COURSEWORK QUESTION PAPER: **Year Long Semester 2016/17**

Module Code:	**CC6001NI**
Module Title:	**Advanced Database Systems Development**
Module Leader:	**Rohit Panday** (Islington College)

Coursework Type:	**Individual**
Coursework Weight:	This coursework accounts for **40%** of your total module grades.
Submission Date:	**Friday Week 18, 5PM**
When Coursework is given out:	**Week 8**
Submission Instructions:	Submit the following to Islington College RTE department before the due date: • **Report** • **CD**
Warning:	London Metropolitan University and Islington College takes Plagiarism seriously. Offenders will be dealt with sternly.

Plagiarism Notice

You are reminded that there exist regulations concerning plagiarism.

Extracts from University Regulations on Cheating, Plagiarism and Collusion

Section 2.3: “The following broad types of offence can be identified and are provided as indicative examples …..

(i) Cheating: including copying coursework.
(ii) Falsifying data in experimental results.
(iii) Personation, where a substitute takes an examination or test on behalf of the candidate. Both candidate and substitute may be guilty of an offence under these Regulations.
(iv) Bribery or attempted bribery of a person thought to have some influence on the candidate’s assessment.
(v) Collusion to present joint work as the work solely of one individual.
(vi) Plagiarism, where the work or ideas of another are presented as the candidate’s own.
(vii) Other conduct calculated to secure an advantage on assessment.
(viii) Assisting in any of the above.

Some notes on what this means for students:

(i) Copying another student's work is an offence, whether from a copy on paper or from a computer file, and in whatever form the intellectual property being copied takes, including text, mathematical notation and computer programs.
(ii) Taking extracts from published sources without attribution is an offence. To quote ideas, sometimes using extracts, is generally to be encouraged. Quoting ideas is achieved by stating an author's argument and attributing it, perhaps by quoting, immediately in the text, his or her name and year of publication, e.g. " e = mc2 (Einstein 1905)". A reference section at the end of your work should then list all such references in alphabetical order of authors' surnames. (There are variations on this referencing system which your tutors may prefer you to use.) If you wish to quote a paragraph or so from published work then indent the quotation on both left and right margins, using an italic font where practicable, and introduce the quotation with an attribution.

Further information in relation to the existing London Metropolitan University regulations concerning plagiarism can be obtained from http://www.londonmet.ac.uk/academic-regulations

CC6001 Advanced Database Systems Development
Coursework Assignment 2016-17

The coursework assignment is an individual assessment weighted 40% of the marks for the module. It is designed mainly to assess students' practical problem-solving skills and critical thinking/evaluation on the design and development of database systems. It requires the student to analyse, design and implement a web-based database application based on a given business case study. You are asked to provide a software solution as well as appropriate documentation detailing the design and implementation of the system.

1. Case Study – Universal Sports Hub

Universal Sports Hub is a medium sized Leisure Centre located at Lalitpur Disitrict of Kathmandu Valley. It contains a gym, a large sports hall suitable for indoor sports such as 5-a-side football, badminton and basketball, a smaller sports hall used for martial arts and two swimming pools (one large and one small). Universal Sports Hub is run by Mr. Dharma Thapa and employs various other staff such as gym instructors, receptionists and assistants. It also employs various instructors for particular sessions such as Judo and Karate.

Customers of Universal Sports Hub can either be full members who pay a monthly fee by direct debit, associate members who pay a fixed yearly fee and get a reduction on whatever activity they want to do or guest members who pay full price for activities as they do them.

Depending on the room particular sessions might be booked by individuals, set aside for a community activity, or they might be open to all. So, for example, badminton sessions must be booked by an individual customer.

Where an activity is organised by Universal Sports Hub themselves then it is marked as being booked to 'UNIVERSAL'. An example of this is a Karate or Judo session where an instructor is provided.

Example of customer record list and an activity sheet for a hall are shown in the following figure 1and 2.

You have been sub-contracted by *Spring Services* as a Junior Database Developer to design and implement a prototype of the web-based database system for Universal Sports Hub. On completion of the system, you are required to provide a full set of documentation of the system to *Spring Services*.

Your prototype of the system will be developed using Oracle SQL Developer Data Modeler and ASP.NET with C#

Figure 1. Example of customer record list

Name	Address	Ref No	Membership Type	Date of Birth
Kamal Thapa	House No. 11 Ekantakuna, Lalitpur	C092	FULL	09/08/91
Sailendra Basnet	23 Embassy Road, Sanepa	C099	ASSOC	07/12/86
Amina Baskota	House No 22/24, Zoo Road	C077	FULL	06/01/90
Satkar Joshi	34 High Street, Folgate E1, 9C	C033	FULL	07/03/88
Mani Lama	56 Cromwell Towers, East Street, Folgate, E1 Y4	C093	FULL	15/09/87

Figure2. Example of an activity sheet for a hall (note, there are one of these sheets for each room for each day.)

Room Name: Large Sports Hall
Date: Monday 17th September

Session Code	Activity	Start Time	Period	Equipment Needed	Staff to Set Up	Other Staff	Customer Reference
LSH521/1	**Junior Karate**	10.00	3 hours	Floor Mat, Crash Mat.	Dinesh and Karina	Suren, Karate Instructor	CC099
LSH521/2	**5-a side football**	13.00	2 hours	Goals	Dinesh and Karina		C092
LSH522/3	**Badminton**	15.00	3 hours	Nets, Rackets	Suman and Suraj		C033
LSH522/4	**Basketball**	18.00	2 hours	Ball	Dinesh		C044
LSH522/5	**5-a side**	20.00	1 hour	Goals, Ball	Suman		C093

2. Requirements of the Coursework

Marks are awarded for producing a working and properly documented system that meets the requirements specified below as **deliverables**:

2.1 Contents Page

A list of sections/subsections of the document, including page numbers.

2.2 Normalisation

Produce a set of fully normalised tables for the system:

- You may use Figure 1 and Figure 2 as a starting point for normalisation.
- You may also add additional attributes where appropriate.
- Show clearly all the steps of normalisation, up to the 3rd normal form.

2.3 E-R Model

Use *Oracle SQL Developer Data Modeler* to produce an Entity Relationship Diagram. The final ERD should be consistent with the outcome of your normalisation. Submit a copy of the ERD.

2.4 Data Dictionary

Use *Oracle SQL Developer Data Modeler* to produce a list of attributes for each entity. Submit a print-out copy of these lists.

2.5 Generation of Database

- Use *Oracle SQL Developer Data Modeler* to convert the E-R diagram into a set of database tables. Provide a print-out of the DDL script for generating the tables (relevant 'CREATE statements only).
- Use *Oracle SQL Developer* to populate these tables with suitable data values (using 'INSERT' statements).
- Provide a print-out of contents for all the tables (using 'SELECT' statements).

2.6 Implementation of Web-based Database Application

- Implementation of a web-based database application which includes the following webforms (web pages) using ASP.NET with C#:

  - ***Basic Webforms:***
    - Customer Details
    - Staff Details
    - Equipment Details
    - Activity Details
    - Room Details

  All these forms should facilitate input, update and delete of information.

- ***Session-Staff Schedule Form*** (for any scheduled session, show details of the session chosen and the details of all the staff assigned to it, including their job roles).
  This form should facilitate the allocation of existing staff to a scheduled event.

- ***Session-Equipment Schedule Form*** (For any scheduled session, show details of the session chosen and the details of all the equipment required).
  This form should facilitate the allocation of existing equipment to a scheduled session.

- ***Activity Schedule Form***, as a slightly modified version of the form given in Figure 2 (for any scheduled activity, show the details of the session, activity, customer, staff and equipment scheduled for the day).

- Implementation of a homepage website which includes an option menu.
- **The completed website connected with the Oracle database must be submitted on CD.**

2.7 Documentation of the system (as implemented in 3.6)

FOR EACH FORM

Implementation document

- Provide a set of screen dumps for all the web pages (webforms) you have produced.

Testing Document

- Provide a copy of the initial data (table contents) in your system.
- For each form implemented, list the individual tests that have been carried out together with their results.

FOR THE APPLICATION

URL address for the uploaded website (connected with the Oracle database)

User Manual (up to 5 pages)

- The User Manual should have a contents page and separate sections for each form provided.
- The User Manual should contain clear instructions on how to use the system and how to run each of the forms available to it.

2.8 Further Discussion

Your discussion should summarise your experience in undertaking this coursework.

Your work must be submitted in a single document, with all output including diagrams, tables, forms, SQL scripts clearly labelled and presented.

END