

3.1: Intro to Relational Databases

Rockbuster Database

| Table | Query | Column | Record |
|--------------------|---|-----------------|------------------------|
| payment | <pre>SELECT * FROM payment LIMIT 10;</pre> | payment_id | |
| | | customer_id | |
| | | staff_id | |
| | | rental_id | |
| | | amount | |
| | | payment_date | |
| information_schema | <pre>SELECT * FROM information_schema.tables WHERE table_schema = 'public' AND table_type = 'BASE TABLE'</pre> <p>or Schemas > Tables to get table names</p> | table_name | actor |
| | | | store |
| | | | address |
| | | | category |
| | | | city |
| | | | country |
| | | | customer |
| | | | film_actor |
| | | | film_category |
| | | | inventory |
| | | | language |
| | | | rental |
| | | | staff |
| film | <pre>SELECT rental_duration AS "rented for (in days)", COUNT(*) AS "number of films" FROM film GROUP BY 1 ORDER BY 2</pre> | rental_duration | payment |
| | | | film |
| | | | 6 (days) for 212 films |

OLAP vs OLTP Systems

1. OLAP:

- The marketing department would use OLAP systems to analyze data see the effectiveness of marketing campaigns. The data might be collected through sales over time.
- The finance department would use OLAP systems to see how it affects their budget.

2. OLTP:

- The accounting department would use OLTP systems to manage financial transactions, such as invoices, payments, and payroll.
- The Human Resources department would use OLTP systems to manage employee data, such as payroll, benefits, and personnel records.

Rockbuster Stealth Invoice

1. Structured vs. Unstructured Data:

- The invoice contains both structured and unstructured data.
- Structured data: invoice number, customer name, item description, quantity, unit price, total amount due, etc.
- Unstructured data: studio logo.

2. Invoice Table:

| Invoice number | Date | Merchant | Total amount |
|----------------|------|------------|--------------|
| 2019001 | NULL | Oaklanders | \$730 |

3. Invoice Line-Item Table:

| Item | Quantity | Description | Unit price |
|------|----------|--------------------------------|------------|
| 001 | 01 | New Video Collection Licensing | \$730 |

4. Merchant Table:

| Merchant name | Address | Account name | Account number |
|---------------|-----------------------------------|--------------|---------------------|
| Oaklanders | 4826 Norma Avenue Anderson, TX | Miko Santo | 4929 3310 0057 5422 |