

1st-sit Coursework Question Paper
Year Long 2024/2025

Module Code:	CC6012NT
Module Title:	Data and Web Development
Module Leader:	Mr. Sagar Basnet / Mr. Lekhnath Katauwal (Islington College)

Coursework Type:	Individual
Coursework Weight:	This coursework accounts for 40% of the overall module grades.
Submission Dates:	First milestone: Thursday, 26 December 2024 Second milestone: Friday, 3 January 2025 Third milestone: Thursday, 6 March 2025 Fourth milestone: Sunday, 16 March 2025 Final Deadline: Wednesday, 26 March 2025
Coursework given out:	19th December 2024
Submission Instructions:	<p>Submit the following to Itahari International College's MST portal before 01:00 PM on the due date:</p> <ul style="list-style-type: none"> • A report (document) in .pdf format in the MST portal or through any medium which the module leader specifies.
Warning:	London Metropolitan University and Itahari International College take plagiarism very seriously. Offenders will be dealt with sternly.

PLAGIARISM

You are reminded that there exist regulations concerning plagiarism. Extracts from these regulations are printed overleaf. Please sign below to say that you have read and understand these extracts:

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 taking unauthorised material into an examination; consulting unauthorised material outside the examination hall during the examination; obtaining an unseen examination paper in advance of the examination; copying from another examinee; using an unauthorised calculator during the examination or storing unauthorised material in the memory of a programmable calculator which is taken into the examination; 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:

1. 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.

2. 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. " $e = mc^2$ (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.

CONTRACT CHEATING

Contract cheating (also known as assessment outsourcing, commissioning, or ghost writing) is when someone seeks out another party, or AI generator service, to produce work or buy an essay or assignment, either already written or specifically written for them or the assignment to submit as their own piece of work.

Contract cheating undermines the integrity of the academic process and devalues the qualifications awarded by the university. Students are reminded that academic integrity is a fundamental principle of our institution. Engaging in contract cheating not only impacts the individual's academic record but also the reputation of the university.

Students are encouraged to seek support if they are struggling with their coursework. The university offers a range of resources, including academic counselling, tutoring services, and workshops on study skills and time management. Utilizing these resources can help students achieve their academic goals without resorting to dishonest practices.

Penalty:

- Failure in the Module: The student must re-register for the same module, and the re-registered module will be capped at a bare pass.
- Ineligibility to Continue on the Course: Where re-registration of the same module, or a suitable alternative, is not permissible, the student will not be able to continue the course. Additionally, the following penalty will be applied to the student's final award:
 - Undergraduate Honors: The student's final classification will be reduced by one level.
 - Unclassified Bachelors: Downgraded to Diploma in Higher Education.
 - Foundation Degree: Distinction downgraded to Merit; Merit downgraded to Pass; Pass downgraded to Certificate in Higher Education.
 - Masters: Distinction downgraded to Merit; Merit downgraded to Pass; Pass downgraded to Postgraduate Diploma.

Reporting and Consequences:

Instances of contract cheating will be thoroughly investigated, and students found guilty will face the penalties outlined above. It is the responsibility of every student to ensure that their work is their own and to avoid situations that could lead to accusations of academic misconduct.

By adhering to these standards, students contribute to a fair and equitable academic environment, ensuring the value and recognition of their qualifications are maintained.

Coursework Details

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

LS Corporation, a mid-sized technology firm, struggled with managing multiple projects due to fragmented systems, leading to inefficiencies, poor communication, and difficulty tracking progress. To address these issues, the company decided to implement a robust project management system to centralize data, streamline task assignments, and improve project visibility

In that corporation, A User can be part of multiple Projects which will have many tasks. A User can be assigned to multiple Tasks and there will be multiple user (developer, designer, project manager etc) associated in a single task. Each task can have multiple subtasks but each subtask is linked to a single task. User will comment on task which might be multiple for better communication. A task can require multiple resource. For easiness of the project completion, each project is breakdown into multiple milestone (E.g.: - Prototype completion, beta release etc) with due date.

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

Fig 1. Example of task tracking details

User ID: U-01
User Name: Sam Smith
User Email: Smith@gmail.com
User contact: +9779859697989

Project ID	Project Name	Project Start Date	Project Due Date	Project Status	Task ID	Task Name	Start Date	Due Date	Status
P-01	Enrolment System	2024-01-01	2024-10-23	On going	T-01	Student Registration	2024-01-01	2024-02-20	Completed
P-01	Enrolment System	2024-01-01	2024-10-23	On going	T-02	Student Counselling Form	2024-01-05	2024-06-15	On going

P-02	Attendance System	2024-03-01	2024-12-12	On going	T-03	Biometric Registration	2024-03-10	2024-03-20	Completed
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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

[15 Marks]

Produce a set of fully normalised tables for the system:

- You may also add additional attributes where appropriate.
- Show clearly all the steps of normalisation, up to the 3rd normal form.
- Normalisation is done showing the correct transition between UNF to 3NF.
- Proper identification of Primary/Foreign Key, Repeating Groups, Partial Dependency, and Transitive Dependency

2.3 E-R Model

[10 Marks]

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:

- Proper ERD of the textual description with proper entities and correct cardinality (entities must show all primary keys and foreign keys involved).
- Explanation of assumptions made to make the ERD (must show the process to remove the duplication of entities(relations) from Relational Model, Normalization)

2.4 Data Dictionary

[5 Marks]

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

- Data Dictionary must contain well-defined Name of Tables, Attributes, Appropriate Data Type and Size of Attributes, Constraints of Each attribute, Reference Tables and Attributes along with Example Data

2.5 Generation of Database

[3 Marks+ 4 Marks+ 3 Marks]

- 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), at least 15 rows for SETUPS, and 30 rows for CONFIGURATION and TRANSACTION tables with proper screenshot.
- Provide a print-out of contents for all the tables (using 'SELECT' statements) with a proper screenshot.

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:**

[15 Marks]

- User Details
- Project Details
- Task Details
- Subtask Details
- Milestone Details

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

- **Complex Webforms:**
(Provide SQL Queries and Complex forms)

[6+14 Marks]

- **User Project** (for any user, show details of the user and the details of all the projects that he/she has been working or has worked on.)
- **Project Milestone** (For any Project, show the detail of the project with all the milestone of the project)
- **Top Performer** (for any project, show the details of top 3 user who has done the most task).

NOTE: Any pending task won't be counted as task done.

- ☐ Implementation of a homepage website that includes an options menu with an **Attractive Graphical Dashboard**.

[5 Marks]

2.7 Documentation of the system (as implemented in 2.6)

FOR EACH FORM

Implementation document

- Provide a set of screen dumps for all the web pages (webforms) you have produced.
- Basic Forms to show CRUD operation (form view and list view screens with Template Fields for Foreign Keys))
- Complex Forms (Proper Filter Demonstration using List Box/Grid and Template Field (foreign keys))

Testing Document

[10 Marks]

- 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.
- Proper test cases with Before and After Screenshots of data
- At least 2 failure cases with proper correction measures

FOR THE APPLICATION

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

User Manual (up to 5 pages)

[5 Marks]

- 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.
 - Easy to read user manual with Arrows and Graphics to explain the process

2.8 Further Discussion

[5 Marks]

Your discussion should summarise your experience in undertaking this coursework with the mention of 5 tools/techniques learned during coursework.

Milestone 1 (Thursday, 26 December 2024)

- **Normalization**
 - Create an ERD from the case study with proper identification of relation and cardinality.
 - Normalize the given table with proper key identification and show all the steps for identification of dependency.

Milestone 2 (Friday, 3 January 2025)

- **Final ERD**
 - From the result set acquired from case study ERD and normalized table. Combine all the entities and create final ERD using Data Modeler.
 - Create table in Oracle using the script generated from Data Modeler and insert data as required by coursework.

Milestone 3 (Thursday, 6 March 2025)

- **Web Forms**
 - Create basic and complex web form required by coursework using ASP.NET.

Milestone 4 (Sunday, 16 March 2025)

- **Report**
 - Almost all the component required for the coursework has been covered from Milestone 1 to milestone 3. Create a final Report.

-----**End of the Coursework**-----