MAI172: Advance Database Technologies

Register Number: 2448513

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Experiment Number and Name: 6: Demonstration of PL/SQL Procedure and Functions.

Date: 13/08/2024 Time: 9.45 to 11.45

Creating Tables:

Creating table medical_store:

Query:

```
CREATE TABLE medical_store (
    M_id INT PRIMARY KEY,
    M_name VARCHAR(100),
    M_base_price DECIMAL(10, 2),
    M_price_after_tax DECIMAL(10, 2),
    store_commission DECIMAL(10, 2),
    store_commission_for_bulk DECIMAL(10, 2),
    tax_rate DECIMAL(5, 2),
    is_imported VARCHAR(3)
);
desc medical_store;
```

Output:

Field	Type	Null	Key	Default	Extra
M_id	int	NO	PRI	NULL	
M_name	varchar(100)	YES		NULL	
M_base_price	decimal(10,2)	YES		NULL	
M_price_after_tax	decimal(10,2)	YES		NULL	
store_commission	decimal(10,2)	YES		NULL	
store_commission_for_bulk	decimal(10,2)	YES		NULL	
tax_rate	decimal(5,2)	YES		NULL	
is_imported	varchar(3)	YES		NULL	

Inference**:**

Creating table medical_store with the following attributes:

M_id, M_name, M_base_price, M_price_after_tax, store_commission, store_commission_for_bulk, tax_rate , is_imported

Inserting Records Into The Table:

Query:

```
INSERT INTO medical_store (M_id, M_name, M_base_price, M_price_after_tax,
store_commission, store_commission_for_bulk, tax_rate, is_imported) VALUES
(1, 'Paracetamol', 10.00, 12.00, 1.00, 0.80, 10.00, 'no'),
(2, 'Ibuprofen', 15.00, 18.00, 1.50, 1.20, 12.00, 'no'),
(3, 'Aspirin', 8.00, 9.60, 0.80, 0.64, 8.00, 'no'),
(4, 'Amoxicillin', 25.00, 30.00, 2.50, 2.00, 15.00, 'yes'),
(5, 'Ciprofloxacin', 20.00, 24.00, 2.00, 1.60, 10.00, 'no'),
(6, 'Metformin', 12.00, 14.40, 1.20, 0.96, 12.00, 'no'),
(7, 'Amlodipine', 18.00, 21.60, 1.80, 1.44, 10.00, 'no'),
(8, 'Omeprazole', 22.00, 26.40, 2.20, 1.76, 12.00, 'yes'),
(9, 'Simvastatin', 16.00, 19.20, 1.60, 1.28, 10.00, 'no'),
(10, 'Losartan', 14.00, 16.80, 1.40, 1.12, 8.00, 'no'),
(11, 'Azithromycin', 28.00, 33.60, 2.80, 2.24, 15.00, 'yes'),
(12, 'Clopidogrel', 26.00, 31.20, 2.60, 2.08, 12.00, 'no'),
(13, 'Doxycycline', 24.00, 28.80, 2.40, 1.92, 10.00, 'no'),
(14, 'Levothyroxine', 30.00, 36.00, 3.00, 2.40, 15.00, 'yes'),
(15, 'Atorvastatin', 32.00, 38.40, 3.20, 2.56, 12.00, 'no'),
(16, 'Metoprolol', 19.00, 22.80, 1.90, 1.52, 10.00, 'no'),
(17, 'Lisinopril', 21.00, 25.20, 2.10, 1.68, 12.00, 'no'),
(18, 'Hydrochlorothiazide', 17.00, 20.40, 1.70, 1.36, 10.00, 'no'),
(19, 'Pantoprazole', 23.00, 27.60, 2.30, 1.84, 12.00, 'yes'),
(20, 'Rosuvastatin', 29.00, 34.80, 2.90, 2.32, 15.00, 'yes');
```

Output:

M_id	M_name	M_base_price	M_price_after_tax	store_commission	store_commission_for_bulk	tax_rate	is_imported
1	Paracetamol	10.00	12.00	1.00	0.80	10.00	no
2	Ibuprofen	15.00	18.00	1.50	1.20	12.00	no
3	Aspirin	8.00	9.60	0.80	0.64	8.00	no
4	Amoxicillin	25.00	30.00	2.50	2.00	15.00	yes
5	Ciprofloxacin	20.00	24.00	2.00	1.60	10.00	no
6	Metformin	12.00	14.40	1.20	0.96	12.00	no
7	Amlodipine	18.00	21.60	1.80	1.44	10.00	no
8	Omeprazole	22.00	26.40	2.20	1.76	12.00	yes
9	Simvastatin	16.00	19.20	1.60	1.28	10.00	no
10	Losartan	14.00	16.80	1.40	1.12	8.00	no
11	Azithromycin	28.00	33.60	2.80	2.24	15.00	yes
12	Clopidogrel	26.00	31.20	2.60	2.08	12.00	no
13	Doxycycline	24.00	28.80	2.40	1.92	10.00	no
14	Levothyroxine	30.00	36.00	3.00	2.40	15.00	yes
15	Atorvastatin	32.00	38.40	3.20	2.56	12.00	no
16	Metoprolol	19.00	22.80	1.90	1.52	10.00	no
17	Lisinopril	21.00	25.20	2.10	1.68	12.00	no
18	Hydrochloro...	17.00	20.40	1.70	1.36	10.00	no
19	Pantoprazole	23.00	27.60	2.30	1.84	12.00	yes
20	Rosuvastatin	29.00	34.80	2.90	2.32	15.00	yes
NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL

Inference: Inserting 20 records into the table.

Task 1: Create Trigger

Query:

```
CREATE TRIGGER add_import_duty
BEFORE INSERT ON medical_store
FOR EACH ROW
BEGIN
    IF NEW.is_imported = 'yes' THEN
        SET NEW.M_price_after_tax = NEW.M_price_after_tax * 1.05;
    END IF;
END //
DELIMITER ;
```

Output:

M_id	M_name	M_base_price	M_price_after_tax	store_commission	store_commission_for_bulk	tax_rate	is_imported
3	Aspirin	8.00	8.64	0.80	0.64	8.00	no
4	Amoxicillin	25.00	28.75	2.50	2.00	15.00	yes
5	Ciprofloxacin	20.00	22.00	2.00	1.60	10.00	no
6	Metformin	12.00	13.44	1.20	0.96	12.00	no
7	Amlodipine	18.00	19.80	1.80	1.44	10.00	no
8	Omeprazole	22.00	24.64	2.20	1.76	12.00	yes
9	Simvastatin	16.00	17.60	1.60	1.28	10.00	no
10	Losartan	14.00	15.12	1.40	1.12	8.00	no
11	Azithromycin	28.00	32.20	2.80	2.24	15.00	yes
12	Clopidogrel	26.00	29.12	2.60	2.08	12.00	no
13	Doxycycline	24.00	26.40	2.40	1.92	10.00	no
14	Levothyroxine	30.00	34.50	3.00	2.40	15.00	yes
15	Atorvastatin	32.00	35.84	3.20	2.56	12.00	no
16	Metoprolol	19.00	20.90	1.90	1.52	10.00	no
17	Lisinopril	21.00	23.52	2.10	1.68	12.00	no
18	Hydrochloro...	17.00	18.70	1.70	1.36	10.00	no
19	Pantoprazole	23.00	25.76	2.30	1.84	12.00	yes
20	Rosuvastatin	29.00	33.35	2.90	2.32	15.00	yes
21	Hydrochloro...	17.00	20.40	1.70	1.36	10.00	no
22	Pantoprazole	23.00	28.98	2.30	1.84	12.00	yes

Inference: Creating a trigger that adds 1.05% of additional import duty (tax) if the medicine is imported from another country.

Task 2:

Query:

```
DELIMITER //

CREATE PROCEDURE update_medical_store()
BEGIN
    -- Update prices for all records in the medical_store table
    UPDATE medical_store
    SET
        M_price_after_tax = CASE
            WHEN is_imported = 'Y' THEN
                M_base_price * (1 + tax_rate / 100) * 1.05
            ELSE
                M_base_price * (1 + tax_rate / 100)
        END;
END //

DELIMITER ;
CALL update_medical_store();
select * from medical_store;
```

Output:

M_id	M_name	M_base_price	M_price_after_tax	store_commission	store_commission_for_bulk	tax_rate	is_imported
1	Paracetamol	10.00	11.00	1.00	0.80	10.00	no
2	Ibuprofen	15.00	16.80	1.50	1.20	12.00	no
3	Aspirin	8.00	8.64	0.80	0.64	8.00	no
4	Amoxicillin	25.00	28.75	2.50	2.00	15.00	yes
5	Ciprofloxacin	20.00	22.00	2.00	1.60	10.00	no
6	Metformin	12.00	13.44	1.20	0.96	12.00	no
7	Amlodipine	18.00	19.80	1.80	1.44	10.00	no
8	Omeprazole	22.00	24.64	2.20	1.76	12.00	yes
9	Simvastatin	16.00	17.60	1.60	1.28	10.00	no
10	Losartan	14.00	15.12	1.40	1.12	8.00	no
11	Azithromycin	28.00	32.20	2.80	2.24	15.00	yes
12	Clopidogrel	26.00	29.12	2.60	2.08	12.00	no
13	Doxycycline	24.00	26.40	2.40	1.92	10.00	no
14	Levothyroxine	30.00	34.50	3.00	2.40	15.00	yes
15	Atorvastatin	32.00	35.84	3.20	2.56	12.00	no
16	Metoprolol	19.00	20.90	1.90	1.52	10.00	no
17	Lisinopril	21.00	23.52	2.10	1.68	12.00	no
18	Hydrochloro...	17.00	18.70	1.70	1.36	10.00	no
19	Pantoprazole	23.00	25.76	2.30	1.84	12.00	yes
20	Rosuvastatin	29.00	33.35	2.90	2.32	15.00	yes

Inference: This stored procedure updates the M_price_after_tax column for all the records in our table including commission, tax etc.

Task 3:

3.1 Creating a new column called effectiveness and rating and updating values into effectiveness:

Query:

```
ALTER TABLE medical_store  ADD effectiveness varchar(15), ADD rating INT;
desc medical_store;

UPDATE medical_store
SET effectiveness = CASE FLOOR(1 + (RAND() * 6))
    WHEN 1 THEN 'Very Effective'
    WHEN 2 THEN 'Effective'
    WHEN 3 THEN 'Strong'
    WHEN 4 THEN 'Moderate'
    WHEN 5 THEN 'Bad'
    WHEN 6 THEN 'Not Effective'
END;
select * from medical_store;
```

Output:

M_id	M_name	M_base_price	M_price_after_tax	store_commission	store_commission_for_bulk	tax_rate	is_imported	rating	effectiveness
1	Paracetamol	10.00	11.00	1.00	0.80	10.00	no	5	Very Effective
2	Ibuprofen	15.00	16.80	1.50	1.20	12.00	no	4	Effective
3	Aspirin	8.00	8.64	0.80	0.64	8.00	no	3	Strong
4	Amoxicillin	25.00	28.75	2.50	2.00	15.00	yes	0	Not Effective
5	Ciprofloxacin	20.00	22.00	2.00	1.60	10.00	no	3	Strong
6	Metformin	12.00	13.44	1.20	0.96	12.00	no	4	Effective
7	Amlodipine	18.00	19.80	1.80	1.44	10.00	no	3	Strong
8	Omeprazole	22.00	24.64	2.20	1.76	12.00	yes	1	Bad
9	Simvastatin	16.00	17.60	1.60	1.28	10.00	no	1	Bad
10	Losartan	14.00	15.12	1.40	1.12	8.00	no	3	Strong
11	Azithromycin	28.00	32.20	2.80	2.24	15.00	yes	5	Very Effective
12	Clopidogrel	26.00	29.12	2.60	2.08	12.00	no	4	Effective
13	Doxycycline	24.00	26.40	2.40	1.92	10.00	no	2	Moderate
14	Levothyroxine	30.00	34.50	3.00	2.40	15.00	yes	5	Very Effective
15	Atorvastatin	32.00	35.84	3.20	2.56	12.00	no	5	Very Effective
16	Metoprolol	19.00	20.90	1.90	1.52	10.00	no	4	Effective
17	Lisinopril	21.00	23.52	2.10	1.68	12.00	no	2	Moderate
18	Hydrochloro...	17.00	18.70	1.70	1.36	10.00	no	4	Effective
19	Pantoprazole	23.00	25.76	2.30	1.84	12.00	yes	0	Not Effective
20	Rosuvastatin	29.00	33.35	2.90	2.32	15.00	yes	2	Moderate
21	Hydrochloro...	17.00	20.40	1.70	1.36	10.00	no	5	Very Effective

Inference: Added a new column in our table that contains the effectiveness of the medicine.

3.2 Creating a procedure to generate a rating

Query:

```
DELIMITER //
CREATE PROCEDURE update_effectiveness_value_with_cursor()
BEGIN
    DECLARE done INT DEFAULT 0;
    DECLARE m_id INT;
    DECLARE effectiveness VARCHAR(20);
    DECLARE cur CURSOR FOR SELECT M_id, effectiveness FROM medical_store;
    DECLARE CONTINUE HANDLER FOR NOT FOUND SET done = 1;
    OPEN cur;
    read_loop: LOOP
        FETCH cur INTO m_id, effectiveness;
        IF done THEN
            LEAVE read_loop;
        END IF;
        UPDATE medical_store
        SET rating = CASE effectiveness
            WHEN 'Very Effective' THEN 5
            WHEN 'Effective' THEN 4
            WHEN 'Strong' THEN 3
            WHEN 'Moderate' THEN 2
            WHEN 'Bad' THEN 1
            WHEN 'Not Effective' THEN 0
            ELSE NULL
        END
        WHERE M_id = m_id;
    END LOOP;
    CLOSE cur;
END //
DELIMITER ;
```

Output:

M_id	M_name	M_base_price	M_price_after_tax	store_commission	store_commission_for_bulk	tax_rate	is_imported	rating	effectiveness
1	Paracetamol	10.00	11.00	1.00	0.80	10.00	no	5	Very Effective
2	Ibuprofen	15.00	16.80	1.50	1.20	12.00	no	4	Effective
3	Aspirin	8.00	8.64	0.80	0.64	8.00	no	3	Strong
4	Amoxicillin	25.00	28.75	2.50	2.00	15.00	yes	0	Not Effective
5	Ciprofloxacin	20.00	22.00	2.00	1.60	10.00	no	3	Strong
6	Metformin	12.00	13.44	1.20	0.96	12.00	no	4	Effective
7	Amlodipine	18.00	19.80	1.80	1.44	10.00	no	3	Strong
8	Omeprazole	22.00	24.64	2.20	1.76	12.00	yes	1	Bad
9	Simvastatin	16.00	17.60	1.60	1.28	10.00	no	1	Bad
10	Losartan	14.00	15.12	1.40	1.12	8.00	no	3	Strong
11	Azithromycin	28.00	32.20	2.80	2.24	15.00	yes	5	Very Effective
12	Clopidogrel	26.00	29.12	2.60	2.08	12.00	no	4	Effective
13	Doxycycline	24.00	26.40	2.40	1.92	10.00	no	2	Moderate
14	Levothyroxine	30.00	34.50	3.00	2.40	15.00	yes	5	Very Effective
15	Atorvastatin	32.00	35.84	3.20	2.56	12.00	no	5	Very Effective
16	Metoprolol	19.00	20.90	1.90	1.52	10.00	no	4	Effective
17	Lisinopril	21.00	23.52	2.10	1.68	12.00	no	2	Moderate
18	Hydrochloro...	17.00	18.70	1.70	1.36	10.00	no	4	Effective
19	Pantoprazole	23.00	25.76	2.30	1.84	12.00	yes	0	Not Effective
20	Rosuvastatin	29.00	33.35	2.90	2.32	15.00	yes	2	Moderate
21	Hydrochloro...	17.00	20.40	1.70	1.36	10.00	no	5	Very Effective

Inference: Declared a stored procedure with cursor which returns a the rating of the medicine base on its effectiveness.