



MODULE NAME:	MODULE CODE:
DATABASE INTERMEDIATE	DATA6212
DATABASE INTERMEDIATE	DATA6212d
DATABASE INTERMEDIATE	DATA6212p

ASSESSMENT TYPE:	EXAMINATION (PAPER ONLY)
TOTAL MARK ALLOCATION:	120 MARKS
TOTAL HOURS:	3 HOURS (+15 minutes reading time)
INSTRUCTIONS: <ol style="list-style-type: none"> 1. Please adhere to all instructions in the assessment booklet. 2. Independent work is required. 3. Five minutes per hour of the assessment to a maximum of 15 minutes is dedicated to reading time before the start of the assessment. You may make notes on your question paper, but not in your answer sheet. Calculators may not be used during reading time. 4. You may not leave the assessment venue during reading time, or during the first hour or during the last 15 minutes of the assessment. 5. Ensure that your name is on all pieces of paper or books that you will be submitting. Submit all the pages of this assessment's question paper as well as your answer script. 6. Answer all the questions on the answer sheets or in answer booklets provided. The phrase 'END OF PAPER' will appear after the final set question of this assessment. 7. Remember to work at a steady pace so that you are able to complete the assessment within the allocated time. Use the mark allocation as a guideline as to how much time to spend on each section. 	
Additional instructions: <ol style="list-style-type: none"> 1. This is an OPEN BOOK assessment. 2. Calculators are allowed. 3. Answer All Questions. 4. For open book assessments the students may have open access to all resources inclusive of notes, books (hardcopy and e-books) and the internet. These resources may be accessed as hard copies or as electronic files on electronic devices. All electronic devices' batteries must be fully charged before the assessment as no charging of devices will be permitted during the sitting of the assessment. The IIE and associated brands accept no liability for the loss or damage incurred to electronic devices used during open book assessments. 5. Instructions for assessments including practical computer work: <ul style="list-style-type: none"> • Use of good programming practice and comments in code is compulsory. • Save your application in the location indicated by the administrator (e.g. the Z:\ drive or your local drive). • Create a folder as follows: use the module code and your own student number and create a folder with a folder name as per the format shown here: • StudentNumber_ModuleCode_Exam. Save all files (including any source code files, template files, design files, image files, text files, database files, etc.) within this folder. 	

- *E.g. if your student number is 12345, and you are writing an examination for the module DATA6212, create a folder named **12345_Data6212_Exam** and use this throughout the session to save all of your files.*
- **Important:** *Upon completion of your assessment, you must save and close all your open files and double click the ExamLog application on your desktop. You must follow the instructions carefully to ensure that the information about the files that you have submitted for this assessment has been logged on the network. Specify the location of your source code on your question paper.*

Question 1**(Marks: 60)**

This question is based on a set of relations that has been set up for the management of accommodation bookings. The database contains information about the customers, the venues, and the accommodation bookings. The relationships between the tables must be derived from the data in each of the tables. The tables and the information are as follows:

CUSTOMERS		
CUSTOMER_ID	VARCHAR(10) NOT NULL	PRIMARY KEY
CUSTOMER_NAME	VARCHAR(50) NOT NULL	

VENUES		
VENUE_CODE	VARCHAR(5) NOT NULL	PRIMARY KEY
VENUE_NAME	VARCHAR(50) NOT NULL	
ADDRESS	VARCHAR(50) NOT NULL	
CITY	VARCHAR(50) NOT NULL	
MAX_CAPACITY	SMALLINT NOT NULL	

ACCOMMODATION_BOOKINGS		
CUSTOMER_ID	VARCHAR(10) NOT NULL	PRIMARY KEY FOREIGN KEY REFERENCES CUSTOMERS(CUSTOMER_ID)
VENUE_CODE	VARCHAR(5) NOT NULL	PRIMARY KEY FOREIGN KEY REFERENCES VENUES(VENUE_CODE)
CHECKIN_DATE	DATE NOT NULL	PRIMARY KEY
NIGHTS	SMALLINT NOT NULL	
RATE	SMALLMONEY NOT NULL	

The data is shown below:

CUSTOMERS	
CUSTOMER_ID	CUSTOMER_NAME
123456	Neo Petlele
246810	Derek Moore
369121	Pedro Ntaba
654321	Thabo Joe
987654	Dominique Woolridge

VENUES				
VENUE_CODE	VENUE_NAME	ADDRESS	CITY	MAX_CAPACITY
V0001	Durbs Bed and Breakfast	12 Radar Drive	Durban	2
V0002	Jacaranda Guesthouse	116 Clearwater Road	Pretoria	6
V0003	Sandton Sun	1 Waterstone Drive	Sandton	4
V0004	Friendly City Hotel	2 Ring Road	Port Elizabeth	4
V0005	Belmont Self Catering	1 Belmont Road	Cape Town	10

CUSTOMER_ID	VENUE_CODE	CHECKIN_DATE	NIGHTS	RATE
123456	V0001	2020-10-30	3	1500.00
246810	V0005	2020-11-19	2	980.00
246810	V0004	2020-10-15	5	1100.00
654321	V0002	2020-09-10	1	1350.00
987654	V0001	2020-12-15	7	1300.00
123456	V0002	2020-11-01	3	1350.00
246810	V0004	2020-09-29	4	2100.00

Create a database in SQL Server 2012™ named StudentNumber_DATA6212_ExamQ1 and execute the script file provided as a preload. The preload is named: DATA6212Ea_PRELOAD_C19_WUS.sql. The script file will create all the necessary tables and populate the tables in this database with data.

Provide the appropriate SQL formulation and the result that would be produced for each query given below. Ensure to copy the SQL statements as well as the results into the MS Word document that you have created. Save this file as StudentNumber_DATA6212_Exam. Write the path and filename of this document on your exam paper.

- Q.1.1** Create a view named 'ExtendedBookings' that contains the Venue_Code, (15)
Customer_ID, Checkin_Date, and Nights for all accommodation bookings for 2020 that are longer or equal to five nights.

Sample Results:

	VENUE_CODE	CUSTOMER_ID	CHECKIN_DATE	NIGHTS
1	V0004	246810	15.10.2020	5
2	V0001	987654	15.12.2020	7

- Q.1.2** Create a stored procedure named 'FindVenueBookings' that will display the (15)
Venue_Name, Customer_Name, CheckIn_Date, and Nights of all accommodation bookings for a specific venue. When executing the stored procedure, make use of the venue code 'V0002'.

Sample Results:

	VENUE_NAME	CUSTOMER_NAME	CHECKIN_DATE	NIGHTS
1	Jacaranda Guesthouse	Neo Petlele	01.11.2020	3
2	Jacaranda Guesthouse	Thabo Joe	10.09.2020	1

- Q.1.3** Create a query that displays the Venue_Code, Venue_Name, and whether there are (15)
bookings recorded for the venue or not. If there are bookings recorded it must display 'Bookings recorded' or 'No bookings recorded' if there are no bookings for the venue. Name the new column 'Booking Status'.

Sample Results:

	VENUE_CODE	VENUE_NAME	ADDRESS	CITY	MAX_CAPACITY	BOOKING STATUS
1	V0001	Durbs Bed and Breakfast	12 Radar Drive	Durban	2	Bookings recorded
2	V0002	Jacaranda Guesthouse	116 Clearwater Road	Pretoria	6	Bookings recorded

	3	V0003	Sandton Sun	1 Waterstone Drive	Sandton	4	No bookings recorded																			
	4	V0004	Friendly City Hotel	2 Ring Road	Port Elizabeth	4	Bookings recorded																			
	5	V0005	Belmont Self Catering	1 Belmont Road	Cape Town	10	Bookings recorded																			
	Q.1.4 Write a query to generate a report indicating the total number of nights that each venue is booked. The report should display the Venue_Name and total number of nights the venue is booked. Arrange the report so that the records are ordered in descending order based on the total number of nights booked.							(10)																		
	Sample Results:																									
	<table><tr><td></td><td>VENUE_NAME</td><td>TOTAL NIGHTS BOOKED</td></tr><tr><td>1</td><td>Durbs Bed and Breakfast</td><td>10</td></tr><tr><td>2</td><td>Friendly City Hotel</td><td>9</td></tr><tr><td>3</td><td>Jacaranda Guesthouse</td><td>4</td></tr><tr><td>4</td><td>Belmont Self Catering</td><td>2</td></tr><tr><td>5</td><td>Sandton Sun</td><td>NULL</td></tr></table>								VENUE_NAME	TOTAL NIGHTS BOOKED	1	Durbs Bed and Breakfast	10	2	Friendly City Hotel	9	3	Jacaranda Guesthouse	4	4	Belmont Self Catering	2	5	Sandton Sun	NULL	
	VENUE_NAME	TOTAL NIGHTS BOOKED																								
1	Durbs Bed and Breakfast	10																								
2	Friendly City Hotel	9																								
3	Jacaranda Guesthouse	4																								
4	Belmont Self Catering	2																								
5	Sandton Sun	NULL																								
	Q.1.5 Write a query that will display the Venue_Names of venues for which there are no bookings.							(5)																		
	Sample Results:																									
	<table><tr><td></td><td>VENUE_NAME</td></tr><tr><td>1</td><td>Sandton Sun</td></tr></table>								VENUE_NAME	1	Sandton Sun															
	VENUE_NAME																									
1	Sandton Sun																									

Question 2**(Marks: 60)**

This question relates to creating and altering tables, as well as implementing constraints and referential integrity. Answer all the questions below by creating the necessary script.

Q.2.1 You are required to create the following tables in a database named (20)

StudentNumber_DATA6212_ExamQ2:

DVDS		
DVD_CODE	VARCHAR(5) NOT NULL	PRIMARY KEY
DVD_TITLE	VARCHAR(40) NOT NULL	
DIRECTOR	VARCHAR(40) NOT NULL	
RELEASE_DATE	SMALLDATETIME NOT NULL	
RUNNING_TIME	SMALLINT NOT NULL	

STORES		
STORE_CODE	VARCHAR(5) NOT NULL	PRIMARY KEY
STORE_NAME	VARCHAR(20) NOT NULL	
ADDRESS	VARCHAR(50) NOT NULL	
CITY	VARCHAR(20) NOT NULL	

AVAILABILITY		
DVD_CODE	VARCHAR(5) NOT NULL	PRIMARY KEY FOREIGN KEY REFERENCES DVDS(DVD_CODE)
STORE_CODE	VARCHAR(5) NOT NULL	PRIMARY KEY FOREIGN KEY REFERENCES STORES(STORE_CODE)
AVAILABLE_STOCK	SMALLINT NOT NULL	

Q.2.2 Populate the tables created in **Q.2.1** with the following data: (10)

DVD_CODE	DVD_TITLE	DIRECTOR	RELEASE_DATE	RUNNING_TIME
D001	Joker	Todd Phillips	2019-08-15	122
D002	Booksmart	Olivia Wilde	2019-03-10	105
D003	Gemini Man	Ang Lee	2019-10-01	117
D004	Atlantics	Mati Diop	2019-05-16	104
D005	The Farewell	Lulu Wang	2019-01-25	100

STORES			
STORE_CODE	STORE_NAME	ADDRESS	CITY
ST001	DVD Express	167 Pert Road	Johannesburg
ST002	DVD Rentals	5 Second Avenue	Port Elizabeth
ST003	Movies R Us	33 Bertha Mkhize Street	Durban
ST004	Pro Visions DVDs	27 Bram Fischer Road	Durban
ST005	Protea DVD Shop	210 Du Toit Street	Pretoria

AVAILABILITY		
DVD_CODE	STORE_CODE	AVAILABLE_STOCK
D002	ST001	13
D002	ST004	9
D003	ST005	8
D004	ST003	5
D004	ST001	9

Q.2.3 Alter the AVAILABILITY table to add a column as specified below: (5)

AVAILABILITY	
STOCK_ORDERED	SMALLINT

Q.2.4	Update the contents of the AVAILABILITY table to populate the new STOCK_ORDERED field for DVD_CODE 'D004' and STORE_CODE 'ST003' that was added in Q.2.3. Use the data as specified below to populate the field:	(5)																		
	<table><tr><th colspan="3">AVAILABILITY</th></tr><tr><th>DVD_CODE</th><th>STORE_CODE</th><th>STOCK_ORDERED</th></tr><tr><td>D004</td><td>ST003</td><td>3</td></tr></table>	AVAILABILITY			DVD_CODE	STORE_CODE	STOCK_ORDERED	D004	ST003	3										
AVAILABILITY																				
DVD_CODE	STORE_CODE	STOCK_ORDERED																		
D004	ST003	3																		
Q.2.5	Write a query that will display the DVD_TITLE and DIRECTOR of all DVDs that are not available in any of the stores. Sample Results: <table><tr><th>DVD_TITLE</th><th>DIRECTOR</th></tr><tr><td>Joker</td><td>Todd Phillips</td></tr><tr><td>The Farewell</td><td>Lulu Wang</td></tr></table>	DVD_TITLE	DIRECTOR	Joker	Todd Phillips	The Farewell	Lulu Wang	(5)												
DVD_TITLE	DIRECTOR																			
Joker	Todd Phillips																			
The Farewell	Lulu Wang																			
Q.2.6	Write a query to generate a report indicating the total available DVDs for each DVD. The report should display the DVD_TITLE, DIRECTOR, and total available number of DVDs. Arrange the report so that the DVD titles are arranged in alphabetical order. Sample Results: <table><tr><th>DVD_TITLE</th><th>DIRECTOR</th><th>TOTAL_AVAILABLE</th></tr><tr><td>Atlantics</td><td>Mati Diop</td><td>14</td></tr><tr><td>Booksmart</td><td>Olivia Wilde</td><td>22</td></tr><tr><td>Gemini Man</td><td>Ang Lee</td><td>8</td></tr><tr><td>Joker</td><td>Todd Phillips</td><td>NULL</td></tr><tr><td>The Farewell</td><td>Lulu Wang</td><td>NULL</td></tr></table>	DVD_TITLE	DIRECTOR	TOTAL_AVAILABLE	Atlantics	Mati Diop	14	Booksmart	Olivia Wilde	22	Gemini Man	Ang Lee	8	Joker	Todd Phillips	NULL	The Farewell	Lulu Wang	NULL	(10)
DVD_TITLE	DIRECTOR	TOTAL_AVAILABLE																		
Atlantics	Mati Diop	14																		
Booksmart	Olivia Wilde	22																		
Gemini Man	Ang Lee	8																		
Joker	Todd Phillips	NULL																		
The Farewell	Lulu Wang	NULL																		
Q.2.7	Write a query that will indicate which store has the most DVDs with DVD_CODE 'D002' in stock . Display the STORE_NAME, ADDRESS, CITY, DVD_TITLE, DIRECTOR, and AVAILABLE_STOCK of DVDs available at the store. Sample Results: <table><tr><th>STORE_NAME</th><th>ADDRESS</th><th>CITY</th><th>DVD_TITLE</th><th>DIRECTOR</th><th>AVAILABLE_STOCK</th></tr><tr><td>DVD Express</td><td>167 Pert Road</td><td>Johannesburg</td><td>Booksmart</td><td>Olivia Wilde</td><td>13</td></tr></table>	STORE_NAME	ADDRESS	CITY	DVD_TITLE	DIRECTOR	AVAILABLE_STOCK	DVD Express	167 Pert Road	Johannesburg	Booksmart	Olivia Wilde	13	(5)						
STORE_NAME	ADDRESS	CITY	DVD_TITLE	DIRECTOR	AVAILABLE_STOCK															
DVD Express	167 Pert Road	Johannesburg	Booksmart	Olivia Wilde	13															

END OF PAPER