

Galactic Rentals - SQL Assignment Report

Course: Database 1 Lab - CSCI2114

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1. Introduction

This report documents the design and implementation of a rental tracking system for Galactic Rentals using SQL. The objective was to migrate paper-based rental logs to a structured, reliable relational database while enforcing integrity rules.

2. Understanding the Data (relational data)

The provided CSV file contained the following columns:

- Rental_ID (Unique ID)
- Customer_Name
- Costume_Name
- Rent_Date
- Return_Date (nullable)
- Daily_Fee

3. Database Design

A table called `rentals` was created with the following structure:

Column	Type	Constraints
rental_id	INT	PRIMARY KEY
customer_name	VARCHAR(100)	NOT NULL, NOT EMPTY
costume_name	VARCHAR(100)	NOT NULL, NOT EMPTY
rent_date	DATE	NOT NULL, <= CURRENT DATE
return_date	DATE	NULLABLE, >= rent_date
daily_fee	DECIMAL(6,2)	> 0
inserted_at	TIMESTAMP	Default current timestamp
updated_at	TIMESTAMP	Auto-updated on record change

4. SQL Script

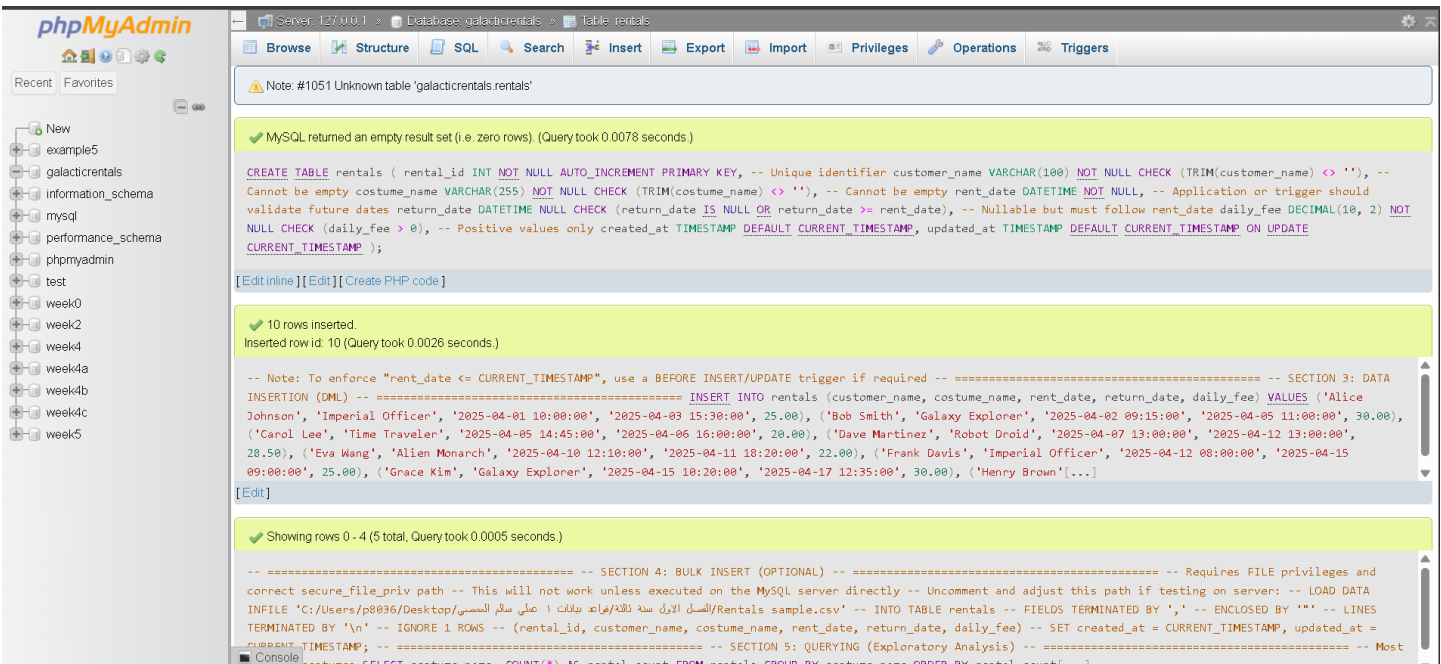
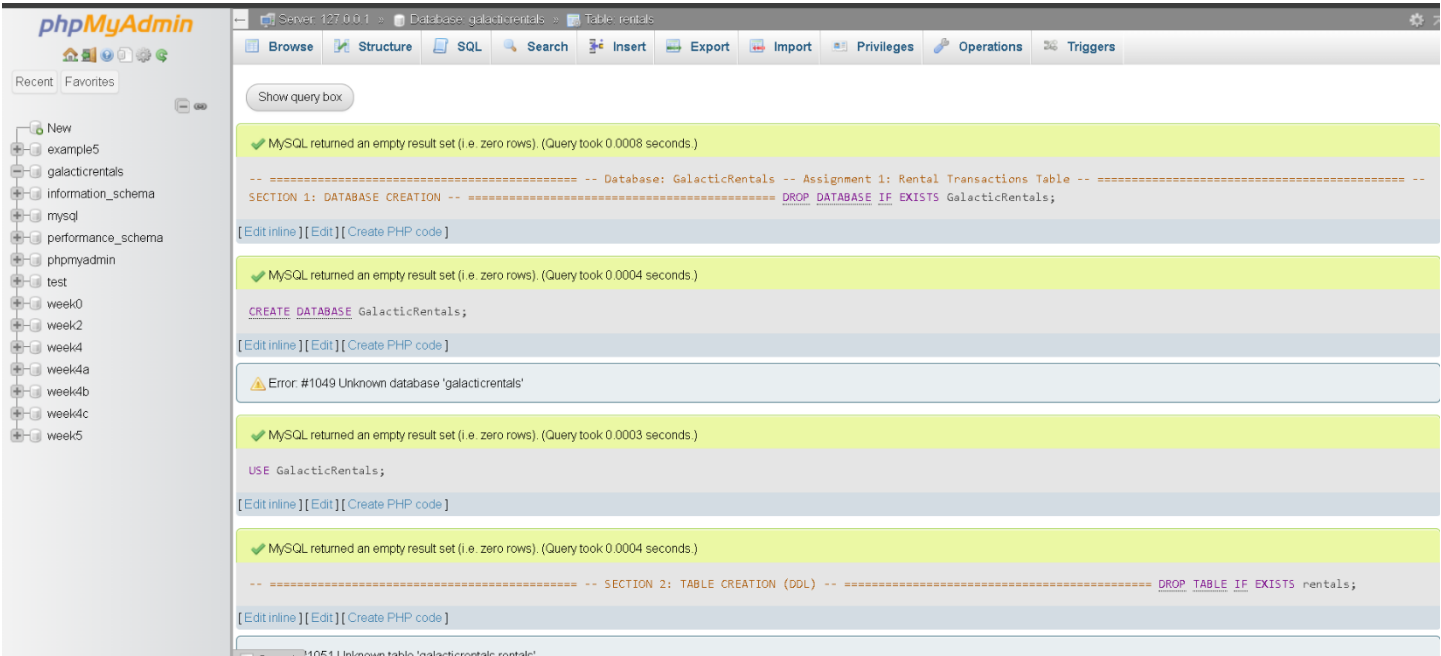
A complete SQL script was written to:

- Drop the table if it exists.
- Create the table with integrity constraints.
- Insert data from the provided CSV.
- Run queries for exploration (popular items, overdue returns, etc.).

- Relational Schema Diagram //

Rentals	
Reantal_id	INT , PRIMARY KEY
Customer_name	VARCHAR(100) ,NOT NULL
Costume_name	VARCHAR(100) ,NOT NULL
Rent_date	DATE, NOT NULL
Return_date	DATE
Daily_fee	DECIMAL (10,2) , NOT NULL
Inserted_at	TIMESTAMP , DEFUALT NOW
Updated_at	TIMESTAMP , ON UPDATE NOW

5-Sample Screenshots



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example5

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information_schema

mysql

performance_schema

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test

week0

week2

week4

week4a

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week4c

week5

Server: 127.0.0.1 > Database: galacticrentals > Table: rentals

Browse

Structure

SQL

Search

Insert

Export

Import

Privileges

Operations

Triggers

09:00:00', 25.00), ('Grace Kim', 'Galaxy Explorer', '2025-04-15 10:20:00', '2025-04-17 12:35:00', 30.00), ('Henry Brown'[...]

[Edit]

Showing rows 0 - 4 (5 total, Query took 0.0005 seconds)

-- ===== -- SECTION 4: BULK INSERT (OPTIONAL) -- ===== -- Requires FILE privileges and connect secure_file_priv path -- This will not work unless executed on the MySQL server directly -- Uncomment and adjust this path if testing on server: -- LOAD DATA INFILE 'C:/Users/p8036/Desktop/البيانات على سطح المكتب/Rentals sample.csv' -- INTO TABLE rentals -- FIELDS TERMINATED BY ',' -- ENCLOSED BY '"' -- LINES TERMINATED BY '\n' -- IGNORE 1 ROWS -- (rental_id, customer_name, costume_name, rent_date, return_date, daily_fee) -- SET created_at = CURRENT_TIMESTAMP, updated_at = CURRENT_TIMESTAMP; -- ===== -- SECTION 5: QUERYING (Exploratory Analysis) -- ===== -- Most popular costumes SELECT costume_name, COUNT(*) AS rental_count FROM rentals GROUP BY costume_name ORDER BY rental_count[...]

[Edit]

Show all

Number of rows: 25

Filter rows: Search this table

Extra options

costume_name	rental_count	1
Imperial Officer	2	
Galaxy Explorer	2	
Time Traveler	2	
Robot Droid	2	
Alien Monarch	2	

Show all

Number of rows: 25

Filter rows: Search this table

Query results operations

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Server: 127.0.0.1 > Database: galacticrentals > Table: rentals

Browse

Structure

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Search

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Query results operations

Print

Copy to clipboard

Export

Display chart

Create view

Showing rows 0 - 0 (1 total, Query took 0.0003 seconds)

-- Current open rentals (not yet returned) SELECT * FROM rentals WHERE return_date IS NULL;

[Edit inline][Edit][Create PHP code]

Show all

Number of rows: 25

Filter rows: Search this table

Extra options

rental_id

customer_name

costume_name

rent_date

return_date

daily_fee

created_at

updated_at

10

John Doe

Alien Monarch

2025-04-22 14:00:00

NULL

22.00

2025-05-23 11:03:14

2025-05-23 11:03:14

Check all

With selected:

Edit

Copy

Delete

Export

Show all

Number of rows: 25

Filter rows: Search this table

Query results operations

Print

Copy to clipboard

Export

Display chart

Create view

Showing rows 0 - 8 (9 total, Query took 0.0002 seconds)

-- Rental duration and total fee SELECT rental_id, customer_name, costume_name, TIMESTAMPDIFF(HOUR, rent_date, return_date) / 24.0 AS days_rented, daily_fee,

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Server: 127.0.0.1 - Database: galacticrentals - Table: rentals

Browse Structure SQL Search Insert Export Import Privileges Operations Triggers

Print Copy to clipboard Export Display chart Create view

Showing rows 0 - 9 (10 total, Query took 0.0004 seconds)

-- Customers with most rentals `SELECT customer_name, COUNT(*) AS rental_count FROM rentals GROUP BY customer_name ORDER BY rental_count DESC;`

[Edit inline] [Edit] [Create PHP code]

☐ Show all | Number of rows: 25 | Filter rows: Search this table

Extra options

customer_name	rental_count
Eva Wang	1
Bob Smith	1
John Doe	1
Grace Kim	1
Dave Martinez	1
Alice Johnson	1
Isabel Clark	1
Frank Davis	1
Carol Lee	1
Henry Brown	1

☐ Show all | Number of rows: 25 | Filter rows: Search this table

Query results operations

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Server: 127.0.0.1 - Database: galacticrentals - Table: rentals

Browse Structure SQL Search Insert Export Import Privileges Operations Triggers

Showing rows 0 - 8 (9 total, Query took 0.0002 seconds)

-- Rental duration and total fee `SELECT rental_id, customer_name, costume_name, TIMESTAMPDIFF(HOUR, rent_date, return_date) / 24.0 AS days_rented, daily_fee, ROUND((TIMESTAMPDIFF(HOUR, rent_date, return_date) / 24.0) * daily_fee, 2) AS total_fee FROM rentals WHERE return_date IS NOT NULL;`

[Edit inline] [Edit] [Create PHP code]

☐ Show all | Number of rows: 25 | Filter rows: Search this table | Sort by key: None

Extra options

	rental_id	customer_name	costume_name	days_rented	daily_fee	total_fee
<input type="checkbox"/> Edit Copy Delete	1	Alice Johnson	Imperial Officer	2.2083	25.00	55.21
<input type="checkbox"/> Edit Copy Delete	2	Bob Smith	Galaxy Explorer	3.0417	30.00	91.25
<input type="checkbox"/> Edit Copy Delete	3	Carol Lee	Time Traveler	1.0417	20.00	20.83
<input type="checkbox"/> Edit Copy Delete	4	Dave Martinez	Robot Droid	5.0000	28.50	142.50
<input type="checkbox"/> Edit Copy Delete	5	Eva Wang	Alien Monarch	1.2500	22.00	27.50
<input type="checkbox"/> Edit Copy Delete	6	Frank Davis	Imperial Officer	3.0417	25.00	76.04
<input type="checkbox"/> Edit Copy Delete	7	Grace Kim	Galaxy Explorer	2.0833	30.00	62.50
<input type="checkbox"/> Edit Copy Delete	8	Henry Brown	Robot Droid	1.1250	28.50	32.06
<input type="checkbox"/> Edit Copy Delete	9	Isabel Clark	Time Traveler	3.0000	20.00	60.00

☐ Check all | With selected: Edit Copy Delete Export

☐ Show all | Number of rows: 25 | Filter rows: Search this table | Sort by key: None

Query results operations

- New
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Table structure Relation view

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
<input type="checkbox"/>	1	rental_id	int(11)		No	None		AUTO_INCREMENT	Change Drop More
<input type="checkbox"/>	2	customer_name	varchar(100) utf8mb4_general_ci		No	None			Change Drop More
<input type="checkbox"/>	3	costume_name	varchar(255) utf8mb4_general_ci		No	None			Change Drop More
<input type="checkbox"/>	4	rent_date	datetime		No	None			Change Drop More
<input type="checkbox"/>	5	return_date	datetime		Yes	NULL			Change Drop More
<input type="checkbox"/>	6	daily_fee	decimal(10,2)		No	None			Change Drop More
<input type="checkbox"/>	7	created_at	timestamp		No	current_timestamp()			Change Drop More
<input type="checkbox"/>	8	updated_at	timestamp		No	current_timestamp()	ON UPDATE CURRENT_TIMESTAMP()		Change Drop More

Check all With selected: Browse Change Drop Primary Unique Index Spatial Fulltext

Print Propose table structure Move columns Normalize

Add 1 column(s) after updated_at Go

Indexes

Action	Keyname	Type	Unique	Packed	Column	Cardinality	Collation	Null	Comment
Edit Rename Drop	PRIMARY	BTREE	Yes	No	rental_id	10	A	No	

Create an index on 1 columns Go

