DALHOUSIE UNIVERSITY
FACULTY OF COMPUTER SCIENCE

CSCI 4177/5709 — Advanced Topics in Web Development

Assignment 2

Overview

In CSCI 4177/5709, 35% of your grade involves work done for assignments. These assignments are meant to put the skills and theory you have learned in lectures and tutorials, along with the skills you had prior to joining the course, to practice. Assignments are considered to be individual deliverables that can be used towards your group project, although together they do not make up 100% of your group project. As such, it is strongly recommended for you to manage your time appropriately and use the assignments component of this course as an outlet for you to try out ideas you may be interested on using for your project. Furthermore, while **assignments** can be used towards your group project, they are meant to reflect the students' individual work, and therefore **are NOT to be carried out in groups** unless specifically indicated by the Instructor; though you may consult with group project members or classmates and TAs during lab/tutorial sessions.

There are a total of THREE (3) assignments in this course. Although, initially the assignments are not too difficult, they do get progressively harder as you learn new concepts and techniques covered in the course. As such, do keep in mind the scope of your assignments when managing your time. **Assignments are due by the END OF DAY (i.e., 11:59PM) on the date noted on BrightSpace, and must be submitted through both Brightspace and Git Lab unless otherwise specified on the assignment handout**. Finally, students should also be aware that they will be tested on topics included in each of the THREE (3) assignments, in addition to material covered in the course lectures, tutorials, and in-class discussions and activities.

It also goes without saying that any instance of **academic dishonesty** will be reported. **If you decide to use and modify any existing code, e.g., code found on online or printed sources or code used during in-class/tutorial examples, you are expected to provide author attribution with an explanation of why the piece of code is necessary for your work, where, how and why the code or section of code was modified in your submission's README.txt file, README file template is provided on the course's Resources tab on Brightspace. Further, if you use AI Tools in your work, you will also be expected to provide the prompts, responses, justifications, and customization approaches of these responses in your README file.**

Descriptions of the assignments are posted in advance so that you are aware of what is expected in each assignment, and are able to manage your time appropriately as **assignment due dates will NOT have any extensions. You are NOT expected to submit all assignments at the same time – each assignment has its own due date**.

Any late changes (if necessary) made to this document or any of the assignments will be notified in class and via email.

Purpose. The purpose of these assignments are to test your comprehension of the various concepts discussed in class, and your ability to apply them to solve a given problem.

Grades. Each deliverable will be graded out of 100 points, and will be scaled to 10, 8, and 12 points for Assignments 1, 2 and 3, respectively.

Software / Code Editors. Coded deliverables must be completed **without** the aid of "visual" website generating software. This includes desktop programs such as Dreamweaver or web based programs such as Wix. You can use tools such as Notepad++ / Vi / Vim / Sublime Text, Visual Studio Code, etc.

Submission. All deliverables must be submitted on Brightspace (**https://dal.brightspace.com**) and Git Lab (**https://git.cs.dal.ca**).

Late Submission Policy. Late assignments are **not** accepted. However, no penalty will be assessed for assignments that are late due to documented situations (See Syllabus).

Academic Integrity. Dalhousie academic integrity policy applies to all submissions in this course. You are expected to submit your own work. Please refer to and understand the academic integrity policy, available at: **http://www.dal.ca/dept/university_secretariat/academic-integrity.html**

Content for the website. Do not copy and paste content from any websites into your prototype application. You will have to create your own content to include on your website.

Assignment 2

[8% Individual Deliverable]

By now, as stated in your submitted Project Proposal, your group is now set on a project topic, purpose, audience, UI design, Front-End Frameworks, and intended APIs and Back-End Frameworks. Assignment 2 focuses on planning the front-end and back-end functionality of an application. In particular, this assignment requires for you to consider the application of back-end development techniques, approaches, and APIs, for defining the functionality of a web application based on a given set of requirements. Specifically, in this assignment you will be planning for the back-end functionality of ONE (1) feature required for your group project. **You are encouraged to coordinate the features you will be planning for, with members of your group, as each member is expected to focus their assignment on different features.**

As part of this assignment, you will also have to provide justifications for the choices you make, e.g., Back-End Frameworks or APIs used, Information Architecture, Data Management methods, data format used, process workflows, etc. Finally, it goes without saying that any instance of **academic dishonesty** will be reported. As such, make sure you cite any external work or sources throughout your assignment.

Learning Objectives:

1. To assess the application of suitable Back-End APIs and Frameworks for the purpose of developing a prototype application, given a set of proposed guidelines (e.g., wireframes, devices, expected functionality).

2. To coordinate with group members the work allocation required for this assignment submission.

3. To compare different development techniques, approaches, APIs, workflows, etc. in order to judge their suitability for the development of a specific web application given a set of application requirements.

Requirements:

For your Assignment 2, you must do the following:

A2.1. Application Features

Meet with members of your group and **Choose ONE (1) feature** from the list of features your group defined as required features for your project (e.g., Profile Management, Permission Management, File Transfer System, Recommender System, Shopping Cart, etc) in your group project Proposal.

Note: *The number of intended features your project is expected to have is equal to 'Group Members x 2' (i.e., if your group is made up of 5 members, you are expected to have 10 intended features). From these intended features, you will be expected to have fully developed approximately to 70% of them by your final project and report, i.e., if you are a group of 5 member then your group is expected to have approximately 7 features completed. Additionally, each group member is expected to choose a different feature. You are strongly advised communicate with any group member who may be working on a related feature (e.g., Profile Management and Shopping Cart).*

Remember, a feature is defined as a group of related task for a particular overall purpose. For example, a student choosing the User Profile Management feature implies the student is expected to plan for the following tasks: user registration, user login, view user profile, update user profile, forgot password, user logout, delete user account.

A2.2. For the ONE (1) feature you have chosen, provide the following:

- **Application Details:** to provide you with the context for which you will be developing the back-end of a feature, provide a brief description of your application, including the following information for your application:
    - **Target User Insight:** A short description of your target user base (i.e., user personas,), assumptions on why users would use this particular application (i.e., scenarios, use cases, user flow or task flow diagrams), a description of any requirements or pre-requisites that users must fulfil or have in order to be able to use your application (i.e., specific knowledge, device, required training).
    - **User-Centered Design Approach:** Explain how your user insights were taken into consideration or used in the design and development approach for your application (i.e., Information Architecture, sitemapping, wireframming, design and layout).

Note: *Ensure you provide justifications for your design decisions. As previously mentioned, you are welcomed to use any material you may find useful from a previous assignment, but you are encouraged to address any issues mentioned in that assignment's feedback. You may re-use any material from your Project Proposal deliverable if you see fit.*

- **Application Workflow:** Describe the overall application *workflow* for your project in regards to your interaction design approach to describe the front-end of your application, the back-end processes and/or services in your application, as well as the specific workflow of the feature you have chosen:
    - **Interaction Design:** A description of how your application's front-end is meant to work. How are processes triggered and handled?
      Provide graphs or figures that illustrate how the front-end of your application's *processes and services* work (i.e., click streams, user task flow diagrams), more importantly, try to illustrate the support needed from the back-end.
      Provide a completed *use case* for each of the tasks in the feature you have chosen for this assignment, your use cases must include both normal and alternate flows. Use cases must also define the scenario relevant to the specific use cases as well as identify any user personas for whom the application is intended.
    - **Process and Service Workflow:** a description of the overall workflow of your application, before focusing on the details of how the back-end of your application (in regards to the **ONE** feature you have chosen) is meant to work and support the front-end. How are processes, for your chosen feature, triggered and handled? Provide graphs or figures that illustrate how the backend of your application processes and services work (e.g., workflow diagrams). A diagram detailing the expected file and folder structure for your intended features.

Note: *In this section, you will be expected to illustrate your application's overall workflow, as well as your chosen feature's workflow from a front-end and back-end perspective. Ensure you provide justifications for your design decisions. You are essentially expected to explain how the back-end of your application (e.g., Process Workflows) is meant to or expected to support the front-end of your application (e.g., Task Flow Diagrams) as defined in your project proposal.*

A2.3. For this assignment, you may re-use any items you deem relevant from previous assignments and project deliverables (e.g., Assignment 1, Project Proposal). Doing so, allows you to use items that do not require any changes, based on feedback received, or refine your ideas if changes are needed.

Note: *Do make sure you take a look at any feedback received in any material you are looking to re-use, and edit the content as necessary, prior to re-using the content you have chosen.*

A2.4. The main purpose of this assignment is to prompt you to ask yourself how the back-end of your application will support the front-end of your application, while considering the User Interface (UI), User eXperience (UX), and Interaction Design (ID) you and your group have defined in previous deliverables.

Marking Rubric

As shown on Table 1, the following grading criteria will be used for marking your assignment:

TABLE 1. CSCI 4177/5709 RUBRIC FOR WRITTEN WORK

Dimensions	Does Not Meet Expectations	Somewhat Meets Expectations	Meets Expectations	Exceeds Expectations
Formal Writing (10%)	Fails to use formal writing style, uses a lot of abbreviations (e.g., don't, can't). Excessive use of slang (e.g., bro, dude, huge, lots, vibe, thingy, stuff). **(1 - 3 points)**	Uses some formal writing style with some use of slang (i.e., < 15) or abbreviations. **(4 - 6 points)**	Uses mostly a formal writing style with minimal use of slang (i.e., < 5) or abbreviations. **(7 - 8 points)**	Uses formal writing style with **no** use of slang or abbreviations. **(9 - 10 points)**
References (10%)	Fails to reference sources using in-text citations, or does not use proper in-text citations (e.g., instead uses "In the first article"). Inconsistent citation style (e.g., sources are in IEEE and ACM in the document). Images or Figures and not properly captioned and/or referenced within the text. **(1 - 3 points)**	A single citation style is used consistently with minimal errors (i.e., < 15). Some sources are referenced throughout the text but there are still numerous missing in-text citations. Some sources correctly included in the References section. The majority of Images or Figures are not properly caption and/or referenced within the text . **(4 - 6 points)**	A single citation style is used consistently with minimal errors (i.e., < 6). Most sources are referenced throughout the text with few missing in-text citations (i.e., < 6). Most sources correctly included in the References section. Some Images or Figures are not properly captioned and/or referenced within the text. **(7 - 8 points)**	Citation style is used consistently with minimal or no errors (i.e., < 1). All sources are referenced throughout the text with minimal missing in-text citations (i.e., < 1). All sources correctly included in the References section. All Images or Figures and properly captioned and/or referenced within the text. **(9 - 10 points)**
Grammar (10%)	Poor grammar and sentence structure. Paragraphs are poorly structured, causing a lack of flow from paragraph to paragraph. Poor document navigation and readability (i.e., mistakes are numerous and distracting). **(1 - 3 points)**	Somewhat decent grammar and sentence structure. Though some paragraphs are poorly structured, it is still possible to somewhat follow the flow of paragraphs. Document navigation and readability is somewhat understandable (i.e., mistakes are still somewhat distracting). **(4 - 6 points)**	Relatively good grammar and sentence structure. Paragraphs are generally well structured. Document navigation and readability is relatively easy (i.e., mistakes are not distracting, nor do they hurt readability). **(7 - 8 points)**	Great grammar and sentence structure.Paragraphs are well structured. Document is easy to navigate and read through (i.e.,< 1 mistakes). **(9 - 10 points)**
Content (30%)	Excessive lack of detail leading to vague sentences. Content is hard to follow due to missing details. Figures not correctly captioned and/or referenced within the text (e.g., 'As shown on Figure 2,…'). **(1 - 10 points)**	Numerous vague sentences and missing details. It is relatively possible to follow the content despite missing details. Some figures correctly captioned and referenced but quite a few still missing these details. **(13 - 18 points)**	Some vague sentences and missing details. It is relatively possible to follow the content despite missing details. Most figures correctly captioned and referenced. **(20 - 24 points)**	No vague sentences or minimal missing details (i.e., < 4). Reader is able to follow the content with ease. Figures are correctly captioned and referenced within the text. **(25 - 30 points)**
Completeness (30%)	Sections left blank. Paragraphs/ sentences end midway. Did not follow the template provided. Writer does not clearly state the expected project details. The reader is not referred to any Figures and/or they do not have a proper description provided within the text. **(1 - 10 points)**	Some sections incomplete. Some paragraphs/sentences left incomplete. Did not follow template provided. Writer left out some expected project details, causing confusion. Reader not referred to some Figures and/or Figures do not have a proper description provided within the text. **(13 - 18 points)**	Sections seem to be mostly complete. Mostly followed the template provided. Writer somewhat states the overall expected project details. The reader is referred to some Figures and/or some do not have a proper description provided within the text. **(20 - 24 points)**	All sections completed, used the template provided. Clearly states project purpose/goals, target user base, scenarios, use cases, task flows, sitemap, prototype, user personas. The reader is referred to ALL Figures and ALL Figures have a proper description provided. **(25 - 30 points)**
Clarity (10%)	Sections lack clarity (i.e., issues are distracting). Document is confusing and time-consuming to read. The overall writer's message is unclear. Sequence of design/development approach is confusing. **(1 - 3 points)**	Some Sections lack clarity (i.e., issues are distracting). Document at times confusing/time-consuming to read. Writer's message is somewhat clear but sequence of design/development approach is confusing. **(4 - 6 points)**	Few Sections lack clarity though issues not distracting. Document is a bit confusing at times but relatively easy to read. Overall writer's message is clear. Sequence of design/ development approach is clear. **(7 - 8 points)**	Document is easily to read, minimal to no structure issues. Reader knows exactly what the writer's message is. Importance of project is well explained and sequence of design/development approach is clear and sensible. **(9 - 10 points)**

Submission Guidelines

Your assignment must be submitted through **Brightspace ONLY**, there is no programming component or README file required for this assignment.

To submit your work to Brightspace:

- Include your answers to A2.1, A2.2, A2.3, and A2.4 in a single PDF file. Your submission must match naming conventions specified in the Course Syllabus (**A2_LastName_FirstName.pdf**). **Submit this file as your assignment on Brightspace**.

Note: *Any deliverable not submitted as a PDF file will have a 5% grade deduction. Any deliverable submitted without following the proper file naming convention will have an additional 5% grade deduction.*

Academic Integrity[1]

At Dalhousie University, we respect the values of academic integrity: honesty, trust, fairness, responsibility and respect. As a student, adherence to the values of academic integrity and related policies is a requirement of being part of the academic community at Dalhousie University.

What does academic integrity mean?

Academic integrity means being honest in the fulfillment of your academic responsibilities thus establishing mutual trust. Fairness is essential to the interactions of the academic community and is achieved through respect for the opinions and ideas of others. Violations of intellectual honesty are offensive to the entire academic community, not just to the individual faculty member and students in whose class an offence occurs. (See Intellectual Honesty section of University Calendar)

How can you achieve academic integrity?

- Make sure you understand Dalhousie's policies on academic integrity.
- Give appropriate credit to the sources used in your assignment such as written or oral work, computer codes/programs, artistic or architectural works, scientific projects, performances, web page designs, graphical representations, diagrams, videos, and images. Use RefWorks to keep track of your research and edit and format bibliographies in the citation style required by the instructor (See http://www.library.dal.ca/How/RefWorks).
- Do not download the work of another from the Internet and submit it as your own.
- Do not submit work that has been completed through collaboration or previously submitted for another assignment without permission from your instructor.
- Do not write an examination or test for someone else.
- Do not falsify data or lab results.

These examples should be considered only as a guide and not an exhaustive list.

What will happen if an allegation of an academic offence is made against you?

I am required to report a suspected offence. The full process is outlined in the Discipline flow chart, which can be found at: http://academicintegrity.dal.ca/Files/AcademicDisciplineProcess.pdf and includes the following:

1. Each Faculty has an Academic Integrity Officer (AIO) who receives allegations from instructors.
2. The AIO decides whether to proceed with the allegation and you will be notified of the process.
3. If the case proceeds, you will receive an INC (incomplete) grade until the matter is resolved.

[1] Based on the sample statement provided at http://academicintegrity.dal.ca.

4. If you are found guilty of an academic offence, a penalty will be assigned ranging from a warning to a suspension or expulsion from the University and can include a notation on your transcript, failure of the assignment or failure of the course. All penalties are academic in nature.

Where can you turn for help?

- If you are ever unsure about ANYTHING, contact myself.
- The Academic Integrity website (http://academicintegrity.dal.ca) has links to policies, definitions, online tutorials, tips on citing and paraphrasing.
- The Writing Centre provides assistance with proofreading, writing styles, citations.
- Dalhousie Libraries have workshops, online tutorials, citation guides, Assignment Calculator, RefWorks, etc.
- The Dalhousie Student Advocacy Service assists students with academic appeals and student discipline procedures.
- The Senate Office provides links to a list of Academic Integrity Officers, discipline flow chart, and Senate Discipline Committee.