COWB60352

Distributed Web Applications

Assessment Element 1: MVC Web Application

Learning Outcomes

1. Demonstrate a systematic understanding of the patterns and practices that go into making a suitable layered architecture for a web application.
2. Design, implement, test and critically appraise a web application.

Important

All assignment work is to be completed individually.

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

Schedule

Element	Out	In	Method	%
1	28/09/2020 0.00	Demonstration w/b 11/01/2021	Zipped copy submitted to Blackboard (immediately following the demonstration of your code)	40%

Submission and Assessment

Submission is to Blackboard. A zipped copy of your code (not a rar file) should be submitted immediately following your demonstration.

[1] https://www.staffs.ac.uk/students/course-administration/academic-policies-and-regulations/academic-conduct-procedure

[2] https://www.staffs.ac.uk/students/course-administration/academic-policies-and-regulations/exceptional-circumstances-procedure

Submission **will not be accepted** by alternative means (such as email) so you should ensure that your submission is made well before the deadline to avoid last minute problems.

There will be a scheduled demonstration slot for you to show your work. **Failure to demonstrate at the allocated time of your demonstration will result in zero marks for this element of the assessment regardless of whether work has been submitted by the deadline**.

The marking criteria is provided at the end of this document. You should ensure that you are fully aware of these criteria.

Scenario

Outline

You have been approached by College Road Swimming Club to create a new records management application that they want to make available over the web. They would like the new application to replace their old system which is mainly managed by a spreadsheet (see the "Example Data Set (Excel Spreadsheet)" on the Assessment tab on Blackboard).

The new system needs to have the following core functionality:

- Authentication / authorisation of 4 different categories of user roles (guests, swimmers, parents and club officials)
- The registration, storage and management of members details
- Entry of swimming event results
- Access to swimming event results

Swimmers

Swimmers are identified as children who swim for the club. A child can only swim for the club with the permission of their parent.

Parents

Parents, including guardians, are an important part of the club and they are encouraged to be as active as possible in supporting their children.

A parent can manage their children's profiles.

Club Officials

Club officials work for College Road Swimming Club. 'Club official' is a general term for a number of different roles.

For the purposes of the web application, the club official should be able to create a Meet on the system, create an Event on the system, create and edit Parents and Swimmers on the system, add registered Swimmers to an Event, and add Event results when the Event has completed.

Meets

Swimming meets take place regularly. They have a Venue where they take place, and a date upon which they take place.

A swimming Meet will include a number of Events.

Events

An event is a race.

Each event has an age range (Under 14 (junior), and Under 16 (senior)), a gender, a distance, and a swimming stroke.

Authorisation levels

Guests

This is the base level of access available to all user roles whether or not they are logged in.

It is expected that the web application will be of general interest to the public. Access should be available to:

- search swimming event results based on an age group, swimming stroke and / or a particular swimmer's name
- filter swimming meets by venue, or date range

Swimmers

When a swimmer has logged in they will be able to see everything that a Guest can see but their experience will be personalised. This means that they should find it:

- easy to view their own performance
- easy to view the meets and the events that they are registered on

Parents

When a parent has logged in they will be able to:

- view and edit 'family' group profile data (address, contact phone number, and email)

Club Officials

When a club official has logged in they will be able to:

- view, edit and archive the personal details of any member – if archived, the member's data should be retained but they will not have a login and should be noted as no longer active
- create and edit family groupings – one parent with one or more dependants
- create and edit parents and swimmers
- create and edit a swimming meet and the events that take place during the meet (this includes adding swimmers to the event)

Data

The College Road Swimming Club has made example data available (see the "Example Data Set (Excel Spreadsheet)" on the Assessment tab on Blackboard). You can use this as a starting point.

You should be aware of the following information which is going to be required:

- Member – Name, Gender, Address, Contact Telephone Number, Email, Date of Birth
- Event –Age Range, Gender, Distance, Stroke, Round, Lanes (with swimmers name), Times (or reason for not finishing)
- Meet – Name, Venue, Date, Pool Length

Assessment

Requirements

It may be necessary for you to make assumptions during your design or implementation. Please make sure that you check any assumptions that you make with your tutor before you commit yourself to action based upon that assumption.

Extra Credit

Extra credit will be given for your use of the MVC framework that you are using and your knowledge and understanding of that framework.

Your code should provide examples of good practice in software development, including a clear separation of concerns using a layered approach.

The Demonstration

You are required to demonstrate your implemented application over the course of 20 minutes.

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

- your implemented web application showing how you have addressed the functionality specified in the section "Marking Criteria" below
- an explanation of any code that you produce
- unit testing for your application.

Marking Criteria

Base Mark (40% of the mark for Task 1)

The following criteria contributes 40% to the marks available for this part of the assignment. Successful implementation of any of the following criteria will get the full marks shown otherwise the mark will be zero.

Criteria	Mark
Club official creates a parent	2
Club official creates a swimmer	2
Club official creates a family group	3
Club official edits a members name	2
Club official archives a member	3
Create meet	2
Create event	2
Add swimmers to event	2
Input race time data to event	2
Parent can view family profile	1
Parent can edit contact number	2
Personalised view for swimmers (name and races involved in)	2
Logout	1
Swimming meet's listed (all swimming meets)	1
Search swimmers by age (list of eligible swimmers)	1
Search swimmers by swim stroke	1
Search swimmers by name	1
Filter swimming meet by venue	1
Filter swimming meet by date range	1
Filter swimming meet by a combination of venue and date range	2
Filter swimming event by age	1
Filter swimming event by gender	1
Filter swimming event by distance	1
Filter swimming event by any combination of age, gender, and distance	2
Authorisation evident	1
Total	**40**

Unit Testing (10% of the mark for Task 1)

The unit testing mark is reliant on the attempt that you've made on the base mark criteria above.

Criteria	Assessor Guidance	Mark % (fixed)	Total
Unit testing	No Base Mark criteria met.	0	
	Less than 16 in Base Mark criteria OR Testing is limited showing little evidence of progression beyond the example tests provided by the framework.	20	
	Mark of 16-24 in Base Mark OR Testing is evident but is limited to the normal value test cases with little evidence of testing beyond that.	40	
	Above 24 in Base Mark AND Testing shows a systematic approach with a good attempt to isolate unit tests and testing was not limited to normal value test cases.	60	
	Base Mark criteria fully met AND Testing shows a systematic approach, tests work in isolation, and, while some functionality might not be fully tested, the process of unit testing was fully understood.	80	10

	Base Mark criteria fully met AND Testing shows a systematic approach, tests work in isolation, and no further tests suggested.	100	
Total			**10**

Extra Credit (50% of the mark for Task 1)

The extra credit mark is reliant on the attempt that you've made on the base mark criteria above.

Criteria	**Assessor Guidance**	**Mark % (fixed)**	**Total**
Use of MVC	No Base Mark criteria met.	0	
	Less than 16 in Base Mark criteria OR Little or no evidence of understanding MVC or the framework used to develop the application.	20	
	Mark of 16-24 in Base Mark OR The framework was used in developing the working solution, but The development was limited and didn't demonstrate a good understanding leaving much opportunity for improvement.	40	
	Above 24 in Base Mark AND Good understanding of MVC although prompting was required, and Strong evidence of ability with the framework demonstrated and a good understanding was shown after prompting with some suggestions made for improvement.	60	
	Base Mark criteria fully met AND Great understanding of MVC with little prompting necessary, and Ample evidence of ability with the framework demonstrating a clear understanding of its functionality with only limited scope for improvement.	80	
	Base Mark criteria fully met AND Excellent understanding of MVC with no prompting necessary, and Ample evidence of ability with the framework demonstrating a clear understanding of its functionality with no suggestions made for improvement.	100	25
Separation of concerns	No Base Mark criteria met.	0	
	Less than 16 in Base Mark criteria OR Only evidence of a limited understanding of separation of concerns as a concept.	20	
	Mark of 16-24 in Base Mark OR Some understanding of separation of concerns shown but only as a concept, Model, View, and Controller were evident but their responsibilities were not kept entirely separate with much opportunity for improvement.	40	
	Above 24 in Base Mark AND Good understanding of separation of concerns demonstrated although prompting was required, and Good evidence of separate layers in code but with some suggestions made for improvement	60	
	Base Mark criteria fully met AND Excellent understanding shown of separation of concerns with little prompting required, and	80	25

	Clear evidence of layers in the code and good separation with only limited scope for improvement		
	Base Mark criteria fully met AND Excellent understanding shown of separation of concerns, and Clear evidence of layers in the code with evidence of separation and no suggestions for improvement.	100	
Total			**50**