Web Application Frameworks

Week 1
Introduction

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Aim of the module

- The aim of this module is to give learners the knowledge and experience of a scripting language along with analysing supports available to aid in the use of these languages to produce a complete product. The module is focused on enabling the learner to analyse performance related issues and identify suitable design patterns to enhance both the security and complexity of the product.

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Learning Outcomes

- Critically analyse the underlying architecture of a web application environment
- Evaluate and assess existing class libraries for an object orientated programming language
- Formulate and produce a new library for an object orientated programming language that conforms to industry standards and coding conventions.
- Construct a complex dynamic web application using a web application framework
- Compare and contrast the MVC architecture and design pattern with those of other frameworks.

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Introduction to Ruby

- Develop an understanding for the basic structures involved in scripting languages including: classes, objects, variables, containers, blocks, and iterators
- Investigate standard types and regular expressions using a scripting language, e.g. Ruby
- Investigate the functionality of exceptions, modules, input and output, fibers, threads and processes
- Produce and evaluate custom built libraries.

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Programming supports

- Examine the function and value of unit testing and debuggers when using scripting languages and build tools e.g. Rake Build Tool for Ruby

- Identify the benefits of using an Interactive Shell, duck typing

- Critique different source code documentation techniques

- Investigate proper practices in package management and external libraries management

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Web Application Frameworks

- Compare and contrast multiple frameworks and design patterns associated with web application frameworks

- Explore possible architectures of applications

- Develop an understanding for techniques relating to validation and call-backs

- Explore the implementation of a Query Interface as a mechanism for determining if a known component supports a specific interface

- Design strategies for Exception handling and deployment

- Investigate and evaluate security strategies used in web application development.

- Create and evaluate a complex web application

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Marking Scheme

Marking Scheme		
Project	50%	LO3, & LO4
Final Examination	50%	LO1,LO2, & LO5

Final Exam

- LO1, LO2, & LO5 examining the learners understanding of web application development. In particular the examination will focus on the learner being able to compare and contrast between multiple frameworks and design patterns to enhance optimisation and security issues.

Project

- LO3, & LO4 A cross-module project, with usability testing and implementation, testing the learner's knowledge and understanding of web application development using a web application framework. In addition a written report and presentation should highlight relevant theory and industry practice and demonstrate the learner's ability to derive the right conclusion based on personal and/or professional experience.

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Questions

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