3a - Midterm Review

## Learning Outcomes

On completion of this lab you will have:

* Reviewed the major theoretical topics and themes from

## Organisation

Please complete the exercises individually.

## Grading

This worksheet is worth up to 2.5% of your overall module grade.

**Note**: You must attend and sign in at 10 labs in order to obtain full credit for your submitted worksheets. You may work on this worksheet during lab 5 with instructor assistance.

## Submission

The deadline for submission is Sunday Mar 12, 2017 @23:59 through Webcourses.

## Demonstration

No demonstration will be required for this submission.

## Requirements

For this lab you will need to

* Review the module lecture material on Webcourses

## Problem Sets

The following platform-independent tasks can be solved on Windows, Mac local Linux or Cloud Linux as you prefer

For your lab submission, provide a text document with your answers to the question below

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| **1** | Describe the Software Selection Maturity Scale? What is its relationship to technology adoption in the Enterprise? | 10 Marks |
| **2** | Compare and contrast the monolithic and SOA models of enterprise application software. Describe are the benefits of a SOA composition approach to application construction. | 10 Marks |
| **3** | Why have enterprises moved towards web technologies for service software construction? What are the principal benefits? | 10 Marks |
| **4** | What are the advantages and disadvantages of HTTP statelessness as the basis of a service application protocol tier? | 10 Marks |
| **5** | Describe the architectural constraints of the REST architectural pattern | 10 Marks |
| **6** | Explain the relationship between resources, models and views? What is meant by view aggregation? | 10 Marks |
| **7** | Describe the five RESTful operations, giving examples using HTTP. What is meant by idempotence? Mention which of the REST operations are idempotent and why. | 10 Marks |
| **8** | Explain the problem of failure propagation in SOA systems. What are the desirable characteristics of an API versioning system? What are the two kinds of API compatibility? | 10 Marks |
| **9** | Describe the major elements of the logical data model. Describe how it abstracts the details of database access in the application tier. | 10 Marks |
| **10** | Describe in detail the pathology of a SQL injection exploit. What should the application developer to avoid this kind avoid this kind of vulnerability. | 10 Marks |