DUBLIN INSTITUTE OF TECHNOLOGY

DT211C BSc. (Honours) Degree in Computer Science (Infrastructure)

Year 4

SUMMER EXAMINATIONS 2015/2016

ENTERPRISE APPLICATION DEVELOPMENT [CMPU4023]

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THURSDAY 12TH MAY   9.30 A.M. − 11.30 A.M.

TWO HOURS

ANSWER ALL THE QUESTIONS

Question 1 [33 marks]

A) Describe why server-side scripting is nowadays more appropriate for the development of web applications and its advantages compared to CGI.

[12 marks]

B) Describe how do the MVC (model/view/controller) components interact with each other. What is the role of each component?

[9 marks]

C) What is an SQL injection?
How it is performed and what are the consequences of such an attack?

[6 marks]

What is cross-site scripting?
How does it work and what are the solutions to defend against this type of attack?

[6 marks]

Question 2 [33 marks]

a) Describe Test Driven Development illustrating how it works, the techniques employed and its advantages for traditional software development.

[11 marks]

B) Suppose you have to create a class (USER) that represents the user profile account of a web-user. This class requires methods to get and set the the following information:

- username (string containing just the letter of the English alphabet, min 8 characthers, max 15 characters long)
- password (any keyboard character, min 6 characters, max 10 character long)
- mobile number (in the format: 003530871234567)
 all the above fields cannot be empty. get and set methods return true if everything went ok, false if there is an error.

In addition, two conditions must be satisfied:
- The password cannot be as the username string and it cannot be set unless the username has already been set
- the mobile number can be just an irish number, that means the first 5 numbers must be 00353.

Write all the tests for the USER class in php (or pseudo-code) including also the SetUP() and TearDown() methods. In other words, you have to test whether the GET and SET functions behaves in the proper way and returns what is expected.

[11 marks]

c) Write the code (php or pseudo-code) for the USER class itself as well as its methods.

[11 marks]

Question 3 [34 marks]

A) Illustrate the advantages and disadvantages of CGI (Common Gateway Interfaces)

[12 MARKS]

B) While developing software, it is a good practice to separate manipulation code and the code in charge of managing the information stored in the database. For this reason DAOs (database access object) can be employed.
Illustrate how DAOs work and their advantages.

[6 MARKS]

C) The recommended set of design principles for building correct RESTful applications include addressability, statelessness, connectedness and uniform interfaces. Describe each of them in detail.

[16 MARKS]