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School of Computing

PROJECT TWO

Semester 1, 2024

ITWD7.358 Web Application Programming

Weighting:	50% of final grade
Marks:	100
Due Date:	Sunday, 23:30, Week 14

The School of Computing has a policy of no late assignments. However, an assignment handed in up to 24 hours late will be marked. A deduction of 20% of the total marks available will be made. Any assignments received more than 24 hours late will not be marked but can be used as evidence of completing terms.

INSTRUCTIONS:

- Students are to attempt all tasks.
- All work submitted must be original and entirely your own work, except where you use ideas, quotations, tables, diagrams, code or any other material from other writers. In such cases you must acknowledge the source using the APA referencing style.
- No part of the work submitted may be used as part of any assessed work for any other academic course.
- Refer to the marking schedule for the mark allocation.
- The completed assessment documentation must be submitted online via EITonline.
- Details on how to submit and publish the website will be discussed during class.
- Assignments must be submitted by 17:00 on the due date.

1. THE ASSESSMENT

Your task for this assessment is to "build" a database driven and dynamic web application. This will demonstrate your ability to apply your knowledge developing and documenting a web application.

2. PROBLEM STATEMENT

Scenario 1: An e-commerce site is a web-based application that sells various types of products. You are free to choose the types of product for your application. The **minimum** requirements for the application are discussed in section 3, without any extras identified, and are sufficient to fulfil the requirements of this **assessment**.

For some examples of e-commerce websites refer to:

- Maxshop: https://www.maxshop.com/shop/max-outlet
- Noelleeming: https://www.noelleeming.co.nz/
- Trademe: https://www.trademe.co.nz/

Scenario 2: A web based application is required for the managing events. The **minimum** requirements for the application are discussed in section 3, without any extras identified, and are sufficient to fulfil the requirements of this **assessment**.

For some examples of existing web based event calendar systems refer to:

- The Events Calendar https://wordpress.org/plugins/the-events-calendar/
- WordPress Event Calendar https://wordpress.org/plugins/spider-event-calendar/
- All-in-One Event Calendar https://wordpress.org/plugins/all-in-one-event-calendar/

Scenario 3: A web based application of your choice. However you need to present your project with lecturer first and get the approval. The **minimum** requirements for your project are discussed in section 3, and are sufficient to fulfil the requirements of this **assessment**.

3. EXECUTION OF THE CHOSEN SCENARIO

You will be required to develop a full-on web application that fulfils the below **Requirements and Specification**.

WEB TECHNOLOGIES AND FRAMEWORKS

As for the web technologies, there are 3 options to carry out this project:

Option 1: Develop **your own simple MVC-based framework** first and then extend it to your project. Three good references as starting point are chapter 17 (Message Board), chapter 18 (User Registration) and chapter 19 (E-commerce) in the textbook.

Option 2: Use **Wordpress framework** as the baseline. You are required to develop ***your own theme*** and ***your own plugins*** that fulfil the requirements and specifications. Existing plug-ins may be used as the foundation, with due recognition to the plug-in author/s, to start the development process.

Option 3: Use any **PHP framework** (Laravel, CakePHP, Slim, CodeIgniter, Symfony) as the baseline, you need to discuss with lecturer about the framework you choose first and get approval.

PROJECT REQUIREMENTS AND SPECIFICATION

Your application must include the following general features and techniques:

- **The application is a dynamic site;**
- **Responsive web design (interface);**
- **The web application is database driven.**
- **The website has at least 4 major functionalities:**

  (1) **Authentication**: allow users to sign up, log in, and update profile.

  (2) **Core feature**: Online shopping / Event Planning / etc.

  (3) **A communication platform**: Forum / discussion board / chatroom / etc. which allows users to share and exchange reviews, feedback, questions, etc. amongst them.

  (4) **Dashboard**: allow admin to manage the web app content such as CRUD operations.

The following features/functionalities are required and specific to the application:

+ Authentication: allow users to sign up, log in, and update profile

- Registration / sign up a new account
- Activate account;
- Login/logout;
- Password (Profile) Management;
- Store users' account in a table in database.

+ Core feature:

- A suitable database to store all necessary data: events (event planner), products (online shop), orders, forum posts, discussion-board messages, etc.
- Item categories: product categories, event categories, etc.
- All necessary core functionalities: (1) show all items (products, events); (2) do online shopping with shopping cart Or book an event; (3) Process online order Or process event-booking.

+ A communication platform: Forum / discussion board / chatroom / etc. which allows users to share and exchange reviews, feedback, questions, etc. amongst them

- An index page shows all threads or messages
- Users are allowed to add/post/send a new message to the platform.
- Users are able to manage their own messages / reviews/ feedbacks

+ Dashboard: allow admin to manage the web app content such as CRUD operations:

- Allow admin account to create, retrieve, update, delete on every data stored on database such as users, products, events, messages, etc.

ACCESSIBILITY

The application must be built with the three access domains of a web application in mind – public, private and administrative. The minimum requirements expected for each domain is as follows:

- **Public users (no authentication)**
  - Allow to browse items (products, events, etc.)

    - Allow to search items (products, events, etc.).
    - Allow to register as a member
    - Allow to view public messages /post on communication platform;
- **Private users (authenticated)**
    - Complete the core function (online shopping, booking event, etc.)
    - Manage the user member profile: Create, Retrieve, Update, Delete;
- **Admin account (authenticated)**
    - Manage **ALL** members.
    - Manage **ALL** items (events, products & orders).
    - Manage **ALL** messages, reviews, and posts on communication platform.

    FULL CRUD (Create, Retrieve, Update, Delete) access for **ALL.**

DATABASE STORAGE

Consider the following list of potential tables when designing the storage requirements for your application:

- User Accounts
- Products, Orders, Events, etc.
- Thread, Posts, Messages.

4. DELIVERABLES:

The following must be submitted as part of the documentation for your application:

- **Executive Summary**
  A concise overview of your project choice (online shop, event manager, etc.) & web technologies that you choose to develop this project. Describe briefly all core functionalities of your web app.
- **Functionality**
  All the requirements met and work as intended.
- **Data validation and error control**
  All data entry must have server-side data validation and error checking.
- **Test plans**
  Proof of testing the data entry and functionality and the plans on how this was conducted. Annotated screenshots of the testing is suitable as evidence.
- **Coding and design**
  Code must contain comments indicating what function any particular code is performing. A basic flow diagram/UML /design model indicating the functionality of the application.
- **Overall presentation, functionality and quality**

  Consistency in design, structure expected. The obligatory faultless installation and uninstall process.

SOFTWARE AND DOCUMENTATION SUBMISSION

The documentation must be submitted via EITonline with at least one team member's student number as part of the file name. Team members must be identified on the Title page of the documentation.

The final software will be collected during the practical session on the **due date**. Updates to the software must not be later than the end of class on the **due date** otherwise this will be considered a late submission.

INSTALLATION

There are three options available to you for demonstrating your complete and working installation. Your completed solution must be successfully installed on one of the following;

1. On a local WAMPServer installation as provided on each machine in the lab or
2. Deployed on the internet or
3. Successfully deployed in a web-server installation on your laptop/notebook.

Please confirm with the Lecturer before selecting your option for the deployment

5. MARKING GUIDELINES:

Component	Marks
Web Design • **Activity Diagrams**: how users can navigate through the content [10 marks]: ○ 1 Activity diagram for Authentication feature; ○ 1 Activity diagram for core feature; ○ 1 Activity for communication feature; • **Website wireframes:** Non-functional, annotated sketches of key elements and breakdown of the layout and theme [10 marks]: ○ At least 1 wireframe for Authentication feature ○ At least 2 wireframe for Core Feature ○ At least 2 wireframe for Communication Platform feature	20
Database design • Detailed and clustered ER diagram for all the backend tables associated with the application database.	10
Functionality & Coding: Matches the requirements in section 3: 1. **Authentication**: cohesive and consistent design & proper operation without error [10 marks]; 2. **Core feature**: cohesive and consistent design & proper operation without error [20 marks]; 3. **Communication platform:** cohesive and consistent design & proper operation without error [15 marks]; 4. **Dashboard**: cohesive and consistent design & proper operation without error [10 marks];	55
Test plans • Test plan & test reports/evidence of testing • Screenshot all pages & all web operations	5
Data validation and error control • Error messages. Error trapping and handling. • Form validation	5
Web-app deployment • Successfully deploy the application (preferably online)	5
Total Marks	**100**