

TECHNOLOGICAL UNIVERSITY DUBLIN

COLLEGE OF BUSINESS

AUNGIER STREET

Programme: BSc Business Computing

DT354 Year 3

Supplemental Examination

August 2019

Module: Web Development 1 (Java)

Module Code: INFS3031

Internal Examiner: Dr J Munnelly

External Examiner: Dr Eoin Whelan

Exam Duration: 3 hours

Instructions: Answer any 4 questions

26th August 2019

9.30 - 12.30

Room 5050

DT354/3 Web Development 1

1.

a. Outline the code required to write a client-server application using Java Sockets over a reliable transport protocol. Allow the client to request the time from the server by typing "TIME" repeatedly until choosing to exit by typing "EXIT", the server should respond to the time request with the current time and should safely stop on exit. Include, using pointers, explanations of the code to demonstrate your understanding. (13 marks)

b. In your coursework three types of Java Sockets were outlined. Show full implementation details to send/receive using those three types of Socket, including details of the classes used in each and explanations of how and where they are used. (12 marks)

[25 marks]

2.

a. A website enables users to vote for their favourite act on a TV program by entering their information and clicking the "Submit" button. The system requires the user to input their name, email address and the number of their favourite act (e.g., "1"). This information should be processed by a Servlet, returning a confirmation of the user's submission. Detail the code required for every part the web application in question, and include a detailed explanation of the code. (18 marks)

b. Detail the methods associated with the lifecycle of a Servlet. Include details of how different types of requests are processed. (7 marks)

[25 marks]

3.

- a. Provide code that would allow an application to connect to a database called "CityParking" that has one table called "Carparks" using JDBC. Include code that would allow you to select rows from this table where the status column was equal to "full" and to display the results of your query. Also show a query to select and display all the data from the Carparks table. Use both precompiled and non precompiled SQL statements in your code. Explain your code fully by using pointers to explain what each line/section is doing. Include longer explanations after the code where required to demonstrate your knowledge e.g., using SQL, return types of all JDBC methods etc.

(25 marks)

[25 marks]

4.

JSPs can incorporate tags from many libraries. Give an example of this from your experience of using tag libraries in a web framework. Explain how tag libraries are used, what function they perform and how they're processed. Include in your answer a code example of your use of tag, including all files using tag libraries and all code used to interact with them.

(15 marks)

- a. How can state be managed in a web based application? Give examples of how you managed state, giving a full concrete code example of where you stored and retrieved state in an application.

(10 marks)

[25 marks]

5.

- a. Web Frameworks such as the Struts2 framework assist developers in creating well architected applications. Using the technologies provided by the Struts2 framework, describe an implementation to process a basic login scenario. Show full code enabling user input, processing of that input, resulting response and all required configuration code. Include a full explanation of how the Web Framework functions, and of all your code.

(18 marks)

- b. Describe the sequence of events that take place in the framework when a user interacts with the application above.

(7 marks)

[25 marks]