JavaScript and PHP when creating your web application.

A user should be able to:

- Register
- Have their registration details validated to check a value has been entered
- Have their registration details validated against a particular pattern (such as conforming to the format of an email address)
- Have their registration details validated to check that particular fields are of a particular data type (such as a phone number being made up of numbers)
- Edit personal details
- Log in
- Log out
- Search for a car against a single criteria (for example search against model or search against year)
- Conduct a partial string search.
- Save completed searches for future use
- Use a saved search
- See a personalised message on log in
- See their favourite search when they log in.

Extra credit

Extra credit will be given for implemented countermeasures against credible security threats to your application. You must consider what those security threats are (justification required) and correctly implement the countermeasures against them.

The Demonstration

You are required to demonstrate your implemented 'Car Sales Catalogue' over the course of 15 minutes.

You will be asked to show any or all of the following:

- Your implemented web application showing how you have addressed the criteria given above (and specified in the section 'Marking Criteria' below).
- An explanation of sections of your HTML, Style Sheet, JavaScript and/or PHP code
- Proof of your compliance to web standards (HTML and CSS) using the relevant W3C validation tools

Assessment Part 2: Report

Learning outcomes 1 and 3

You are to produce a 2000 word (approx.) report on the following:

> *A decision has to be made about whether the final 'live' website should use the standard HTTP protocol or the secured HTTPS 'protocol'. If it is decided to use HTTP it will be necessary to know, given the current web site specification and its likely future development, if HTTPS would ever be required and, if so, under what circumstances.*
>
> *You have been asked to write a report to look at the value of using HTTPS within the context of the web application you have been asked to develop. Your report should make a substantiated recommendation on whether it should be adopted now or under what circumstances its adoption should take place.*

Your recommendation must take into account the relative merits of HTTPS within the context of your web application. It must be based upon a reasoned investigation including peer reviewed references to current thinking in the area that are correctly cited following the Harvard referencing style.

Were a decision-maker to read your report it must be possible for them to not only clearly understand your recommendation but to be able to follow your supporting argument for making it.

Your report must include an introduction, a main body, a conclusion and a reference list.

Marks will be allocated according to the criteria given in the marking criteria section at the end of this document.

Marking Criteria

Assessment Part 1: Web Application

Base marks

The following criteria contribute 50% to the marks available for this part of the assignment. There is no discretion applied to the base marks – you have either satisfied the criterion or you haven't.

Criteria	**Mark**
XHTML 1.0 Strict Validated	2.5
CSS Validated	2.5
Database and table(s) (at least 10 car records)	2.5
Welcome page	2.5
Working Log in	2.5
Personalised log in	2.5
Present results of favourite search on log in	2.5
Authorised access to secure pages (requires log in)	5
Working Log Out	2.5
Working registration page	2.5
Validation of registration details (server-side only)	5
Working change registration details page (logged in only)	2.5
Working search page (search on any single field – logged in only)	2.5
Working partial string search	5
Save multiple searches	5
Use saved search	2.5
Total	**50**

Enhancement

The following criterion contributes 15% of the marks for this part of the assignment.

Criterion	**Mark (out of)**
Data integrity/validation	15
Total	

Excellent (70% or above of the available mark)

Comprehensive validation of all data, external to the application to ensure that the data is of the correct format and type.

Very good (60-69% or above of the available mark)

Comprehensive validation of user input against common attacks and to ensure data is of the correct format and type.

Good (50-59% or above of the available mark)

Almost comprehensive validation of user input to ensure data is of the correct format and type.

Pass (40-49% or above of the available mark)

Some validation of user input to ensure data is of the correct format or type.

Good practice

The following criteria contribute 15% to the marks available for this part of the assignment. It relates to evidence of good practice in your use of XHTML, CSS, JavaScript and PHP.

Excellent (70% or above of the available mark)

Exceptional code of a professional standard that is clearly written (indented, variables and functions well named, follows a naming convention) using a consistent style with little or no duplication and is readable.

Integration of different layers of functionality is seamless and well thought out.

Very good (60-69% or above of the available mark)

Very good code that is clearly written (indented, variables and functions well named, follows a naming convention) using a consistent style with little or no duplication and is readable but with some effort.

There is integration of different layers of functionality which is well thought out.

Good (50-59% or above of the available mark)

Good code that is indented with a good naming convention. Code can be read though confusing/obscure in places.

Some integration of different layers of functionality.

Pass (40-49% or above of the available mark)

Passable code that is well written (indented, descriptive names used) using a consistent style but is otherwise difficult to follow.

Extra credit

The final 20% is discretionary based upon any security threat countermeasures that you have implemented.

Marks are out of 2 and allocated as follows.

2

Well considered and credible security threat and well executed countermeasures.

1

Well considered and credible security threats but limited implementation of countermeasures.

0

Poor/limited/no consideration with poor/limited/no implementation

Assessment Part 2: Report

Criteria for the allocation of marks to this part of the assessment are as follows:

Criteria	**Mark (out of)**
Introduction – What the report is about, why it is important, how it is organised.	15
Main Body – Identification of security risks and explanation of any common solution(s).	50

Conclusion – Summary of the main findings, and a conclusion about the security issues identified.	25
Quality of references (Harvard referencing[3] will be used).	10
Total	100

70+

The introduction will be clear and concise in stating what the report is about and why the topic is important within the general context of web application development. The introduction should indicate the main areas of discussion as a 'general overview' of what is to be written.

The main body will be clear and concise in describing HTTPS and its applicability to the web application scenario described in the assignment. The main body will be entirely based upon reading in the area with all sources referenced.

The conclusion will be clear and concise in summarising the main findings/discussion points. The recommendation will be based upon analysis of these findings/discussion points and will be justified based solely upon content already introduced in the body of the report.

References will be peer-reviewed where appropriate and will show quality and depth of reading in the area.

60-69

The introduction will be clear and concise in stating what the report is about and why it is important within the general context of web application development. The main discussion points will be introduced.

The main body will give a good description of HTTPS and its applicability to web applications although it needed to be more specifically related to the scenario described in the assignment. The main body will be entirely based upon reading in the area with all sources referenced.

The conclusion will be clear and concise in summarising the main findings/discussion points. The recommendation will be based solely upon content already introduced in the body of the report.

References will be peer-reviewed where appropriate and will show quality of reading in the area.

50-59

The introduction will state what the report is about and why it is important within the general context of web application development but it will lack detail about how the report is structured.

The main body will provide a good description of HTTPS and its applicability to web applications in general. The main body will be entirely based upon reading in the area with all sources referenced.

The conclusion will summarise the report findings. The recommendation will be based solely upon content already introduced in the body of the report. Generally this may lack clarity and/or detail.

References will be of good quality and will show reading in the area.

[3] http://www.staffs.ac.uk/about_us/university_departments/information_services/learning_support/refzone/harvard/index.jsp

40-49

The introduction will state what the report is about but this will be vague with little reference made to the report itself.

The main body will provide a good description of HTTPS. The main body will show reading in the area with all sources referenced.

The conclusion will summarise the report findings and a recommendation of a mark-up language will be made.

References will show reading in the area.