MODULE NAME:	MODULE CODE:
ADVANCED DATABASES	ADDB7311

ASSESSMENT TYPE: ASSIGNMENT 1 (PAPER ONLY)

TOTAL MARK ALLOCATION: 100 MARKS

TOTAL HOURS: 10 HOURS

By submitting this assignment, you acknowledge that you have read and understood all the rules as per the terms in the registration contract, in particular the assignment and assessment rules in The IIE Assessment Strategy and Policy (IIE009), the intellectual integrity and plagiarism rules in the Intellectual Integrity Policy (IIE023), as well as any rules and regulations published in the student portal.

INSTRUCTIONS:

1. ***No material may be copied from original sources, even if referenced correctly, unless it is a direct quote indicated with quotation marks. No more than 10% of the assignment may consist of direct quotes.***
2. ***Any assignment with a similarity index of more than 25% will be scrutinised for plagiarism. Please ensure you attach an originality report to your assignment if required.***
3. ***Make a copy of your assignment before handing it in.***
4. *Assignments must be typed unless otherwise specified.*
5. *All work must be adequately and correctly referenced.*
6. *Begin each section on a new page.*
7. *Follow all instructions on the assignment cover sheet.*
8. *This is an individual assignment.*

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Referencing Rubric

Providing evidence based on valid and referenced academic sources is a fundamental educational principle and the cornerstone of high quality academic work. Hence, The IIE considers it essential to develop the referencing skills of our students in our commitment to achieve high academic standards.

Poor quality formatting in your referencing will result in a penalty of a maximum of five (5) marks against the percentage mark awarded, according to the following guidelines. Please note, however, that **evidence of plagiarism in the form of copied or uncited work (not referenced), absent reference lists, or exceptionally poor referencing, may result in action being taken in accordance with The IIE's Intellectual Integrity Policy (0023)**.

Required	Subtract 1	Subtract 2	Subtract 3	Subtract 4	Subtract 5
• Consistent in-text referencing style • Quotation marks, page numbers, years, etc. applied correctly • Only one or two minor mistakes in style made • All sources are accurately reflected and included in a reference list	• Consistent in-text referencing style • Quotation marks, page numbers, years, etc. applied correctly • Fewer than five minor mistakes made • More than 90% of the sources are correctly reflected and included in a reference list	• Consistent in-text referencing style • Quotation marks, page numbers, years, etc. not always applied correctly • Not all paraphrased content referenced • At least 80% of the sources are correctly reflected and included in a reference list	• Consistent in-text referencing style • Quotation marks used for direct quotes but page numbers missing • At least 70% of the sources are correctly reflected and included in a reference list	• In-text referencing used but inconsistent • Paraphrased material cited but not referenced accurately or consistently in text • Quotation marks and/or page numbers for direct quotes missing • At least 60% of the sources are correctly reflected and included in reference list	• Poor and inconsistent referencing style used • At least 50% of the sources are correctly reflected and included in reference list • Quotation marks and/or page numbers for direct quotes missing • May be referred for action in accordance with *IIE 0023 Intellectual Integrity Policy*

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CASE STUDY

Study the following case study and answer the questions that are based thereon:

FURNITURE ONLINE is a small privately owned online furniture store situated in your local neighbourhood. FURNITURE ONLINE has grown from strength to strength due to excellent service and a wide variety of furniture and delivery options which at present is all stored in a flat file system. The company at present is under pressure due to the increase in customers, employees, deliveries, products and billing.

You have been contracted to perform research and design a database for FURNITURE ONLINE. The company opened their doors to the public 36 months ago and requires a database to manage all areas of their business. At present there is only one outlet, but a new franchised outlet will be opening in the next six months.

The following has been provided:

CUSTOMER TABLE

CUSTOMER_ID	FIRST_NAME	SURNAME	ADDRESS	CONTACT_NUMBER	EMAIL
11011	Jeffery	Smith	18 Water rd	0877277521	jef@isat.com
11012	Alex	Hendricks	22 Water rd	0863257857	ah@mcom.co.za
11013	Johnson	Clark	101 Summer lane	0834567891	jclark@mcom.co.za
11014	Henry	Jones	55 Mountain way	0612547895	hj@isat.co.za
11015	Andre	Williams	5 Main rd	0827238521	aw@mcal.co.za

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EMPLOYEE TABLE

EMPLOYEE_ID	FIRST_NAME	SURNAME	CONTACT_NUMBER	POSITION	ADDRESS	EMAIL
emp101	Roan	Davis	0877277521	sales	10 main road	rd@isat.com
emp102	Billy	Marks	0837377522	marketing	18 water road	bmark@isat.com
emp103	Chadwin	Andrews	0817117523	sales	21 circle lane	ca@isat.com
emp104	Wayne	Dryer	0797215244	sales	1 sea road	dryer@isat.com
emp105	Jaci	Samson	0827122255	manager	12 main road	samjax@isat.com

DELIVERY TABLE

DELIVERY_ID	DESCRIPTION	DISPATCH_DATE	DELIVERY_DATE
511	Delivery contains glass items - fragile	10 May 2017	15 May 2017
512	Delivery of wooden items	12 May 2017	15 May 2017
513	No description available	12 May 2017	17 May 2017
514	Delivery contains glass items - fragile	12 May 2017	15 May 2017
515	Delivery contains glass items - fragile	18 May 2017	19 May 2017
516	No description available	20 May 2017	25 May 2017
517	Delivery of wooden items	25 May 2017	27 May 2017

RETURNS TABLE

RETURN_ID	RETURN_DATE	REASON
ret001	25 May 2017	Customer not satisfied with product
ret002	25 May 2017	Product missing part

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PRODUCT TABLE

PRODUCT_ID	PRODUCT	PRICE	QTY
7111	Four Piece Wall Unit	R 10 999	10
7112	Plasma Stand Unit	R 7 999	8
7113	Leather Recliner	R 5 999	8
7114	Leather Lazy Boy	R 7 999	5
7115	6 Piece Fabric Suite	R 17 999	15
7116	6 Piece Leather Suite	R 27 999	12
7117	6 Seater Oak Dining table	R 11 999	3

BILLING TABLE

BILL_ID	CUSTOMER_ID	BILL_DATE	EMPLOYEE_ID
8111	11011	15 May 2017	emp103
8112	11013	15 May 2017	emp101
8113	11012	17 May 2017	emp101
8114	11015	17 May 2017	emp102
8115	11011	17 May 2017	emp102
8116	11015	18 May 2017	emp103
8117	11012	19 May 2017	emp101
8118	11013	19 May 2017	emp105

PRODUCT_BILLING TABLE

DELIVERY_ID	RETURN_ID	PRODUCT_ID	BILL_ID
512	null	7113	8115
511	null	7111	8111
512	null	7111	8114
514	ret001	7113	8113
516	null	7115	8112
515	ret002	7114	8113
517	null	7113	8115
511	null	7112	8118

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513	null	7111	8117
512	null	7115	8116

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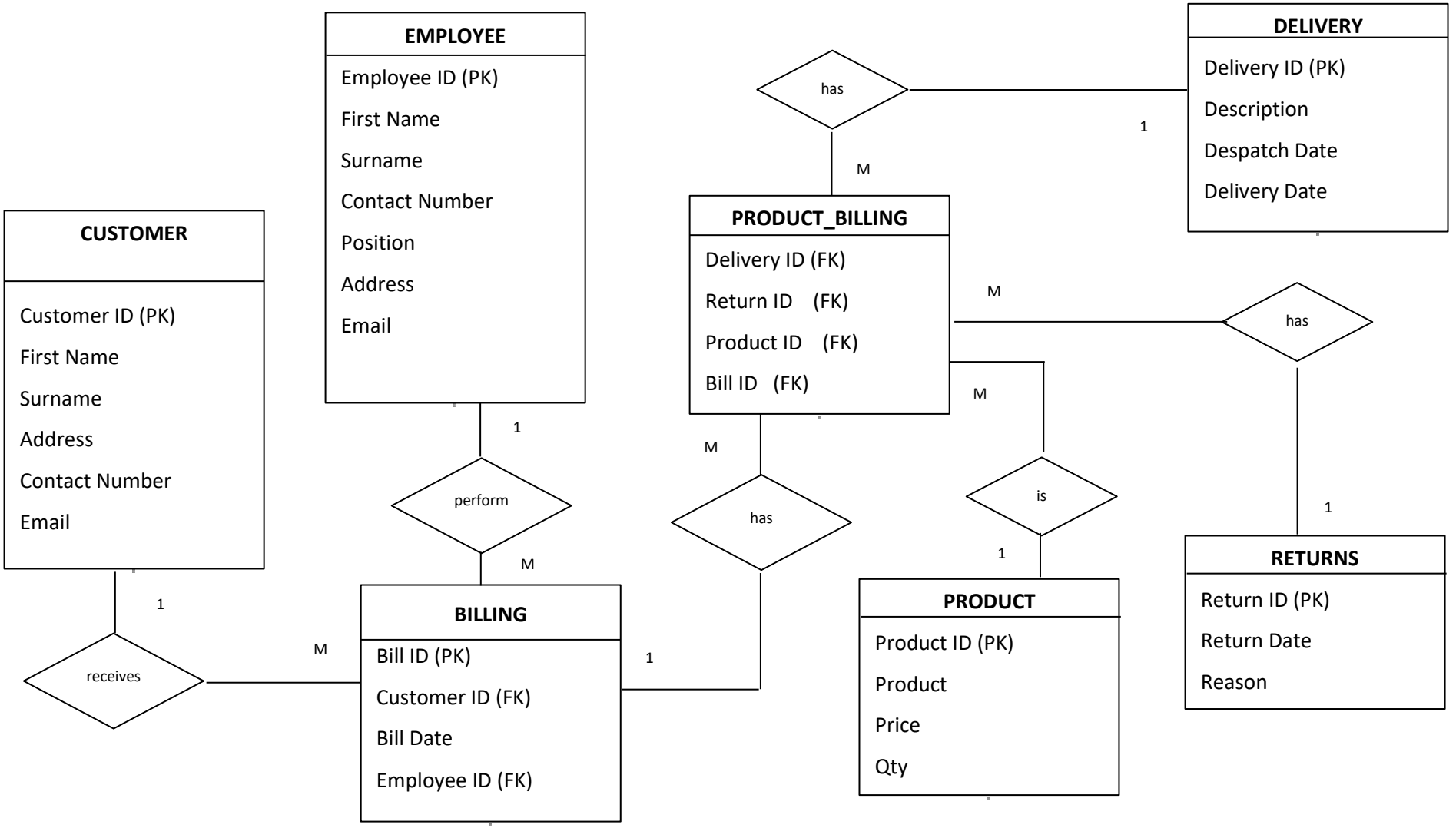
ONLINE FURNITURE STORE



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You are tasked to code the following:

STATE ALL ASSUMPTIONS you need to develop your answers and queries. Your answers, code and screenshots must be saved in a single Microsoft Word document. Save this document as "ADDB7311 Assignment – Student Number". Print this out and hand in with a coversheet.

Question 1 (Marks: 20)

Management of FURNITURE ONLINE require a research report explaining how the various database models are structured and used. Your report must use extensive research using various academic sources including relevant journal and conference papers to compile the report.

In your report explain each database model with graphical representations and implementation considerations. Examples and illustrations from academic articles can help you strengthen and support your research report. Ensure that you use proper referencing in your answers.

Requirement	Mark	Examiner
Introduction	2	
Explanation of each database model using relevant academic sources, graphical representations and implementation considerations.	15	
References	3	
Total	**20**	

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Question 2 **(Marks: 5)**

Consider the following PL/SQL query:

```
set server output on
declaring
    cust name       varchar2;
    b date          date;
    description     varchar2(100);
    veh             varchar2(50);
start
    select c.first_name || ', ' || c.surname, b.bill_date, di.description, v.vehicle_type
    into cust_name, b_date, description, veh
    from customer c, billing b, delivery_items di, driver_deliveries dd, vehicle v, staff s
    where c.customer_id = b.customer_id
    and s.staff_id = bill.staff_id
    and s.staff_id = di.staff_id
   and di.delivery_item_id = dd.delivery_item_id
   and v.vin_number = dd.vin_number
   and b.bill_date  = '10 November 2016'
   dbms_output.put_line('CUSTOMER:         ' || cust_name);
   dbms_output.put_line('BILL DATE:        ' || b_date);
   dbms_output.put_line('DESCRIPTION:      ' || description);
   dbms_output.put_line('VEHICLE:          ' || vehicle)
end;
```

The code above has six errors. Identify the errors and rewrite the code so that it would produce a valid output.

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Question 3 (Marks: 10)

Using the Entity Relationship Diagram supplied above create the tables and insert the values supplied in each table.

Requirement	Mark	Examiner
New database schem created and all tables created correctly.	5	
Insert statements per table inserted correctly.	5	
Total	**10**	

Hint: The null by definition is not a value. Null means that we do not know what the value is. Sometimes you do need the ability to have a null Foreign Key (FK) when you may not know its value at the time the data is entered, but you do know other values in the table that need to be entered. To allow nulls in a FK generally all you have to do is allow nulls on the field that has the FK. All the fields in the Product Billing table are Foreign-Keys and the relationship between RETURNS and PRODUCT_BILLING is one to many.

Question 4 (Marks: 10)

Create a SQL query to display the combined customer name, employee id, delivery description and product ordered. In your query only display the results that have a bill date of the 15 May 2017.

Sample Results

CUSTOMER	EMPLOYEE_ID	DESCRIPTION	PRODUCT	BILL_DATE
Jeffery, Smith	emp103	Delivery contains glass items - fragile	Four Piece Wall Unit	15/MAY/17
Johnson, Clark	emp101	No description available	6 Piece Fabric Suite	15/MAY/17

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Requirement	Mark	Examiner
Correct select statement	4	
Correct tables used	2	
Correct where statements and order by	4	
Total	**10**	

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Question 5 (Marks: 10)

Create a View to display the product name, product price and quantity. In your query include the stock value of each product and only display the products with a stock value greater than R100 000.

Sample Results

PRODUCT	PRICE	QTY	STOCK VALUE
6 Piece Leather Suite	R27 999	12	R335 988
Four Piece Wall Unit	R10 999	10	R109 990
6 Piece Fabric Suite	R17 999	15	R269 985

Requirement	Mark	Examiner
View created	2	
Correct select statement used	2	
Correct tables used	2	
Correct where clause used	2	
Output displayed	2	
Total	**10**	

Question 6 (Marks: 15)

Create a PL/SQL query to display the combined customer name and the product purchased. In your query only display the products purchased with a price value over R10 000.

Sample Results

anonymous block completed

CUSTOMER: Jeffery, Smith

PRODUCT: Four Piece Wall Unit

CUSTOMER: Alex, Hendricks

PRODUCT: Four Piece Wall Unit

CUSTOMER: Andre, Williams

PRODUCT: Four Piece Wall Unit

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CUSTOMER: Andre, Williams

PRODUCT: 6 Piece Fabric Suite

CUSTOMER: Johnson, Clark

PRODUCT: 6 Piece Fabric Suite

Requirement	Mark	Examiner
Declare statement	2	
Variables declared	2	
Correct select statement used	3	
Correct table used	3	
Correct where clause used	3	
Output displayed	2	
Total	**15**	

Question 7 **(Marks: 15)**

Create a PL/SQL query to display the combined customer name and the product that was returned. In your query also display the reason for the product return.

Sample Results

anonymous block completed

CUSTOMER: Alex, Hendricks

PRODUCT: Leather Recliner

RETURN REASON: Customer not satisfied with product

CUSTOMER: Alex, Hendricks

PRODUCT: Leather Lazy Boy

RETURN REASON: Product missing part

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Requirement	Mark	Examiner
Declare statement	2	
Variables declared	3	
Correct select statement used	4	
Correct table used	3	
Output displayed	3	
Total	**15**	

Question 8 **(Marks: 15)**

Create a PL/SQL query to display the product name, product price and delivery description. Only display the records where the difference between the despatch date and delivery date is greater than three days. In your query also determine whether the product is a premium or non-premium product.

**Note: All premium products have a price greater than or equal to R15 000.*

Sample Results

PRODUCT: Plasma Stand Unit
PRICE: R7 999
DESCRIPTION: Delivery contains glass items - fragile
DELIVERY DAYS: 5
PRODUCT CATEGORY: Non Premium Product

PRODUCT: Four Piece Wall Unit
PRICE: R10 999
DESCRIPTION: Delivery contains glass items - fragile
DELIVERY DAYS: 5
PRODUCT CATEGORY: Non Premium Product

PRODUCT: Four Piece Wall Unit
PRICE: R10 999

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DESCRIPTION: No description available

DELIVERY DAYS: 5

PRODUCT CATEGORY: Non Premium Product

PRODUCT: 6 Piece Fabric Suite

PRICE: R17 999

DESCRIPTION: No description available

DELIVERY DAYS: 5

PRODUCT CATEGORY: Premium Product

Requirement	Mark	Examiner
Declare statement	2	
Variables declared	2	
Correct select statement used	4	
Correct tables used	3	
Correct use of decision statement	3	
Output displayed	1	
Total	**15**	

[TOTAL MARKS: 100]

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