COS30041 Creating Secure and Scalable Software

**Research Proposal(s) for High Distinction (HD)**

**Prepared by: <Your name, student id>**

**Submission for Feedback (Week 6 – 7) and Final Approval (Week 8, Fri, 6:30pm)**

**[Note: Based on past experience, it will take at least 2 to 3 submissions to make it right. So, start early]**

**Instructions** - This document is for students aiming to achieve High Distinction (HD).

For **HD**, you need to complete the software for D grade as well as a research report. You need to propose a “research topic” on **the technologies related / similar to those discussed in this subject.** Note: Database Technology research topic like “comparing ORM mechanisms in Java and .NET” will not be approved. Although this subject has database discussions (e.g. JDBC / ODBC and ORM), we are just using it to develop our software application. We are more interesting onto technologies other than database technologies. Possible options are

R1 Implement the same functionality of your D software project using two different technologies of the same language (e.g JSF vs PrimeFaces; different form of Web Services – JAX-RS vs JAX-WS).

You can choose the criteria to compare between the two technologies / techniques but you must compare them **quantitatively**. For example, my development time using technology A is 180 minutes whereas that of technology B is 240 minutes. Hence, technology A is considered to be better than that of B in terms of development time. Qualitative comparison (e.g. it is faster due to less code) is not considered to be good research and hence will be rejected.

R2 Implement the same functionality in your D software project twice[[1]](#footnote-1) (e.g. one using Java EE technologies and the other using a comparable .NET technologies or some other JavaScript framework like Angular.js or Node.js).

Again, you can choose the criteria to compare between these two technologies but you must compare them **quantitatively**.

R3 Other please specify (to be detailed in the research proposal)

Again, you can choose the criteria to compare between these two technologies but you must compare them **quantitatively**.

In your research, you must (1) collect useful and relevant data for your quantitative comparison purposes, (2) perform your own analysis and (3) draw conclusion based on your data.

**Intended Learning Outcomes (extracted from Unit Outline)**

1. Build and deploy secure and scalable application using contemporary frameworks

2. Explain and apply strategies, patterns and frameworks to address a range of scalability issues

3. Explain and apply strategies, patterns and frameworks to address a range of security issues

4. Use contemporary tools to evaluate the scalability and security of applications

**RESEARCH PROPOSAL for HD**

**Some Background Information on your D software**

**Software Title: <Your Software>**

**Introduction**

<A brief introduction to the software application you want to develop>

**Research Report: <Title of your research>**

**Research Topic: <Your research topic – what you want to compare>**

<a description of what you want to compare, and hence form the basis of your research >

**Research Option: <R1 / R2 / R3 >**

<which option of research you want to pursue>

**Comparison Criteria: <Performance / Ease of Development / …>**

<a description of the following:

1. How you would compare your research and why [e.g. I choose to compare the ease of development of … because …]
2. What data are you going to collect to perform the comparison [e.g. I will collect my “development time in hours” – this includes (a) my research time, (b) my … time, … for a fair comparison between … ] >

**Research Plan:**

<a description of how you would carry out your research, including data collection, analysis and write up the conclusion>

1. Not the whole project. Just one functionality in your software project. [↑](#footnote-ref-1)