**IT 315 - ADVANCE DATABASE SYSTEMS** 



# COMPILATION OF **ACTIVITIES**

(MIDTERM PROJECT)

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#### **ACTIVITY 1: JOIN RESEARCH**

- 1. What is an SQL **JOIN** command, and when do you need it?
  - An SQL JOIN command combines rows from two or more tables based on a common column. When you wish to retrieve data from many tables which have a common key or field, you need to use a JOIN.
- 2. How would you write a query to JOIN these two tables?
  - Assuming you have two tables, Table 1 and Table 2, and you want to join them on a common column, say id, the SQL query might look like this:

SELECT Table 1. column 1, Table 2. column 2 FROM Table 1 JOIN Table2 ON Table1.id = Table2.id;

- 3. What types of JOINs are there?
  - **INNER JOIN:** Returns only rows where there is a match between both tables.
  - **LEFT (OUTER) JOIN:** Returns all rows from the left table and the corresponding rows from the right table. If no match is found, the right side returns NULL.
  - RIGHT (OUTER) JOIN: Returns all rows from the right table as well as the rows that match those in the left table. If no match is found, the left side returns NULL.
  - **FULL (OUTER) JOIN:** When a match is found in one of the tables, all rows are returned. If there is no match, NULL is returned in the table's columns.
- 4. What is an OUTER JOIN?
  - The FULL OUTER JOIN (aka OUTER JOIN) is used to return all of the records that have values in either the left or right table.
- 5. What is the difference between an SQL INNER JOIN and an SQL LEFT JOIN?
  - Use an INNER JOIN when you want to retrieve only the rows where there is a match in both tables based on the join condition. Use a **LEFT JOIN** when you want to retrieve all rows from the left table and the matched rows from the right table, with NULL values for non-matching rows.
- 6. What is the difference between a LEFT JOIN and a FULL JOIN?
  - **LEFT JOIN** returns only unmatched rows from the left table, as well as matched rows in both tables. FULL OUTER JOIN returns unmatched rows from both tables, as well as matched rows in both tables.
- 7. Write a query that will JOIN these two tables so that all rows from Table 1 are in the result.
  - Assuming you have Table 1 and Table 2 and want all rows from Table 1, you would use a **LEFT JOIN**:

SELECT Table 1. column 1, Table 2. column 2 FROM Table 1 LEFT JOIN Table 2 ON Table 1.id = Table 2.id;

- 8. How do you join more than two tables?
  - To join more than two tables, you can chain multiple JOIN clauses. For example:

SELECT Table 1. column 1, Table 2. column 2, Table 3. column 3 FROM Table 1 JOIN Table 2 ON Table 1.id = Table 2.id JOIN Table3 ON Table2.id = Table3.id;



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- 9. How do you join a table to itself?
  - Joining a table to itself is called a self-join. You can do this using table names :

SELECT A.column1, B.column2 FROM Table1 A JOIN Table1 B ON A.id = B.parent\_id;

# 10. Must the JOIN condition be equality?

 No, the JOIN condition does not have to be equality. You can use other conditions, such as inequalities or ranges. For example:

> SELECT A.column1, B.column2 FROM Table1 A JOIN Table2 B ON A.column1 > B.column2;



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# **ACTIVITY 2: BASIC SQL QUERY**





			emp_II	) first_name	last_name	email	hourly_pay	hire_date
		<b> </b>	1	Judah Paulo	Vinas	NULL	100.00	2024-08-29
			2	John Mark Davi	Pajenago	NULL	100.00	2024-08-29
			3	Roland Joseph	Cordez	NULL	100.00	2024-08-29
			4	Johnrick	Babila	NULL	100.00	2024-08-29
37	7. Change the position of email next to last_name		5	John Patrick	Acbang	NULL	100.00	2024-08-29
38 •	ALTER TABLE employees MODIFY COLUMN email varchar(50) AFTER last name;		6	Dince	Deliva	NULL	100.00	2024-08-29
	1,		7	Juan	Lunatic	NULL	50.00	2024-08-29
			8	Dave	Manabat	NULL	29.00	2024-08-29
			9	Jose	Motte	NULL	75.00	2024-08-29
			10	Dobido	Baat	NULL	90.00	2024-08-29
			NULL	NULL	NULL	NULL	NULL	NULL
			ı					
			emp_I	D first_name	last_name		hourly_pay	hire_date
		•	1	Judah Paulo	Vinas	NULL	100.00	2024-08-2
			2	John Mark Davi	l Pajenago	NULL	100.00	2024-08-2
			3	Roland Joseph	Cordez	NULL	100.00	2024-08-2
			4	Johnrick	Babila	NULL	100.00	2024-08-2
40	8. Add 2 records populate emp_ID, last name and first_name only		5	John Patrick	Acbang	NULL	100.00	2024-08-2
41 •	<pre>INSERT INTO employees (emp_ID, last_name, first_name) VALUE (11, "Skibidi","Cophal");</pre>		6	Dince	Deliva	NULL	100.00	2024-08-2
42 •	INSERT INTO employees (emp ID, last name, first name) VALUE (12, "Sap", "Neg-ah");		7	Juan	Lunatic	NULL	50.00	2024-08-2
			8	Dave	Manabat	NULL	29.00	2024-08-2
			9	Jose	Motte	NULL	75.00	2024-08-2
			10	Dobido	Baat	NULL	90.00	2024-08-2
			11	Cophal	Skibidi	NULL	NULL	NULL
			12	Neg-ah	Sap	NULL	NULL	NULL
			NULL	NULL	NULL	NULL	NULL	NULL
44	9. Put a value on email column							
45 •	UPDATE employees SET email = "juvinas@my.cspc.edu.ph" WHERE emp ID = 1;							
46 •	<pre>UPDATE employees SET email = "jopajenago@my.cspc.edu.ph" WHERE emp_ID = 2;</pre>		emp_ID	first_name lass	name email		hourly_	pay hire_date
47 •	<pre>UPDATE employees SET email = "rocordez@my.cspc.edu.ph" WHERE emp_ID = 3;</pre>			Judah Paulo Vina		ny.cspc.edu		2024-08-
48 •				John Mark David Paje Roland Joseph Core		o@my.cspc. ⊉my.cspc.ed		2024-08-2
	<pre>UPDATE employees SET email = "jobabila@my.cspc.edu.ph" WHERE emp_ID = 4;</pre>			Johnrick Babi		my.cspc.edu		2024-08-2
49 •	<pre>UPDATE employees SET email = "joacbang@my.cspc.edu.ph" WHERE emp_ID = 5;</pre>		5	John Patrick Acb		@my.cspc.ed	•	2024-08-2
50 •	<pre>UPDATE employees SET email = "dideliva@my.cspc.edu.ph" WHERE emp_ID = 6;</pre>			Dince Deli	_	my.cspc.edu		2024-08-2
51 •	<pre>UPDATE employees SET email = "julunatic@my.cspc.edu.ph" WHERE emp ID = 7;</pre>			Juan Luni Dave Man		my.cspc.ed		2024-08-2
52 •	3 33 1 1 1 1 1 1 1 1			Jose Mot		nt@my.cspc. my.cspc.edu		2024-08-2
	<pre>UPDATE employees SET email = "damanabat@my.cspc.edu.ph" WHERE emp_ID = 8;</pre>		-	Dobido Baa		ny.cspc.edu	.ph 90.00	2024-08-2
53 •	<pre>UPDATE employees SET email = "jomotte@my.cspc.edu.ph" WHERE emp_ID = 9;</pre>			Cophal Skib	_	my.cspc.ed		NULL
54 •	<pre>UPDATE employees SET email = "dobaat@my.cspc.edu.ph" WHERE emp_ID = 10;</pre>			Neg-ah Sap	nesap@m	y.cspc.edu. <sub>l</sub>	ph NULL	NULL
55 •	UPDATE employees SET email = "coskibidi@my.cspc.edu.ph" WHERE emp ID = 11;						_	
56 •	UPDATE employees SET email = "nesap@my.cspc.edu.ph" WHERE emp_ID = 12;							



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#### **ACTIVITY 3: LIBRARY TABLES**





```
-- Create table book_review
                                      56
                                      57 • ○ CREATE TABLE book_review(
                                                                book_id int,
                                      58
                                                                review varchar(1000),
                                                                 author varchar(100)
                                       60
                                       61
                                                     - );
          -- Insert values in table book_review
                                                                                                                                                                                                                                           author
         INSERT INTO book_review (book_id, review, author) VALUE ("1", "An incredible book", "Sylvia Jones");
                                                                                                                                                                                      An incredible book
                                                                                                                                                                                                                                          Sylvia Jones
        INSERT INTO book_review (book_id, review, author) VALUE ("1", "Great, although it has some flaws", "Jessica Parker");
INSERT INTO book_review (book_id, review, author) VALUE ("2", "Dennis Strokes takes the reader for a ride full of emot:
66 •
                                                                                                                                                                                     Great, although it has some flaws
                                                                                                                                                                                                                                          Jessica Parker
67 •
                                                                                                                                                                                      Dennis Strokes takes the reader for a ride full o...
                                                                                                                                                                                                                                          Thomas Green
        INSERT INTO book_review (book_id, review, author) VALUE ("3", "Incredible craftsmanship of the author", "Martin Freemai INSERT INTO book_review (book_id, review, author) VALUE ("4", "Not the best book by this author", "Jude Falth");
INSERT INTO book_review (book_id, review, author) VALUE ("5", "Claudia Johnson at her best!", "Joe Marqiz");
                                                                                                                                                                                     Incredible craftsmanship of the author
                                                                                                                                                                                                                                          Martin Freeman
                                                                                                                                                                          4 Not the best book by this auth
5 Claudia Johnson at her best!
                                                                                                                                                                                      Not the best book by this author
                                                                                                                                                                                                                                          Jude Falth
                                                                                                                                                                                                                                          Joe Margiz
71 •
         INSERT INTO book_review (book_id, review, author) VALUE ("6", "I cannot recall more captivating plot", "Alexander Durh
                                                                                                                                                                                     I cannot recall more captivating plot
                                                                                                                                                                                                                                          Alexander Durham
        SELECT * FROM book_review;
72 •
```

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#### **ACTIVITY 4: JOIN**

#### Table used:

#### author

	id	author_name	birth_year	death_year	
•	1	Marcella Cole	1983	NULL	
	2	Lisa Mullins	1891	1950	
	3	Dennis Stokes	1935	1994	
	4	Randolph Vasquez	1957	2004	
	5	Daniel Branson	1965	1990	
	NULL	NULL	NULL	NULL	

#### book

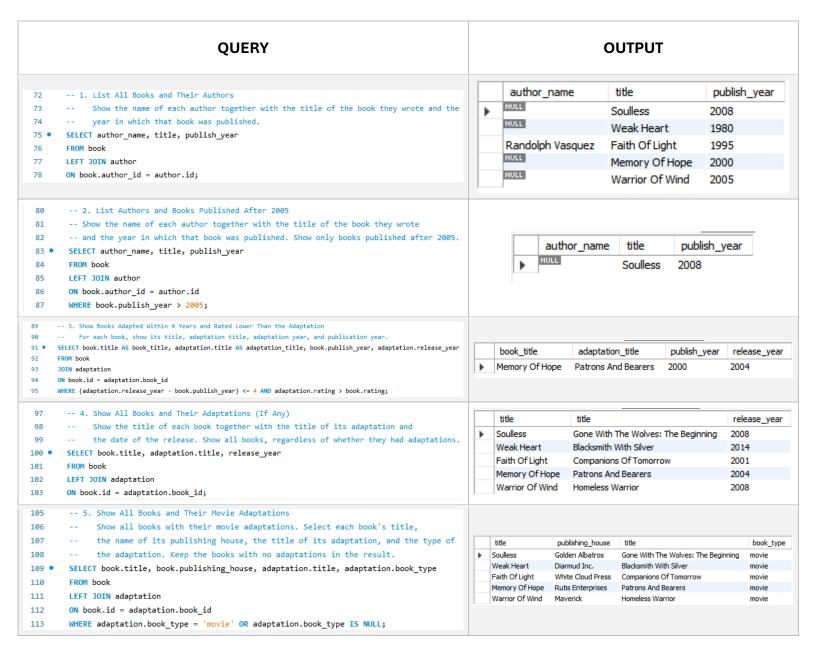
	id	author_id	title	publish_year	publishing_house	rating
•	1	NULL	Soulless	2008	Golden Albatros	4.30
	2	NULL	Weak Heart	1980	Diarmud Inc.	3.80
	3	4	Faith Of Light	1995	White Cloud Press	4.30
	4	NULL	Memory Of Hope	2000	Rutis Enterprises	2.70
	5	6	Warrior Of Wind	2005	Maverick	4.60
	NULL	NULL	NULL	NULL	NULL	NULL

#### adaptation

	book_id	book_type	title	release_year	rating
•	1	movie	Gone With The Wolves: The Beginning	2008	3.00
	2	movie	Blacksmith With Silver	2014	4.30
	3	movie	Companions Of Tomorrow	2001	4.20
	4	movie	Patrons And Bearers	2004	3.20
	5	movie	Homeless Warrior	2008	4.00
	NULL	NULL	NULL	NULL	HULL

# book\_review

	book_id	review	author
•	1	An incredible book	Sylvia Jones
	1	Great, although it has some flaws	Jessica Parker
	2	Dennis Strokes takes the reader for a ride full o	Thomas Green
	3	Incredible craftsmanship of the author	Martin Freeman
	4	Not the best book by this author	Jude Falth
	5	Claudia Johnson at her best!	Joe Marqiz
	6	I cannot recall more captivating plot	Alexander Durham





116	Join the book review and book tables using a RIGHT JOIN. Show the title		title		review		author	
117	of the book, the corresponding review, and the name of the review's author.	•			An incredible book		Sylvia Jones	
118	Consider all books, even those that weren't reviewed.			Soulless Great, alth			Jessica Parker	
				eart		Dennis Strokes takes the reader for a ride full o		
119 •	SELECT book.title, book_review.review, book_review.author	-	_		Incredible craftsmanship		Martin Freeman Jude Falth	
120	FROM book	-	Memory Warrior			•		
121	RIGHT JOIN book_review		NULL	OF WING	I cannot recall more capt		Joe Marqiz Alexander Durha	
122	<pre>ON book.id = book_review.book_id;</pre>				1 carmot recail more capt	availing plot	Alexander Durna	
124	7. List All the Books and All the Authors							
125	Display the title of each book along with the name of its author.				title	author_name		
126	Show all books, even those without an author. Show all authors,			<b>•</b>	Soulless	NULL		
127	even those who haven't published a book yet. Use a FULL JOIN.				Weak Heart	NULL		
128 •	SELECT book.title, author.author_name					Danielak Vasas		
129	FROM book				Faith Of Light	Randolph Vasqu	Jez	
130	LEFT JOIN author				Memory Of Hope	NULL		
131	ON book.author_id = author.id				Warrior Of Wind	NULL		
132	UNION				NULL	Marcella Cole		
133	SELECT book.title, author.author_name				NULL	Lisa Mullins		
134	FROM book				NULL	Dennis Stokes		
135	RIGHT JOIN author				NULL	Daniel Branson		
136	<pre>ON book.author_id = author.id;</pre>							

# **ACTIVITY 5: VIEW**

#### Table used:

# employee

	emp_num	emp_title	emp_Iname	emp_fname	emp_bod	emp_hire_date	emp_area_code	emp_phone	park_code
•	100	Ms	Calderdale	Emma	1972-06-15	1992-03-15	101	324-9652	FR1001
	101	Mr	Ricardo	Marshel	1978-03-19	1996-04-25	6731	623-1346	UK3452
	102	Mr	Arshad	Arif	1969-11-14	1990-12-20	7253	675-8993	FR1001
	103	Ms	Roberts	Anne	1974-10-16	1994-08-16	8127	135-4123	UK3452
	104	Ms	Denver	Enrica	1980-11-08	2001-10-20	8427	985-2342	ZA1342
	105	Ms	Namowa	Mirrelle	1998-03-14	2006-11-03	181	890-3243	FR1001
	106	Ms	Smith	Gemma	1968-02-12	1989-01-05	1231	120-2311	ZA1342
	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL

# tparkssold

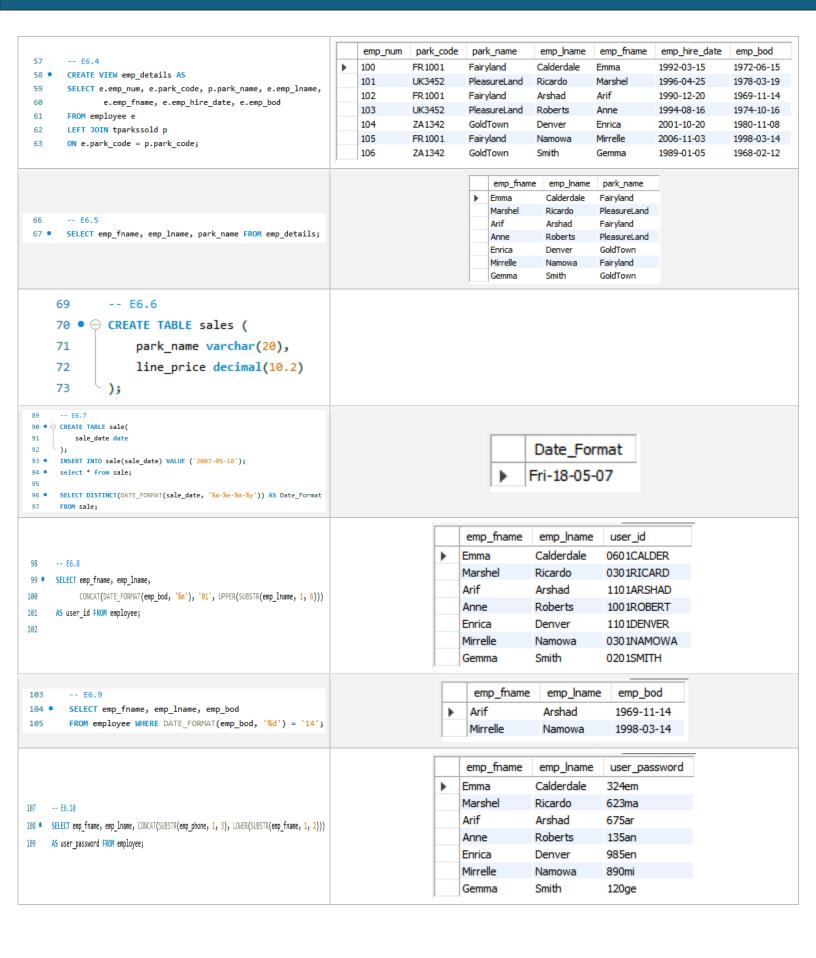
	park_code	park_name	park_city	park_country
•	FR1001	Fairyland	PARIS	FR
	UK3452	PleasureLand	STOKE	UK
	ZA1342	GoldTown	JOHANNESBURG	ZA

# sales

	park_name	line_price
▶ FairyLand		15
	FairyLand	140
	GoldTown	12
	GoldTown	115
	PleasureLand	22
	PleasureLand	168

	QUERY						OUTP	UT			
25	E6.1										
26 •	CREATE VIEW empfr AS										
27	SELECT *	-	emp_num ▶ 100	emp_title Ms	emp_Iname Calderdale	emp_fname Emma	emp_bod 1972-06-15	emp_hire_date 1992-03-15	emp_area_code 101	emp_phone 324-9652	park_code FR 1001
28	FROM employee		100	Mr	Arshad	Arif	1969-11-14	1992-03-15	7253	675-8993	FR1001
			105	Ms	Namowa	Mirrelle	1998-03-14	2006-11-03	181	890-3243	FR1001
29	WHERE park_code = 'FR1001'										
30	WITH CHECK OPTION;										
33	E6.2										
34 •	UPDATE empfr		emp_num	emp_title	emp_Iname	emp_fname	emp_bod	emp_hire_date	emp_area_code	emp_phone	park_code
	•	1	100	Ms	Calderdale	Emma	1972-06-15	1992-03-15	101	324-9652	FR1001
35	<b>SET</b> emp_phone = '324-9652'		102 105	Mr Ms	Arshad Namowa	Arif Mirrelle	1969-11-14 1998-03-14	1990-12-20 2006-11-03	7253 181	675-8993 890-3243	FR 1001 FR 1001
36	WHERE emp_num = 100;										
40	E6.3										
41 • ♀	CREATE TABLE tparkssold (										
42	park_code varchar(10),										
43	park_name varchar(35),										
44	park_city varchar(50),										
45	park_country char(2)										
46	- );										







#### Table used:

# component\_claim customer

	custid	custname	Car_number	Phone_number	Register_date
•	P001	David Lim	WKM 1234	139845263	2012-06-14
	P002	Abu Hassan	DBA 8999	126377298	2023-05-14
	P003	Lw Ban Huat	PFL 3434	197894563	2005-01-14
	P004	Karigalan	BGN 2511	112356897	2023-05-13
	P007	Kamal Ibrahim	WEP1103	145689471	2012-07-14
	NULL	NULL	NULL	NULL	NULL

	claimID	compID	quantity
•	CL001	KK002	1
	CL001	KK005	2
	CL003	KK001	2
	CL012	KK003	1
	CL004	KK001	2
	CL002	KK003	1
	CL003	KK003	1

# claim

	daimID	daim_date	custid
•	CL001	2002-06-14	P002
	CL002	2010-07-14	P001
	CL003	2024-07-13	P004
	CL004	2005-08-14	P002
	CL012	2007-07-14	P003
	NULL	NULL	NULL

# car\_component

	compID	compName	price
•	KK001	ISWARA Rear Lamp	100
	KK002	WIRA Front Mirror	450
	KK003	ISWARA Front Mirror	500
	KK004	WAJA Break Lamp	250
	KK005	WIRA Front Lamp	350
	NULL	NULL	NULL

QUERY	OUTPUT
66 1. 67 • SELECT MIN(price) AS MINPRICE 68 FROM car_component;	MINPRICE  100
70 2. 71 • SELECT MAX(price) AS MAXPRICE 72 FROM car_component;	MAXPRICE  500
74 3. 75 • SELECT AVG(price) AS AVGPRICE 76 FROM car_component;	AVGPRICE ▶ 330.0000
78 4. 79 • SELECT AVG(quantity) AS AVGQUANTITY 80 FROM component_claim;	AVGQUANTITY  1.4286
82 5. 83 • SELECT SUM(price) 84 FROM car_component;	SUM(price)  ► 1650
86 6. 87 • SELECT SUM(quantity) 88 FROM component_claim;	SUM(quantity)  10



	90 7. 91 • SELECT COUNT(custid) 92 FROM customer;				COUNT	(custid)		
	94 8. 95 • SELECT COUNT(claimID) 96 FROM claim;				COUNT(	(claimIC	)	
98	9.		0	ustomer_id	name	Car_	number	claim_date
99 • CREATE VIEW CUSTOMER_CLAIM AS 100 SELECT C.custid AS customer_id, C.custname AS name, C.Car_number, CL.claim_date			P	002	Abu Hassan DBA 8999		999	2002-06-14
			P	001	David Lim WKM Karigalan BGN 2		1234 2010-07	
101 FROM customer C 102 JOIN claim CL		P004		004			2511 202	2024-07-13
103			P002		Abu Hassan	DBA 8	999	2005-08-14
104 •	SELECT * FROM CUSTOMER_CLAIM;		P	003	Lw Ban Huat	PFL 3	434	2007-07-14
108	10.	Г		compID	company name		quantit	ty price
109 •	CREATE VIEW car claim AS	$\perp$	-	KK002	WIRA Front Mirr		1	450
110	SELECT CC.compID, CC.compName AS company_name, CL.quantity, CC.price FROM COMPONENT_CLAIM CL JOIN CAR_COMPONENT CC			KK005	WIRA Front Lan		2	350
111				KK001	ISWARA Rear L	•	2	100
112				KK003	ISWARA Front Mirror ISWARA Rear Lamp		1	500
113				KK001			2	100
114 •	SELECT * FROM car_claim;			KK003	ISWARA Front N	•	1	500
115 •	drop view car_claim;			KK003	ISWARA Front I	dirror	1	500



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# **ACTIVITY 7: PROCEDURE**

	QUERY	ОИТРИТ
	4 Create table Inventory	
	5 ● ⊖ CREATE TABLE Inventory(	
	6 ItemID INT AUTO INCREMENT PRIMARY KEY,	
	_	
	7 ItemName varchar(100),	
	8 Quantity int,	
	9 Price decimal(10,2)	
	10 );	
13	Create stored procedure	
14	DELIMITER //	
15 • 🤄	create procedure ManageInventory(	
16	IN action varchar(10),	
17	IN itemID int,	
18	IN itemName varchar(100),	
19	IN quantity int,	
20	IN price decimal(10,2)	
21	· )	
	⇒ BEGIN	
	⇒ IF action="add" then	
24	INSERT into Inventory(ItemName,Quantity,Price) Values (itemName, quantity, price);	
25	ELSEIF action="update" then	
26	UPDATE Inventory SET ItemName= itemName, Quantity = quantity, Price = price	
27	WHERE ItemName = itemName; ELSEIF action="retrieve" THEN	
28 29	SELECT * FROM Inventory WHERE ItemID = itemID;	
30	ELSE	
31	SELECT "Invalid Action";	
32	END IF;	
33	END//	
34	DELIMITER;	
	36 ● Insert a value using the stored procedure	ItemID ItemName Quantity Price
	37 CALL ManageInventory("add", 1, "Lapis", 5, 50.00);	▶ 1 Lapis 5 50.00
		NULL NULL NULL NULL
	38 • SELECT * FROM Inventory;	