Faculty of Science, Engineering and Technology

Interface Design and Development

High Distinction Task: High Distinction Research Project

# Overview

To be eligible for top marks in this unit, you must demonstrate significant depth of understanding of the advance topics and concepts related to the unit learning outcomes.

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| **Purpose:** | Demonstrate that you have developed a significant depth of understanding of the advance topics and concepts related to the unit. |
| **Task:** | Complete one of the tasks suggested, or a similar task, in order to develop evidence of your understanding. |
| **Time:** | This must be completed before you submit your portfolio, but it is advisable to submit drafts and plans earlier for feedback. |
| **Resources:** | * High Distinction Research Ideas (See below) |

**Note**: You should only start this task when your custom web application meets the High Distinction standard. This research on its own is not sufficient evidence for your portfolio to be eligible for a High Distinction.

Submission Details and Assessment Criteria

You must submit the following files to Canvas:

* **Details of your evidence in a PDF document, with additional files attached to your portfolio.**

Make sure that your task has the following in your submission:

* **Discuss the task and plan with the lecturer before starting.**

**Note**: **Do not start this task until you have completed your custom web application.**

# Instructions

The aim of this task is to demonstrate significant depth of understanding related to the unit’s topics and concepts. Several ideas are presented, but you are free to do this in any way you see fit.

This task works in conjuncture with the HD standards on the Custom Web Application. With the custom web application, you are demonstrating that you can apply the concepts learnt, whereas in this task you are demonstrating that you can explain and discuss the concepts with similar depth of understanding.

There are several ways you can demonstrate your ability to explain and discuss interface design and development concepts at depth.

1. Design & develop two (2) tutorials on advance topics (angularJS / other libraries) to accomplish the series of tasks in the lab tasks.
   * This could be a walkthrough to write codes for each of the topics in the week implemented using examples that one can relate (game, social media, blog, etc).
   * Must be comprehensive and manage to guide learners to accomplish a web app.
2. Develop a mini common utility library or framework.
3. Conduct a small research project aiming to answer a question related to front-end frameworks for web application
   * Create a plan to outline the question and method for your research project.
   * The **research question** is the question you aim to investigate in the project.
   * The **literature reviews** (at least 10) to relevant to the topic.
   * The **research method** describes how you will approach answering the question.
   * List of recommended online database and digital libraries:

* <http://ieeexplore.ieee.org>
* <http://dl.acm.org/>
* <https://www.scopus.com>
* <http://www.swinburne.edu.my/library/search>

**Tip**:

* Discuss your ideas with the lecturer before starting the project!
* Some projects can be taken as team project with distinct individual contribution i.e. one working on research while the other working on development. (both individual will be the co-author if the research paper is published in conference / journal)

# Topics Available for Semester 1, 2020

**Tutorials – The tool/library/framework must be used in your Custom Web App**

1. Usage of external library i.e. game engine, animator, useful utilities
2. Custom design pattern techniques / method incorporated in the proposed custom web application.
3. Constructing public RESTful API
4. Unit Testing AngularJS application

**Mini Utility Module / Library / Framework with Documentation**

1. Custom Directive for Interactive Product Comparison Table - Data from Database.
2. Custom Directive for Data Entries / Form.
3. Custom Authentication Module / Library for Web App
4. Custom Directive for Machine Learning.
5. Text Co-occurrence and processing library

**Research Topic**

1. Web Developers Experience on Contemporary Web Development Frameworks
2. Enhancement and Improvement on Web UI aspect
3. User Experience (UX) aspect
4. Usability & Accessibility aspect
5. Technical aspect i.e. Front-end Frameworks, Design & Modelling

**Additional Readings:**

Chaniotis, IK, Kyriakou, KD & Tselikas, ND 2013, ‘Proximity: A Real-Time, Location Aware Social Web Application Built with Node.js and AngularJS’, Mobile Web Information Systems, pp. 292–295, viewed < <http://link.springer.com/10.1007/978-3-642-40276-0_23> >.

Chansuwath, W & Senivongse, T 2016, ‘A model-driven development of web applications using AngularJS framework’, *2016 IEEE/ACIS 15th International Conference on Computer and Information Science (ICIS)*, IEEE, pp. 1–6, viewed < <http://ieeexplore.ieee.org/document/7550838/> >.

Fat, N, Vujovic, M, Papp, I & Novak, S 2016, ‘Comparison of AngularJS framework testing tools’, *2016 Zooming Innovation in Consumer Electronics International Conference (ZINC)*, IEEE, pp. 76–79, viewed < <http://ieeexplore.ieee.org/document/7513659/> >.

Ramos, M, Valente, MT, Terra, R & Santos, G 2016, ‘AngularJS in the wild: a survey with 460 developers’, *Proceedings of the 7th International Workshop on Evaluation and Usability of Programming Languages and Tools - PLATEAU 2016*, ACM Press, New York, New York, USA, pp. 9–16, viewed < <http://arxiv.org/abs/1608.02012v1%5Cnpapers3://publication/uuid/2AE530BA-0C90-482D-9184-12D5A6931D31> >.

Sneha, A & Pushpanjali M., C 2016, ‘Angular Js’, *International Journal of Scientific & Engineering Research,* vol. 7, no. 2, pp. 73–76, viewed < <http://www.ijser.org/researchpaper/Angular-JS.pdf> >.

Voon, YN & Ong, CA 2017. ‘Pigeon-table: A quick prototyping tool using twitter bootstraps and AngularJS for data-driven web application development’, *In 2017 International Conference on Computer and Drone Applications (IConDA)* pp. 33–37. IEEE. < <https://doi.org/10.1109/ICONDA.2017.8270395> >

Cheong, ECH, Voon, YN, Fu, ST & Ong, CA. “Pigeon-Chart: A Customized HTML Element for Data Visualization in Data-Driven Web Application Using AngularJS, HighCharts, UnderscoreJS and PHP ”, *In 2018 IEEE 3rd International Conference on Communication and Information Systems* pp 247-252. IEEE

**Note**: Some topics will be taken and done by one student only.