CUNEF
UNIVERSIDAD

DATABASESYSTEMS COURSE 2021/2022

SESSION 3/4

SESSION 3

- **DATA IMPORTING**
- DML SELECT STATEMENT
- DATE OPERATIONS
- TEXT OPERATIONS
- NUMBER OPERATIONS
- DUMMY QUERIES

DATA IMPORTING
As Local Host

```
1   "id","genre_id","game_name"
2   1,11,"'98 Koshien"
3   2,8,".hack//G.U. Vol.1//Rebirth"
4   3,8,".hack//G.U. Vol.2//Reminisce"
5   4,8,".hack//G.U. Vol.2//Reminisce (jp sales)"
6   5,8,".hack//G.U. Vol.3//Redemption"
7   6,8,".hack//Infection Part 1"
8   7,8,".hack//Link"
9   8,8,".hack//Mutation Part 2"
10  9,8,".hack//Outbreak Part 3"
11  10,8,".hack//Quarantine Part 4: The Final Chapter"
12  11,1,".hack: Sekai no Mukou ni + Versus"
13  12,7,"007 Racing"
14  13,1,"007: Quantum of Solace"
```

MySQL

```
CREATE TABLE game (
        id INT,
        genre_id INT,
        game_name VARCHAR(150) );
```

Oracle

```
CREATE TABLE game (
        id NUMBER,
        genre_id NUMBER,
        game_name VARCHAR2(150) );
```

DATA IMPORTING

As Local Host

MySQL

```
LOAD DATA
INFILE 'D:/Programas/MySQL/Uploads/game.csv'
INTO TABLE game
FIELDS TERMINATED BY ','
ENCLOSED BY '"'
IGNORE 1 ROWS
    ( id,
      genre_id,
      game_name
    );
```

Notes

- The "load data" statement should be saved first in a control file (gameMySql.ctl)

- INFILE Path should be the directory defined in "secure-file-priv" parameter inside "my.ini" file. Also this parameter can be shown by executing:
  SHOW VARIABLES LIKE "secure_file_priv"
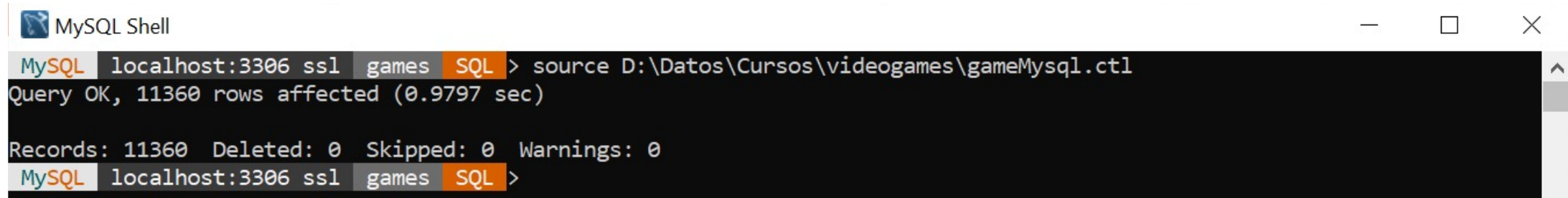
Oracle

```
OPTIONS (SKIP=1)
LOAD DATA
INFILE 'D:\Datos\Cursos\videogames\game.csv'
INTO TABLE game
FIELDS TERMINATED BY ','
OPTIONALLY ENCLOSED BY '"'
            ( id,
              genre_id,
              game_name
            )
```

Notes

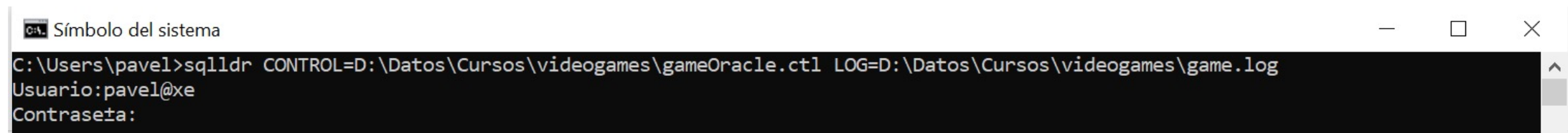- The "load data" statement should be saved first in a control file (gameOracle.ctl)

DATA IMPORTING

As Local Host

MySQL


```
MySQL Shell                                              —    □    X
MySQL  localhost:3306 ssl  games  SQL  > source D:\Datos\Cursos\videogames\gameMysql.ctl
Query OK, 11360 rows affected (0.9797 sec)

Records: 11360  Deleted: 0  Skipped: 0  Warnings: 0
MySQL  localhost:3306 ssl  games  SQL  >
```

Oracle

```
Símbolo del sistema                                      —    □    X
C:\Users\pavel>sqlldr CONTROL=D:\Datos\Cursos\videogames\gameOracle.ctl LOG=D:\Datos\Cursos\videogames\game.log
Usuario:pavel@xe
Contraseña:
```

Notes: Once the loading process is completed, 2 files are generated
    game.log : It contains information related the loading process
    game.bad : It contains the rows which were not loaded for any reasons (if exists)

DATA IMPORTING
In Docker Container

Nº	STEP	MySQL	ORACLE
1	Mysql container need to be created with parameter :--secure-file-priv=docker-entrypoint-initdb.d	docker run --name **mysql2** -p 3306:3306 -e MYSQL_ROOT_PASSWORD=my-secret-pw -d mysql:8 mysqld --default-authentication-plugin=mysql_native_password **--secure-file-priv=docker-entrypoint-initdb.d**	
2	In the ctl file, change the directory where csv file will be store. Both (ctl and csv) will be stored in the same directory	Change "INFILE 'D:/Programas/MySQL/Uploads/game.csv'" By: "INFILE '/docker-entrypoint-initdb.d/game.csv'"	Change "INFILE 'D:\Datos\Cursos\videogames\game.csv'" By: "INFILE '/ORCL/game.csv'"
3	Copy both (ctl and csv) into the specified directory inside the container	docker cp gameMySql.ctl **mysql2**:/docker-entrypoint-initdb.d/gameMySql.ctl docker cp game.csv **mysql2**:/docker-entrypoint-initdb.d/game.csv	docker cp gameOracle.ctl oracle:/ORCL/gameOracle.ctl docker cp game.csv oracle:/ORCL/game.csv
4	Access the container and go to the directory where our files are stored	docker exec -it **mysql2** bin/bash cd /docker-entrypoint-initdb.d	docker exec -it oracle bin/bash cd ORCL

DATA IMPORTING

In Docker Container

Nº	STEP	MySQL	ORACLE
5	Oracle needs a configuration file to be executed		source /home/oracle/.bashrc
6	Access to MySQL/Oracle and go the database/schema: games (crate it in case it does not exists). Password will be required.	mysql -u root -p use games	sqlplus Enter user-name: games Enter password: …
7	Create the table (if it does not exists)	Use the create table statement from slide 3	
8	Before loading of the csv, Oracle needs to exit the sqlplus		quit
9	Execute the loading csv process	source gameMySql.ctl	sqlldr CONTROL=gameOracle.ctl LOG=game.log

SESSION 3

- DATA IMPORTING
- **DML SELECT STATEMENT**
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DML SELECT STATEMENT

SELECT Example

MySQL/Oracle

```sql
SELECT movie_id, title, budget
FROM moviebig
WHERE budget > 14000000
```

MOVIE_ID	TITLE	BUDGET
1	115 The Big Lebowski	15000000
2	116 Match Point	15000000
3	117 The Untouchables	25000000
4	118 Charlie and the Chocolate Factory	150000000
5	120 The Lord of the Rings: The Fellowship of the Ring	93000000

MySQL/Oracle

```sql
SELECT film.movie_id AS id,
       film.title AS name, budget
FROM moviebig film
WHERE film.budget > 14000000;
```

ID	NAME	BUDGET
1	115 The Big Lebowski	15000000
2	116 Match Point	15000000
3	117 The Untouchables	25000000
4	118 Charlie and the Chocolate Factory	150000000
5	120 The Lord of the Rings: The Fellowship of the Ring	93000000

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DATE OPERATIONS

DATE Conversion Functions Syntax

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MySQL

STR_TO_DATE(*TextField,FormatDate***)**

MySQL

FormatDate can be:

- '%Y-%m-%d'
- '%d/%m/%y'
- '%Y%m%d'

Oracle

TO_DATE(*TextField,FormatDate***)**

Oracle

FormatDate can be

- 'YYYY-MM-DD'
- 'DD/MM/YY'
- 'YYYYMMDD'

DATE Conversion Functions Example

MySQL

```sql
SELECT datecrash,
STR_TO_DATE(datecrash, '%m/%d/%Y')

FROM crash;
```

	datecrash	STR_TO_DATE(datecrash; '%m/%d/%Y')
l.	9/17/1908	17/09/1908 0:00:00
	7/12/1912	12/07/1912 0:00:00
	8/6/1913	06/08/1913 0:00:00

Oracle

```sql
SELECT datecrash,
TO_DATE(datecrash,'MM/DD/YYYY')

FROM crash;
```

	DATECRASH	TO_DATE(DATECRASH,'MM/DD/YYYY')
1	11/11/1926	11/11/26
2	12/16/1926	16/12/26
3	1/12/1927	12/01/27

DATE OPERATIONS

Time Addition Functions Syntax

MySQL

`DATE_ADD(`*DateValue* `, INTERVAL` *'value' unit*`)`

Oracle

DateValue `+ INTERVAL` *'value' unit*

NOTE: It is not recommended for adding months. Use instead:

For Adding Months: `ADD_MONTHS(`*DateValue* + *MonthsNumber*`)`

Also
For Adding Days: *DateValue* + *NumberOfDays*
For Adding Years: `ADD_MONTHS(`*DateValue* + *12*NumberOfYears*`)`

MySQL/Oracle

Unit can be:
- SECOND
- MINUTE
- HOUR
- DAY
- WEEK
- MONTH
- YEAR
- etc

DATE OPERATIONS

Getting year, month and day from date

MySQL

```
SELECT
title,
release_date,
YEAR(release_date) year,
MONTH(release_date) month,
DAY(release_date) day
FROM moviebig;
```

Oracle

```
SELECT
title,
release_date,
EXTRACT(YEAR FROM release_date) year,
EXTRACT(MONTH FROM release_date) month,
EXTRACT(DAY FROM release_date) day
FROM moviebig;
```

TITLE	RELEASE_DATE	YEAR	MONTH	DAY
Lost in Translation	31/08/03	2003	8	31
Star Trek II: The Wrath of Khan	03/06/82	1982	6	3
The Dark Knight	16/07/08	2008	7	16
Star Trek III: The Search for Spock	31/05/84	1984	5	31
Ocean's Eleven	07/12/01	2001	12	7
Edward Scissorhands	05/12/90	1990	12	5

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TEXT OPERATIONS

TEXT Concatenation Syntax

MySQL

CONCAT(*Field1,Field2,...,FieldN***)**

Oracle

Field1 **||** *Field2* **||** *...* **||** *FieldN*

TEXT OPERATIONS

TEXT Concatenation Example

MySQL

```
SELECT title, tagline, CONCAT(title,' - ',tagline)
FROM moviebig;

SELECT title, CONCAT('Title : ', title)
FROM moviebig;
```

title	tagline	CONCAT(title;' - ';tagline)
Four Rooms	Twelve outrageous g...	Four Rooms - Twelve outrageous gues
Star Wars	A long time ago in a ...	Star Wars - A long time ago in a galaxy

title	CONCAT('Title : '; title)
Four Rooms	Title : Four Rooms
Star Wars	Title : Star Wars
Finding Nemo	Title : Finding Nemo

Oracle

```
SELECT title, tagline, title || ' - ' || tagline
FROM moviebig;

SELECT title, 'Title : ' || title
FROM moviebig;
```

	TITLE	TAGLINE	TITLE||'-'||TAGLINE
1	Pretty Woman	Who knew it was so m...	Pretty Woman - Who knew
2	The Big Lebowski	Times like these cal...	The Big Lebowski - Time

	TITLE	'TITLE:'||TITLE
1	Pretty Woman	Title : Pretty Woman
2	The Big Lebowski	Title : The Big Lebowski

TEXT Length Syntax

MySQL/Oracle

LENGTH(*TextField***)**

MySQL/Oracle

TEXT Length Example

SELECT title, **LENGTH(**overview**)**, overview **FROM** moviebig;

	TITLE		LENGTH(OVERVIEW)	OVERVIEW
1	Pretty Woman		400	When millionaire wheeler-dealer Edward Lewis
2	The Big Lebowski		321	Jeffrey 'The Dude' Lebowski, a Los Angeles sl
3	Match Point		338	Match Point is Woody Allenâ€™s satire of the
4	The Untouchables		373	Young Treasury Agent Elliot Ness arrives in C

TEXT OPERATIONS

LIKE Syntax

MySQL/Oracle

```
SELECT *
FROM table
WHERE Field1 LIKE '%Text%'


Note: LIKE is CASE SENSITIVE
```

TEXT OPERATIONS

LIKE Example

MySQL/Oracle

```
SELECT title
FROM moviebig
WHERE title LIKE '%Bill%';
```

	TITLE
1	Kill Bill: Vol. 1
2	Billy Elliot
3	Kill Bill: Vol. 2
4	Bill & Ted's Excellent Adventure
5	Bill & Ted's Bogus Journey
6	Tim and Eric's Billion Dollar Movie
7	Pat Garrett & Billy the Kid
8	The Lost Medallion: The Adventures of Billy Stone

TEXT OPERATIONS

TEXT Conversion Syntax

MySQL

`DATE_FORMAT(`*DateValue, FormatDate*`)`

Oracle

`TO_CHAR(`*DateValue, FormatDate*`)`

UPPER and LOWER Case Syntax

MySQL/Oracle

`LOWER(`*TextValue*`)`

`UPPER(`*TextValue*`)`

TEXT OPERATIONS

TEXT Conversion Example

MySQL

```sql
SELECT release_date,
DATE_FORMAT(release_date, '%d-%m-%Y')
FROM moviebig;
```

release_date	DATE_FORMAT(release_date; '%d-%m-%Y')
09/12/1995 0:00:00	09-12-1995
25/05/1977 0:00:00	25-05-1977
30/05/2003 0:00:00	30-05-2003
06/07/1994 0:00:00	06-07-1994

Oracle

```sql
SELECT release_date,
TO_CHAR(release_date,'dd-mm-yyyy')
FROM moviebig;
```

	RELEASE_DATE	TO_CHAR(RELEASE_DATE,'DD-MM-YYYY')
1	23/03/90	23-03-1990
2	06/03/98	06-03-1998
3	26/10/05	26-10-2005
4	02/06/87	02-06-1987

TEXT OPERATIONS

UPPER and LOWER Case Example

MySQL/Oracle

```sql
SELECT title , UPPER(title), LOWER(title)
FROM moviebig;
```

	TITLE	UPPER(TITLE)	LOWER(TITLE)
1	Pretty Woman	PRETTY WOMAN	pretty woman
2	The Big Lebowski	THE BIG LEBOWSKI	the big lebowski
3	Match Point	MATCH POINT	match point
4	The Untouchables	THE UNTOUCHABLES	the untouchables
5	Charlie and the Chocolate Fac...	CHARLIE AND THE CHOCOLATE FACTORY	charlie and the chocolate factory
6	The Lord of the Rings: The Fe...	THE LORD OF THE RINGS: THE FELLOW...	the lord of the rings: the fellowship of the ring
7	The Lord of the Rings: The Tw...	THE LORD OF THE RINGS: THE TWO TO...	the lord of the rings: the two towers

TEXT OPERATIONS

SUBSTRING Syntax

MySQL/Oracle

```
SUBSTR(TextValue, StartPosition , Length)
```

SUBSTRING Example

MySQL/Oracle

```
SELECT title, SUBSTR(title,2,5), SUBSTR(title,6,3) from moviebig;
```

	TITLE	SUBSTR(TITLE,2,5)	SUBSTR(TITLE,6,3)
1	Pretty Woman	retty	y W
2	The Big Lebowski	he Bi	ig
3	Match Point	atch	Po

TEXT OPERATIONS

Getting String Index Function Syntax

Oracle

`INSTR(`*TextValue, StringToLookfor, PositionToStart*`)`

MySQL

`INSTR(`*TextValue, StringToLookfor*`)`

`LOCATE(`*StringToLookfor, TextValue, PositionToStart*`)`

MySQL/Oracle

NOTE: If *PositionToStart* is not specified, by default it takes
value : 1

TEXT OPERATIONS

Getting String Index Function Example

MySQL/Oracle

```
SELECT title, homepage, INSTR(homepage,'/')
FROM moviebig;
```

TITLE	HOMEPAGE	INSTR(HOMEPAGE,'/')
Pretty Woman	(null)	(null)
The Big Lebowski	http://www.biglebowskibluray.com/...	6
Match Point	(null)	(null)
The Untouchables	(null)	(null)
Charlie and the Choc...	https://www.warnerbros.com/charli...	7
The Lord of the Ring...	http://www.lordoftherings.net/	6
The Lord of the Ring...	http://www.lordoftherings.net/	6
The Lord of the Ring...	http://www.lordoftherings.net	6

TEXT OPERATIONS
Getting String Index Function Example

MySQL

```
SELECT title, homepage, LOCATE('/',homepage)
FROM moviebig;
```

title	homepage	LOCATE('/';homepage)
Four Rooms	{null}	{null}
Star Wars	http://www.starwars.com/films/star-wars...	6
Finding Nemo	http://movies.disney.com/finding-nemo	6
Forrest Gump	{null}	{null}
American Beauty	http://www.dreamworks.com/ab/	6
Dancer in the Dark	{null}	{null}
The Fifth Element	{null}	{null}
Metropolis	{null}	{null}
My Life Without Me	http://www.clubcultura.com/clubcine/clu...	6

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- **NUMBER OPERATIONS**

- DUMMY QUERIES

Arithmetic Functions Syntax

MySQL/Oracle

```
SELECT
CEIL(NumberField),
FLOOR(NumberField),
MOD(NumberField, ValueX),
ROUND(NumberField, DecimalNumbers),
TRUNC(NumberField, DecimalNumbers), /* ORACLE only */
POWER(NumberField, ValueX),
ABS(NumberField),
SQRT(NumberField)
FROM table;


NOTE: If DecimalNumbers is not specified, by default takes 0 as
value.
```

NUMBER OPERATION

Arithmetic Functions Syntax

MySQL/Oracle

```
SELECT popularity,
CEIL(popularity) "ceil",
FLOOR(popularity) "floor",
MOD(popularity,1) "mod",
ROUND(popularity,3) "round",
TRUNC(popularity,3) "trunc",
POWER(popularity,2) "power",
ABS(-popularity) "abs",
SQRT(popularity) "sqrt"
FROM moviebig;
```

POPULARITY	ceil	floor	mod	round	trunc	power	abs	sqrt
45,473484	46	45	0,47...	45,473	45,473	2067,8...	45,47...	6,743
49,230089	50	49	0,23...	49,23	49,23	2423,6...	49,23...	7,016
30,669913	31	30	0,66...	30,67	30,669	940,64...	30,66...	5,53
38,272889	39	38	0,27...	38,273	38,272	1464,8...	38,27...	6,186
53,905592	54	53	0,90...	53,906	53,905	2905,8...	53,90...	7,342
138,049577	139	138	0,04...	138,05	138,049	19057,...	138,0...	11,749
106,914973	107	106	0,91...	106,915	106,914	11430,...	106,9...	10,339
123,630332	124	123	0,63...	123,63	123,63	15284,...	123,6...	11,118
60,732738	61	60	0,73...	60,733	60,732	3688,4...	60,73...	7,793

Database Systems 2021/2022

SESSION 3

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- **DUMMY QUERIES**

DUMMY QUERIES

MySQL

```
SELECT 50*32, 12*32;

SELECT SUBSTR('ABCDEFGHI',5,4);

SELECT SYSDATE();

SELECT "2021-01-30",
       DATE_ADD("2021-01-30" ,
                INTERVAL '1' MONTH);
```

Oracle

```
SELECT 50*32, 12*32 FROM DUAL;

SELECT SUBSTR('ABCDEFGHI',5,4) FROM DUAL;

SELECT SYSDATE FROM DUAL;

SELECT '30-01-2021',
       ADD_MONTHS('30-01-2021',1)
FROM DUAL;
```

	50*32	12*32
1	1600	384

	SUBSTR('ABCDEFGHI',5,4)
1	EFGH

SYSDATE
11/08/21

	'30-01-2021'	ADD_MONTHS('30-01-2021',1)
1	30-01-2021	28/02/21