INFORMATICS INSTITUTE OF TECHNOLOGY

DEPARTMENT OF BUSINESS MANAGEMENT

FOUNDATION PROGRAMME
2021

DOC327 – WORKING WITH DATA

COURSEWORK - SPECIFICATION

Module Leader	: Kalpana Weerasinghe
Assessment	: Group Coursework
Date Released	: 7th June 2021
Date Due	: 22nd July 2021
Submission Time	: 11:00AM

General Coursework Information – Please read carefully

This is a **GROUP** coursework and has to be attempted jointly as a group. You must be in groups of 5-7 students. Appoint a team leader.

Individual statements have to be written to describe the work that has been carried out by an individual. Each team member must attach a signed Individual Statement (self-evaluation sheet) bound with the report. Failure to do so will result in a zero mark being awarded for the entire coursework. You **MUST** use the Coursework Report Template provided.

If you find any ambiguity or a lack of information in any part of the coursework, you should make reasonable assumptions and state them clearly.

You must use a word processor for the report and it should be presented professionally in accordance with the report format.

It is advisable to keep a copy of your work. Acknowledge all your sources. Remember that plagiarism or collusion or copying are considered serious assessment offences and have severe penalties.

You are required to show all DDL and DML and their corresponding result/output tables (the actual screenshots) in the report, else you will automatically be awarded ZERO marks for the question.

The coursework must be submitted via **IIT LMS** on or before the given deadline. Submissions should be in the PDF format and should follow the given naming convention.

<Module code_GCW-batch_GroupNo>.pdf
(For example: DOC327-Jan2021_GCW_Group01.pdf)

The usual University penalties will be applied for late submissions.

PART A (60%)

The following scenario describes a small travel agency called **Golden Globe Travels**, which is located in East London. Listed below is a description of the data recorded, maintained, and accessed by the travel agency staff to support the management and day-to-day operations of the *Golden Globe Travel Agency*.

Data Requirements:

- Customers come to the travel agency to arrange a variety of holiday trips. A sales consultant deals with each customer for a particular trip, and records their details. Customer number is a unique identifier of the customer, and each customer has a full name, address and a phone number. A customer's full name consists of title, surname and forename.

- The sales consultant will then advise the customer of possible trip alternatives and provide them the flight details, list of hotels and the availability details with their prices.

- Each holiday booking is identified by a unique booking id. Each customer can make any number of holiday bookings, but each holiday booking is for one customer only. The booking date and total cost are stored for each holiday booking. The travel agency constructs a holiday booking by booking one or more flights and zero, one or more hotels.

- When a hotel is booked for a particular trip, the check-in date, duration of stay (in days) and room type (eg standard, double, luxury) are also recorded. The travel agency keeps a list of hotels. The details held of each hotel include a unique hotel id, hotel name, address (street, town and postcode) and one or more telephone numbers.

- A flight booking is made with one airline. The travel agency keeps a list of airlines and the scheduled flights offered by each airline. Each airline is identified by a unique airline number, and has an airline name (eg Quatar Airways, Air Canada, Lufthansa), telephone number and fax number. Each scheduled flight is identified by a unique scheduled flight code. The following details are recorded for each scheduled flight: starting airport, destination airport, departure date, departure time and flight duration (in minutes). The travel agency also keeps details of all the airports. The details stored for each airport include an airport code (LA for Los Angeles, WEST for Westminister), Airport name (eg Amsterdam Schiphol, London Stansted), and country and telephone number.

- As keeping track of all payments received for the travel agency is very much essential, the following details need to be stored: payment date and mode of payment (eg cash, cheque, credit card). Each payment is assigned a unique payment number. The customer has to make the full payment for a particular holiday booking and no any installment payments are allowed. If the customer does not pay in full within two weeks, the booking is cancelled.

Question 1

Produce an Entity Relationship Diagram to represent the Conceptual Design of the Golden Globe Travel Agency scenario. Use a software tool to draw the diagram. Use only UML notation. You are required to:

- Distinctly show all entity types, attributes (including primary key attributes) and relationship types.
- Determine the structural constraints (cardinality and participation constraints) of each relationship type.
- Clearly state any assumptions made.
- DO NOT include any foreign keys at this stage.
- DO NOT add any attributes (including surrogate/artificial keys) not mentioned in the scenario description.

(40 Marks)

Question 2

Give the data definition (DDL) statements required to create the tables. Include only primary key definitions.

(20 Marks)

PART B (40%)

BIG BAD WOLF LIBRARY SYSTEM

The Big Bad Wolf Library System contains information about branches, members, books, loans and reservations. The relational structure below captures most of the necessary information for the database.

Member	**(memberNo, name, address, telephoneNo, dateOfBirth, status, branchNo*)**
Branch	**(branchNo, name, address, telNo)**
Book Title	**(ISBN, title, author, publisher, year, classification)**
Reservation	**(reservationNo, memberNo*, ISBN*, reservationDate, reservationFulfilled)**
Book Copy	**(copyNo, ISBN*, purchaseDate, purchasePrice, loanType)**
Loan	**(loanId, memberNo*, copyNo*, issueDate, dueDate,returnDate)**
Key: Primary Key	**Foreign Key ***

Member Table

member No	name	address	telephoneNo	dateOfBirth	status	branch No
A2345	James Ward	81 George Street, London	020-8456-1122	04/Dec/1980	Staff	B111
R3456	Joan Lees	35 Kings Hill, Edinburgh	01318-234561	14/Jan/1983	Researcher	B222
S4567	Dave Smith	12 Avery Hill, London	020-7822-1024	24/Mar/1986	Student	B111
S7654	Marie Hans	45 The Ash, Dartford	01322-451399	18/Jun/1989	Student	B222
P8764	Sam Jones	17 Lower Street, London	020-7551-1003	16/Nov/1990	Researcher	B111

Branch Table

branchNo	name	Address	telNo
B222	Merryhills	115 Kings Street, Edinburgh	01318-333564
B111	Oakwood	32 High Street, London	020-8756-5432

BookTitle Table

ISBN	title	author	publisher	year	classification
1201708574	Database Systems	T Connolly	Addison Wesley	2001	Computing
2409708614	Marketing Strategies	G Armstrong	Pitman	1998	Business
4558602453	Introduction to SQL	J Melton	Morgan Kauffman	1993	Computing
6547654322	Database Solutions	T Connolly	Addison Wesley	2004	Computing
9876543210	Success in Business	R Burke	Pearsons	2001	Business

Reservation Table

reservationNo	memberNo	ISBN	reservationDate	reservationFullfilled
R101	R3456	1201708574	14/Jan/05	Yes
R102	S4567	4558602453	25/Feb/06	No
R103	S7654	4558602453	06/Apr/06	Yes
R104	S4567	1201708574	30/Sep/06	Yes
R105	P8764	9876543210	21/Feb/07	No

BookCopy Table

copyNo	ISBN	purchaseDate	purchasePrice	loanType
C001	1201708574	14/Jan/2005	32.50	Reference
C002	1201708574	12/Feb/2005	38.99	Regular
D001	2409708614	11/Mar/2006	24.99	Short Loan
E001	9876543210	21/Apr/2006	28.99	Reference
E002	9876543210	14/Jan/2007	33.99	One-week

Loan Table

loanId	memberNo	copyNo	issueDate	dueDate	returnDate
L001	A2345	C002	05/Jan/2006	05/Feb/2006	05/Feb/2006
L002	S4567	C002	15/Feb/2006	15/Mar/2006	
L003	R3456	D001	25/Jun/2006	25/Jul/2006	15/Jul/2006
L004	R3456	D001	01/Jan/2007	11/Feb/2007	
L005	P8764	E002	11/Feb/2007	21/Mar/2007	

Write *My SQL* queries and run them for the following questions/cases. Give meaningful names to columns in the output/result table of each query. **You MUST submit the screenshots of queries and their results/output tables in the report.** Make sure you clearly label each query/question.

Question 1

Give the DDL (Data Definition Language) statements required to create the tables 'Member', 'Reservation', 'BookCopy' and 'Loan'. Include *primary* and *foreign key* definitions.

(20 Marks)

Question 2

Insert data into the tables listed in Question 1.

(a) Populate the tables using the data provided above.

(b) Give the statements required to enter all these records into the tables.

(10 Marks)

Question 3

List all researchers and students registered with the library system. Show their name, address, status and telephone numbers sorted by member name in alphabetical order.

Give the relevant SQL statements.

(10 Marks)

<<<<**End of coursework specification**>>>>