

# ITCS393 Database Systems Lab

## Backing Up and Table Handling after Import

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# Overview

- Import data from a flat file source into tables in a database
- Export data from tables to a flat file
- Backup a database
- Restore a database

# Table Data Import

- MySQL supports table data import using CSV and JSON files

gender.csv

```
id,gender
1,Male
2,Female
3,N/A
```

gender.json

```
[{"id":4, "gender":"Type4"},  
 {"id":5, "gender":"Type5"},  
 {"id":6, "gender":"Type6"}]
```

- Note:** Database must be created prior to data import

# CSV files

- **CSV** stands for "Commma-separated values", i.e., each column value is separated by a comma (or other separators such as semi-colons or tabs)

**gender.csv**

```
"id", "gender"  
1, "Male"  
2, "Female"  
3, "N/A"
```

# JSON files

- **JSON** stands for “JavaScript Object Notation”, i.e., a plain text written in JavaScript object notation

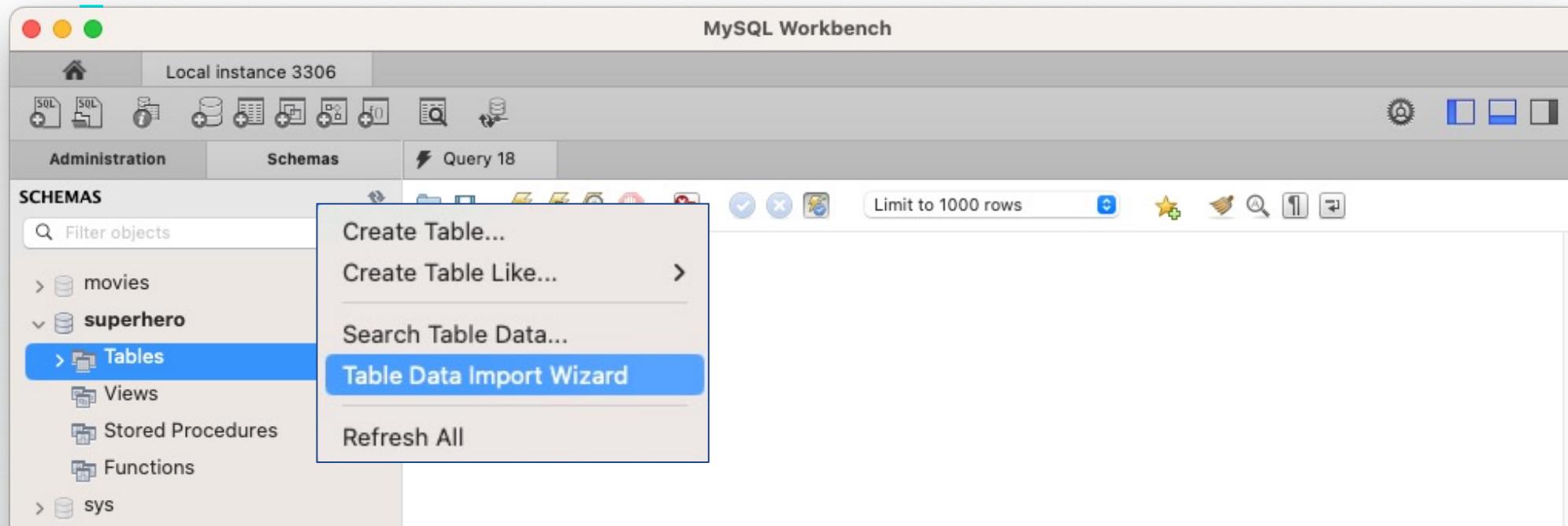
gender.json

```
[ {"id":4, "gender":"Type4"},  
 {"id":5, "gender":"Type5"},  
 {"id":6, "gender":"Type6"} ]
```

# Import Data using GUI

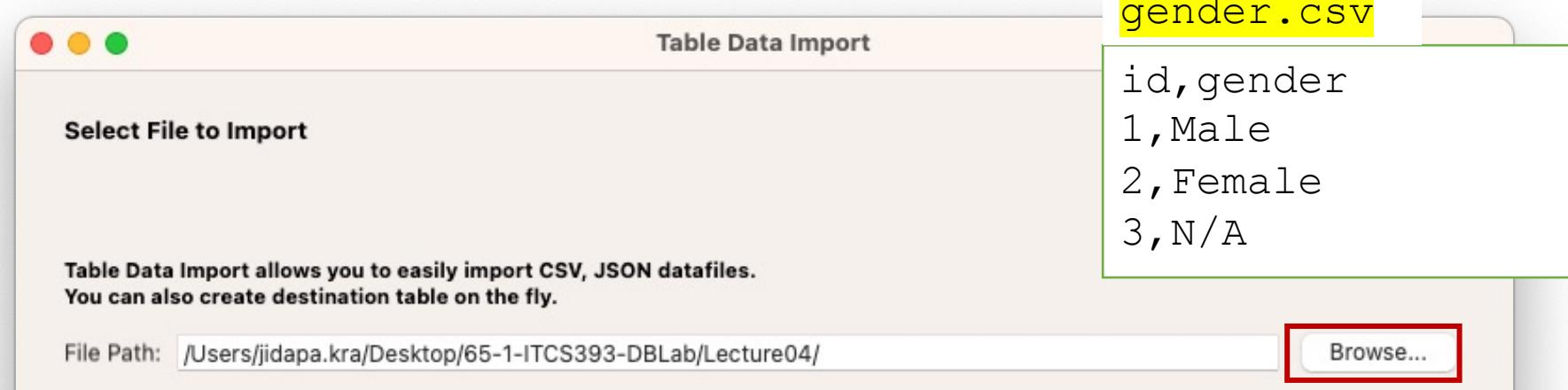
- Import the data from a CSV file to a new table
- Import the data from a CSV file to an existing table

## Table Import Wizard

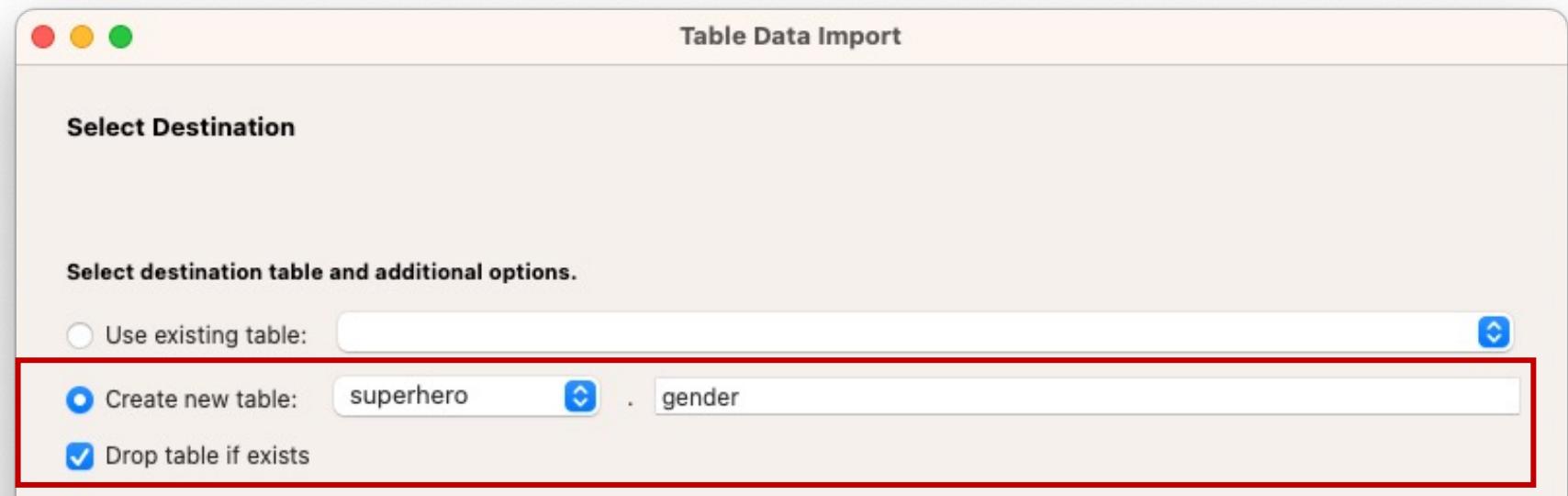


# Import the data to a new table (1)

Browse the data source, i.e., the CSV file

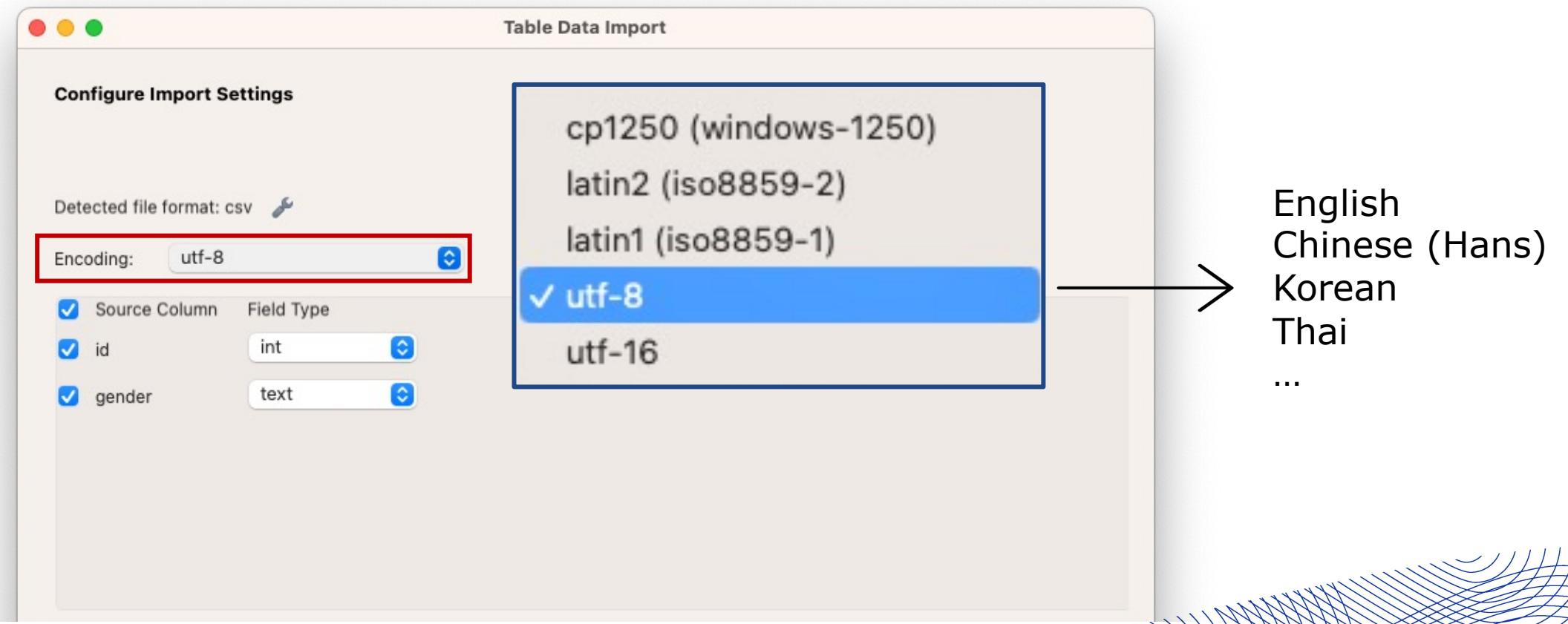


Select the existing database and specify the table name



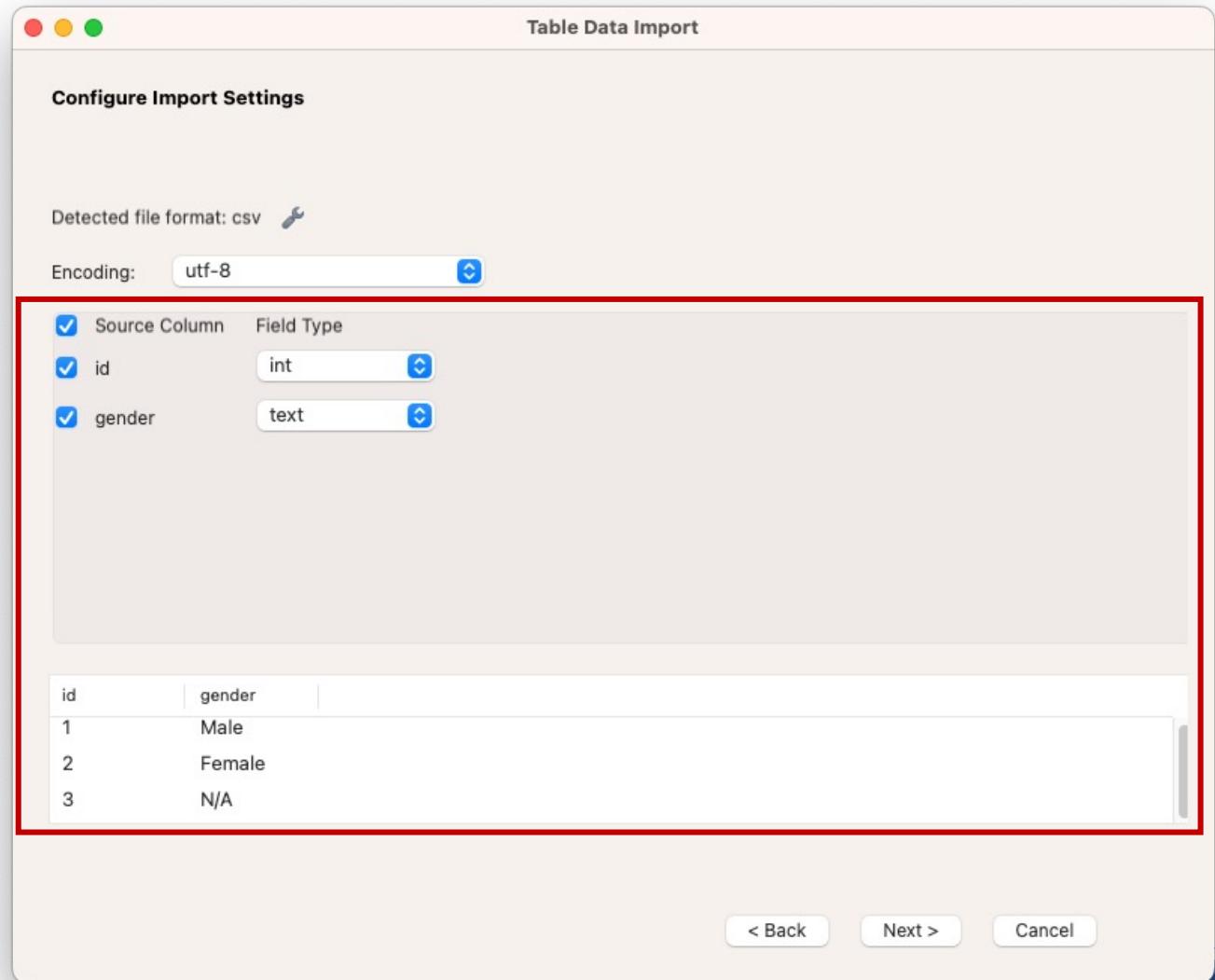
# Import the data to a new table (2)

## Select the Encoding for data

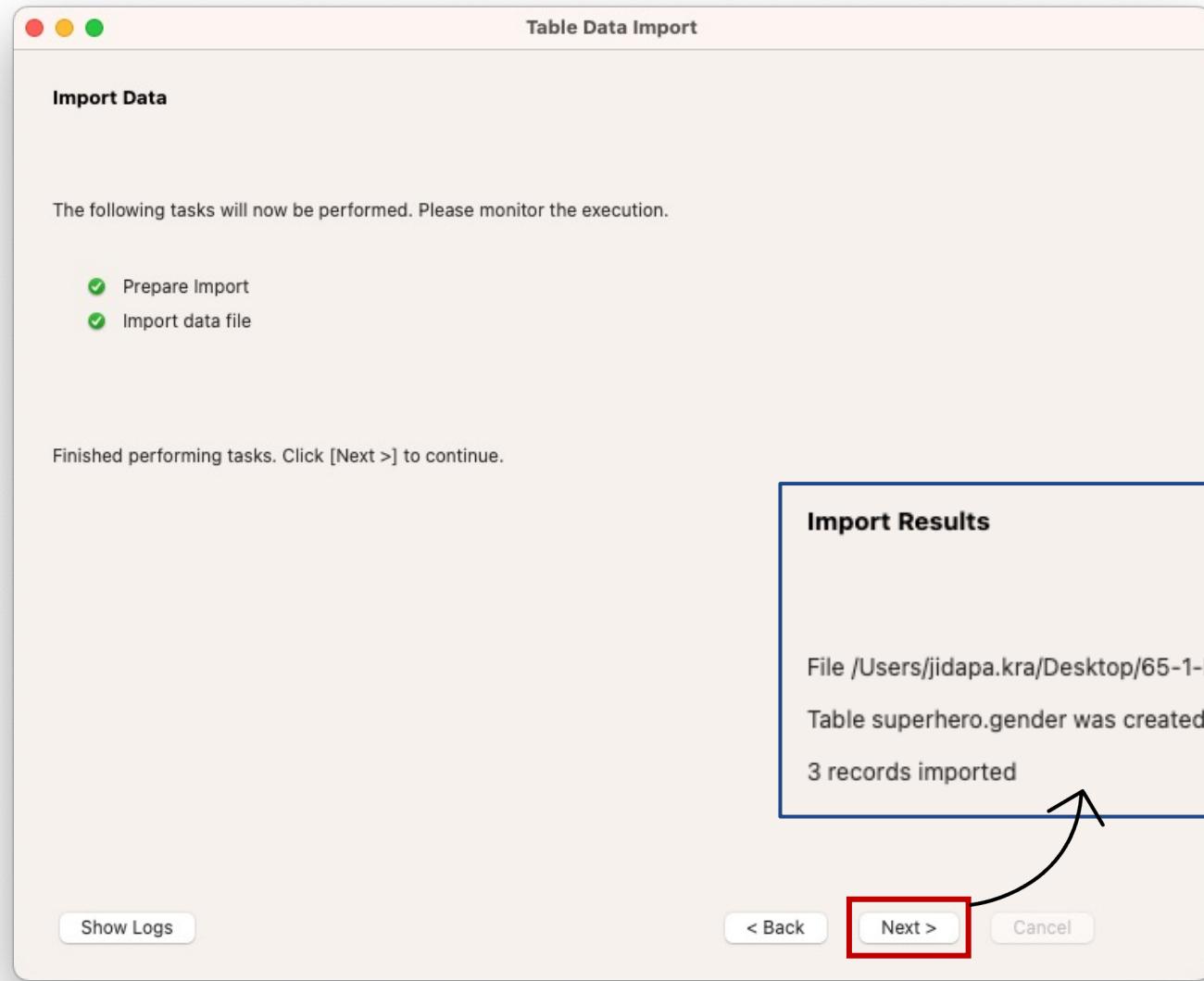


# Import the data to a new table (3)

Review the source column and the data types



# Import the data to a new table (4)

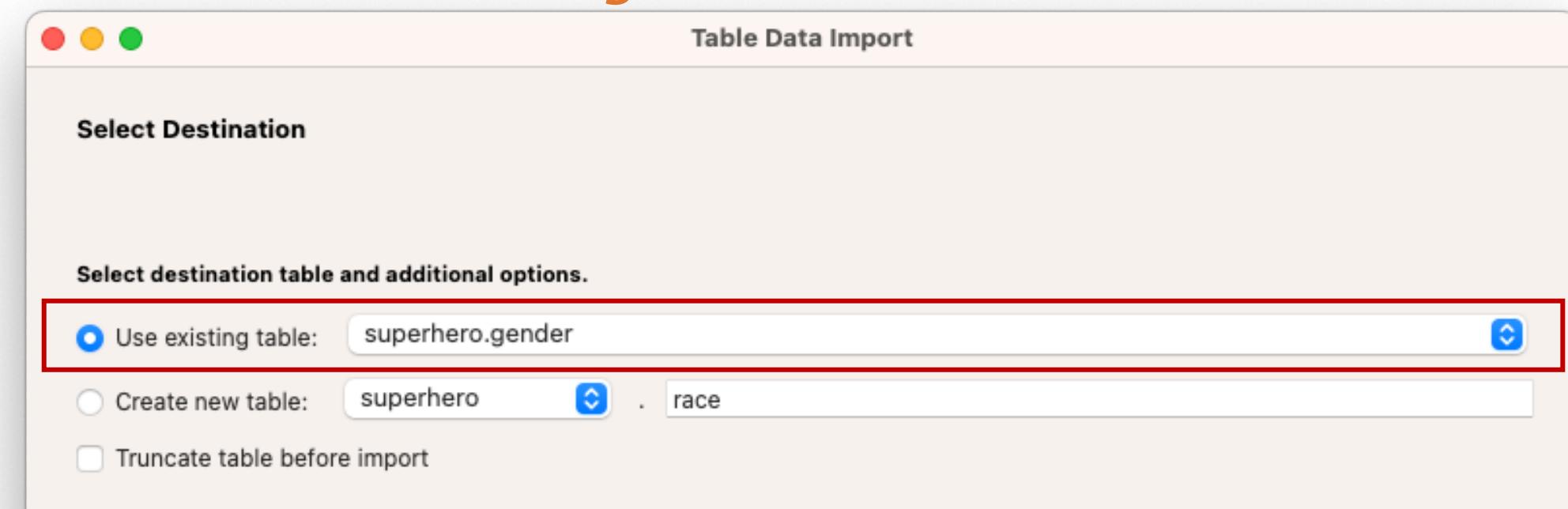


# Import the data to an existing table (1)

- Open "Table Import Wizard"
- Browse the data source: Try with JSON
- Select the *existing* table

gender.json

```
[ {"id":4, "gender":"Type4"},  
 {"id":5, "gender":"Type5"},  
 {"id":6, "gender":"Type6"} ]
```



# Import the data to an existing table (2)

Table Data Import

Configure Import Settings

Detected file format: json

Source Column Dest Column

id id

gender gender

id	gender
4	Type4
5	Type5
6	Type6

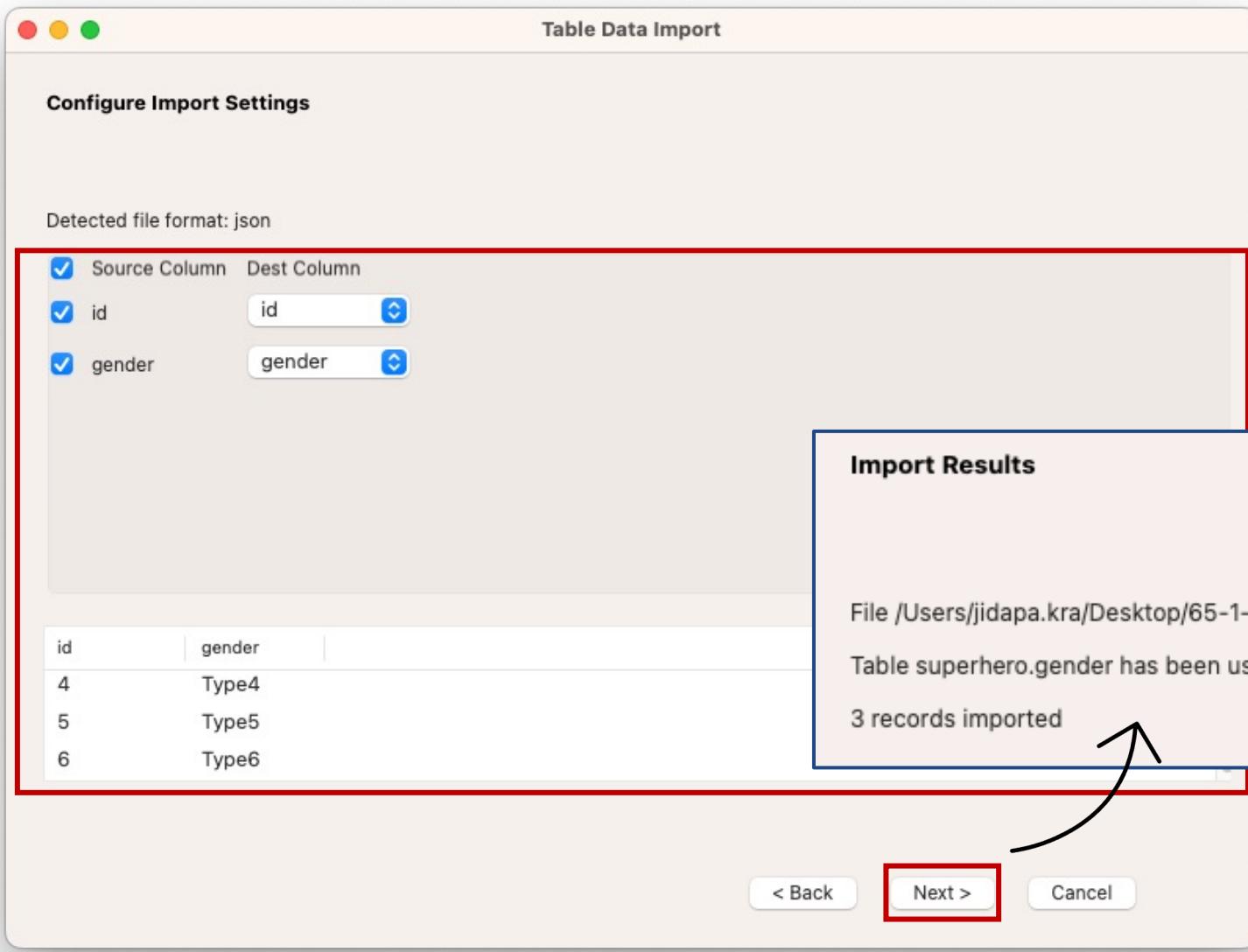
Import Results

File /Users/jidapa.kra/Desktop/65-1-ITCS393-DBLab/Lecture04/superhero-csv/gender.json was imported in 0.663 s

Table superhero.gender has been used

3 records imported

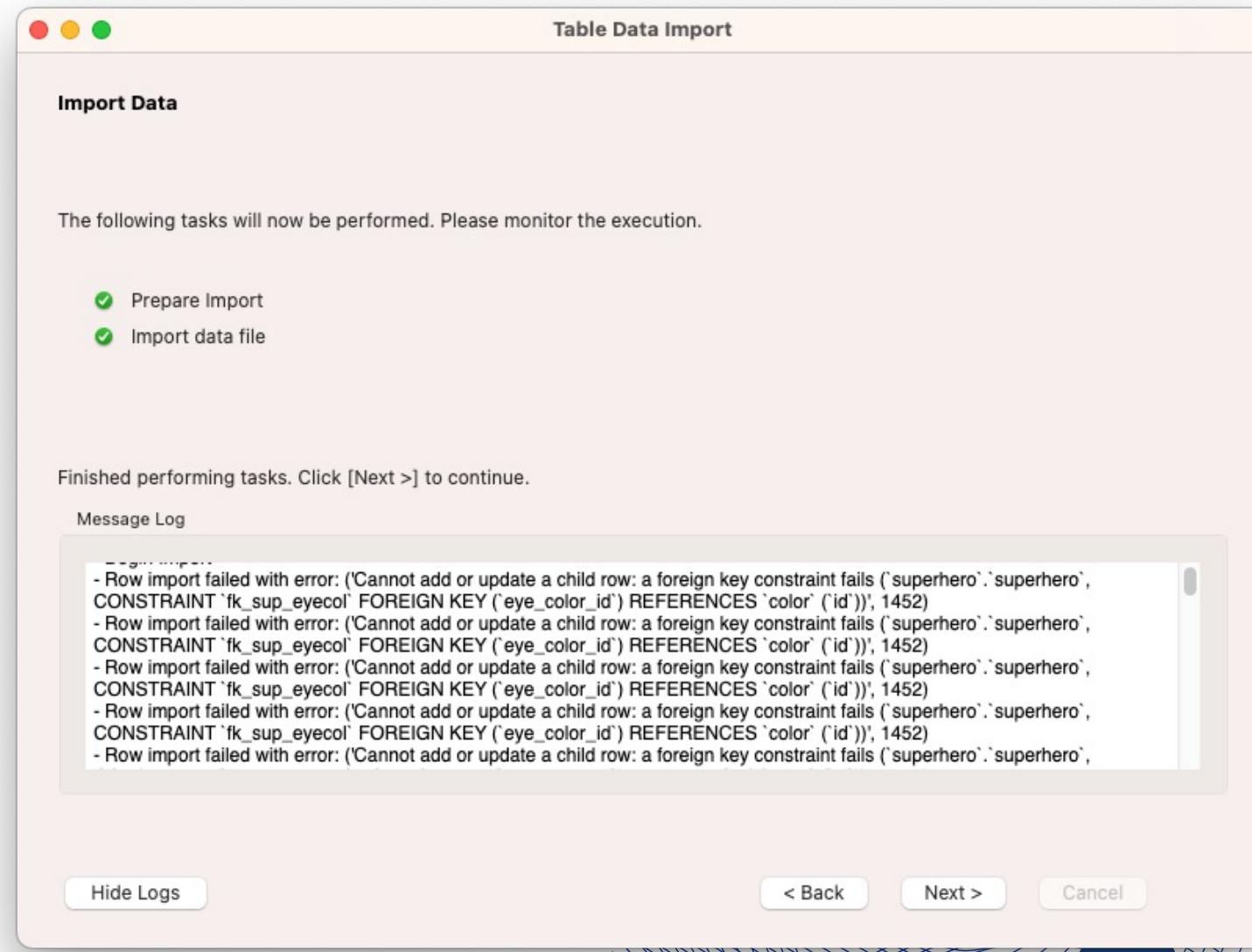
< Back  Next > Cancel



Review the source column and the data types  
and "Next" to complete

# Import the data to an existing table (3)

- Think about the relationship i.e. **FK** and **PK** before loading data into the existing tables
- The sequence of import data does matter



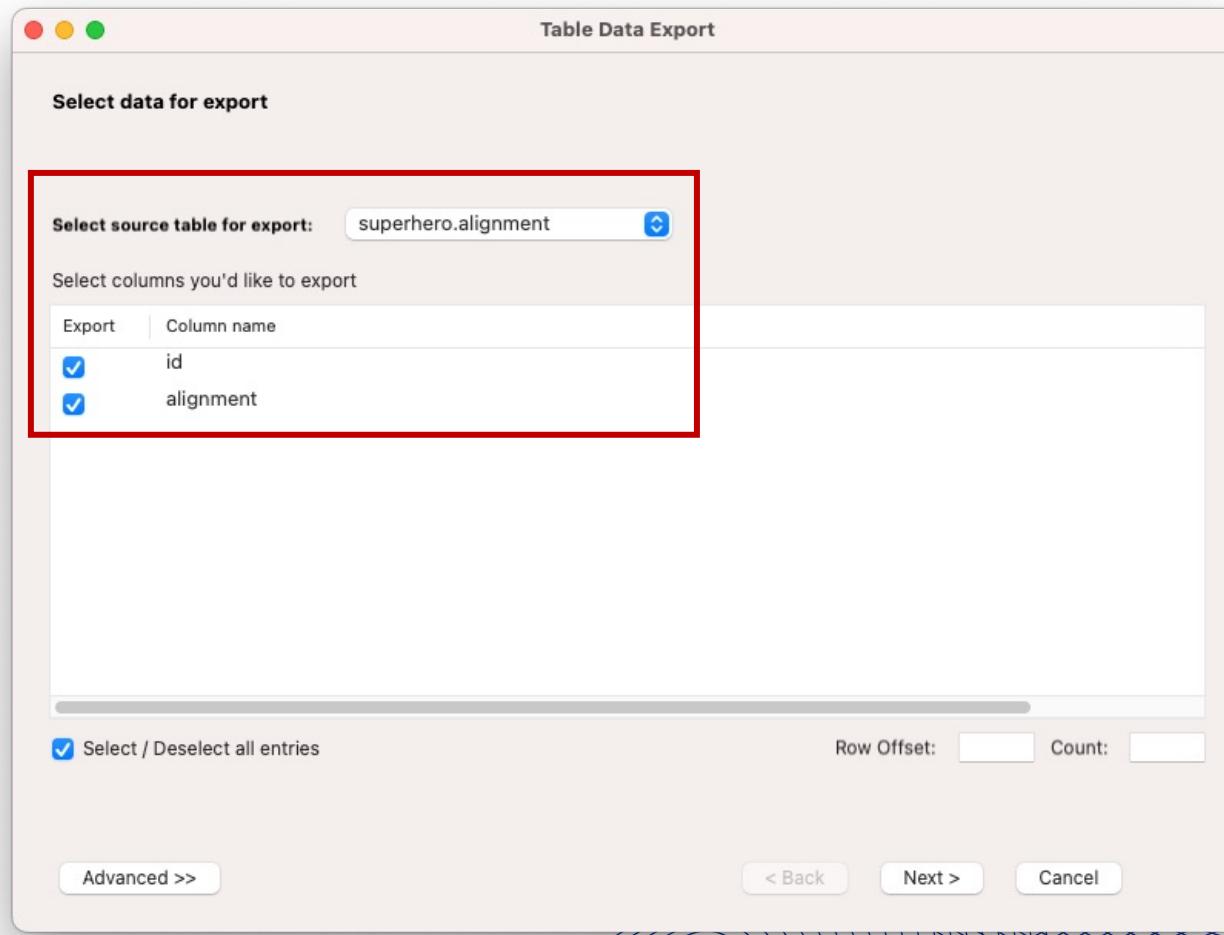
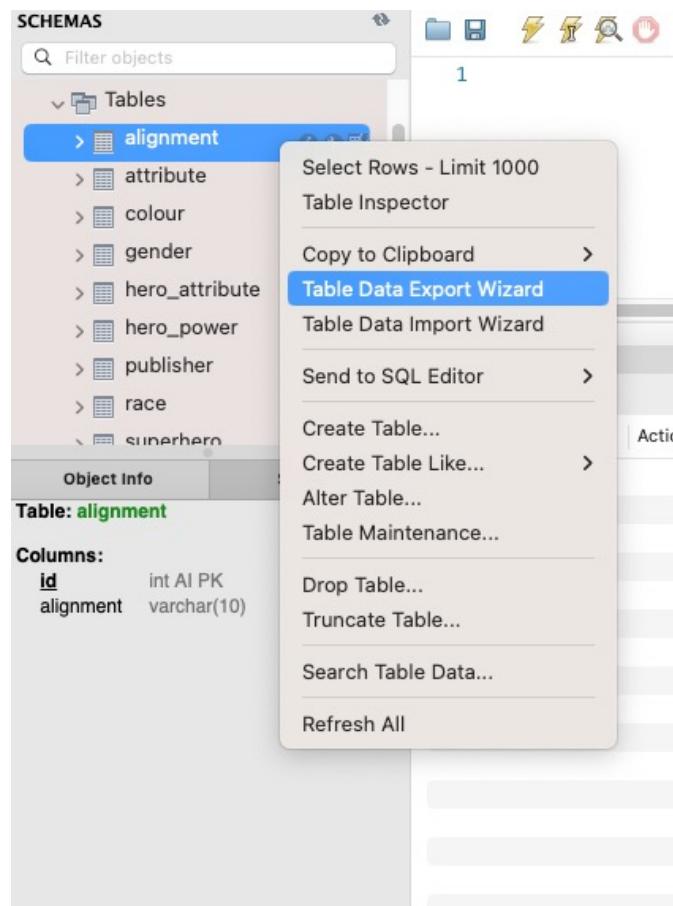
# Table Data Export

- Export table data from existing tables using **Table Data Export Wizard**
- Export table data from existing table using **Administration – Data Export**
- Export the SQL result

# Export from existing tables (1)

## Table Data Export Wizard

Open Table Data Export Wizard and select the table source

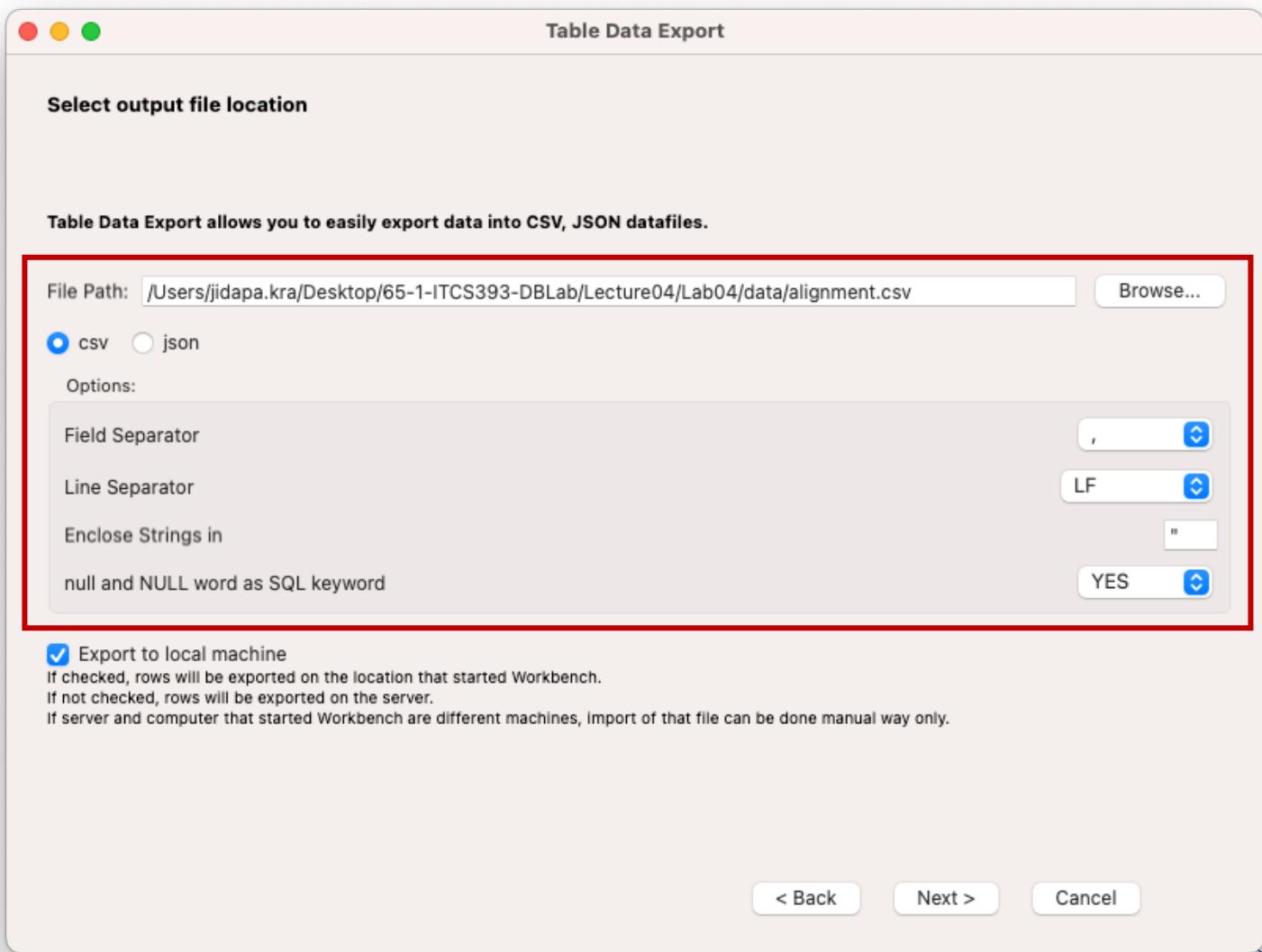


# Export from existing tables (2)

## Table Data Export Wizard

### Specify File Path and file type

- Field separator ( , )
- Line separator
  - LF: Line feed
  - CR: Carriage return
  - CR LF: both



# Export from existing tables (3)

## Table Data Export Wizard

The following tasks will now be performed. Please monitor the execution.

- Prepare Export
- Export data to file

Finished performing tasks. Click [Next >] to continue.

**Export Results**

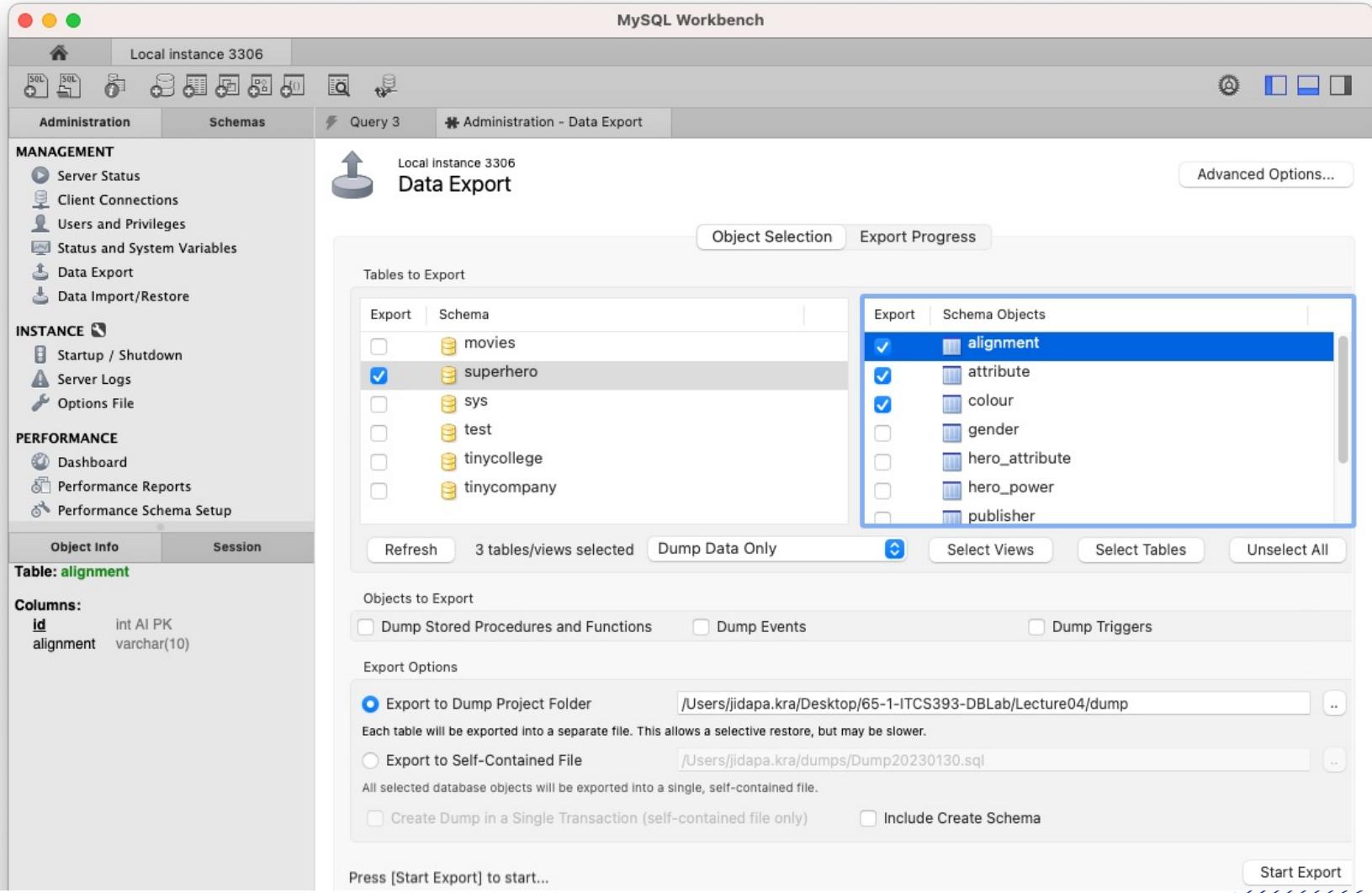
File /Users/jidapa.kra/Desktop/65-1-ITCS393-DBLab/Lecture04/Lab04/data/alignment\_data.csv was exported in 0.245 s

Exported 4 records

Show Logs      < Back      Next >      Cancel

# Export from existing tables (1)

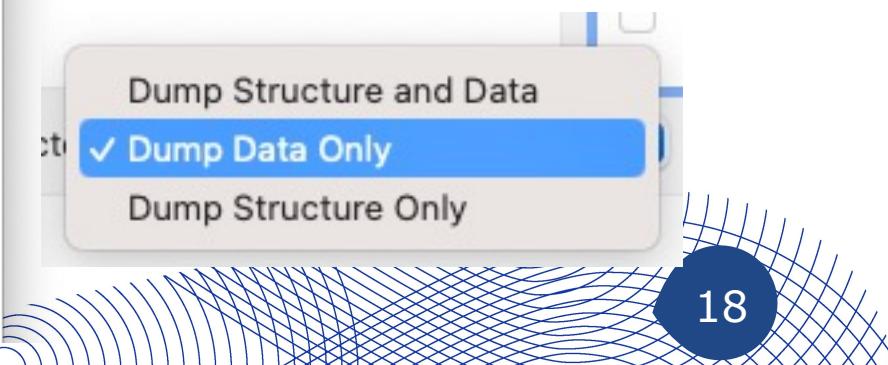
## Administration - Data Export



Open Data Export  
from "Administration"

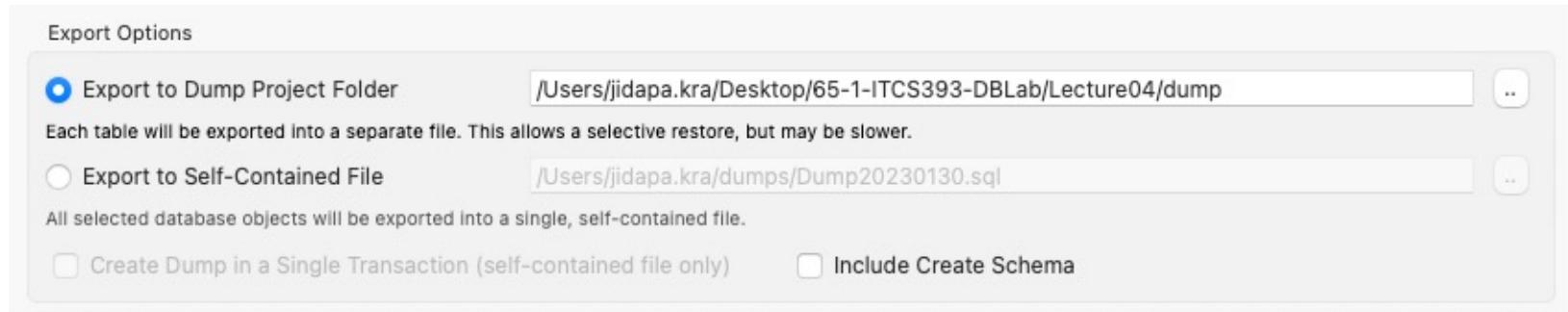
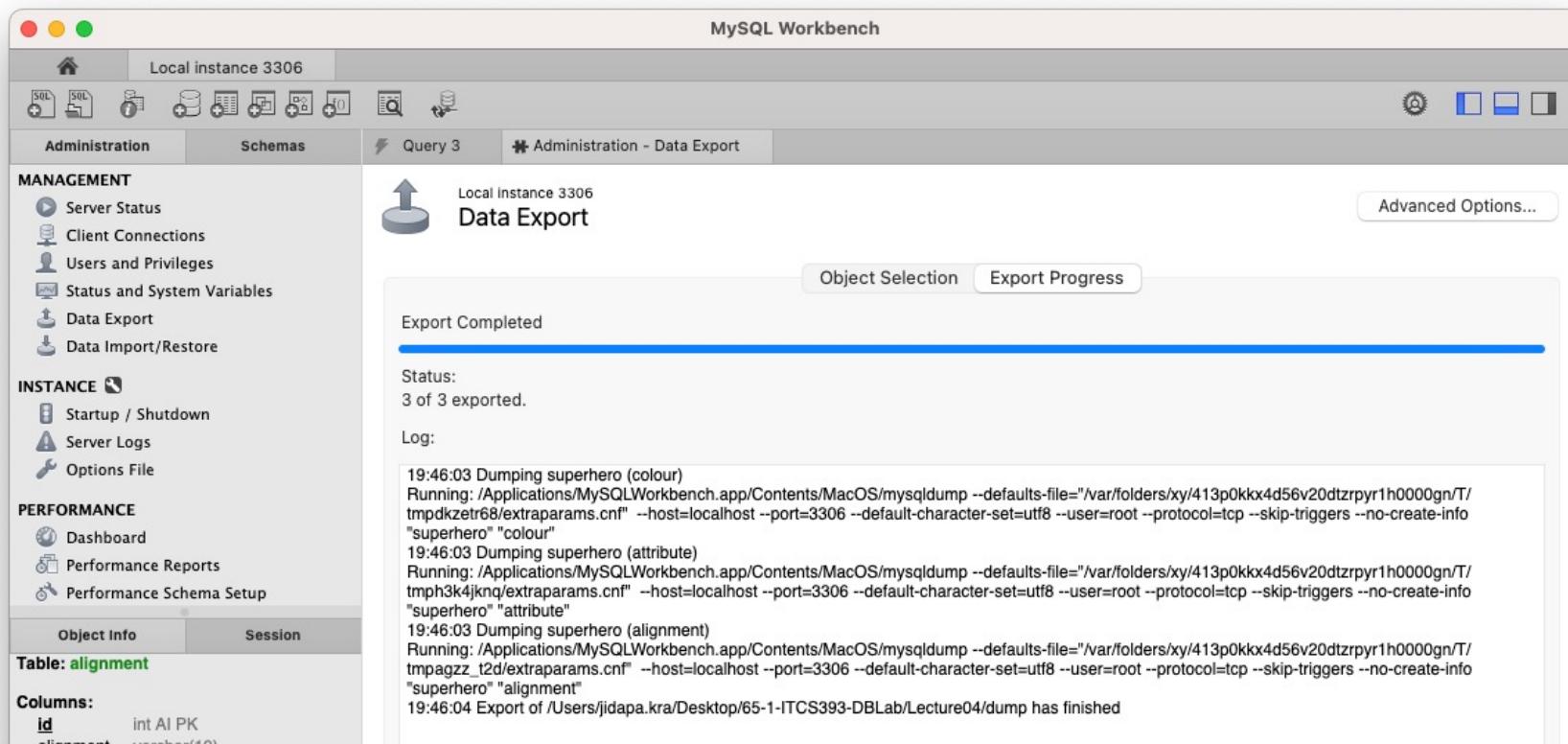
Select the database  
And the tables

For data only, select  
"Dump Data Only"



# Export from existing tables (2a)

Administration - Data Export – Export to Dump Project Folder

The screenshot shows the MySQL Workbench interface with the 'Administration' tab selected. In the center, the 'Data Export' window is open, showing the 'Object Selection' tab. The status bar indicates 'Export Completed' with '3 of 3 exported'. The log pane displays the command history for the export process:

```

19:46:03 Dumping superhero (colour)
Running: /Applications/MySQLWorkbench.app/Contents/MacOS/mysqldump --defaults-file="/var/folders/xy/413p0kkx4d56v20dtzrpyr1h0000gn/T/tmpdkzetr68/extraparams.cnf" --host=localhost --port=3306 --default-character-set=utf8 --user=root --protocol=tcp --skip-triggers --no-create-info "superhero" "colour"
19:46:03 Dumping superhero (attribute)
Running: /Applications/MySQLWorkbench.app/Contents/MacOS/mysqldump --defaults-file="/var/folders/xy/413p0kkx4d56v20dtzrpyr1h0000gn/T/tmpfh3kjnq/extraparams.cnf" --host=localhost --port=3306 --default-character-set=utf8 --user=root --protocol=tcp --skip-triggers --no-create-info "superhero" "attribute"
19:46:03 Dumping superhero (alignment)
Running: /Applications/MySQLWorkbench.app/Contents/MacOS/mysqldump --defaults-file="/var/folders/xy/413p0kkx4d56v20dtzrpyr1h0000gn/T/tmpagzz_12d/extraparams.cnf" --host=localhost --port=3306 --default-character-set=utf8 --user=root --protocol=tcp --skip-triggers --no-create-info "superhero" "alignment"
19:46:04 Export of /Users/jidapa.kra/Desktop/65-1-ITCS393-DBLab/Lecture04/dump has finished

```

Select the folder to dump the file

Each table will be exported into a separate file. This allows a selective restore but may be slower.

# Export from existing tables (3a)

Administration - Data Export – Export to Dump Project Folder

MySQL Workbench

Local instance 3306

Administration Schemas Query 3 superhero\_alignment

**MANAGEMENT**

- Server Status
- Client Connections
- Users and Privileges
- Status and System Variables
- Data Export
- Data Import/Restore

**INSTANCE**

- Startup / Shutdown
- Server Logs
- Options File

**PERFORMANCE**

- Dashboard
- Performance Reports
- Performance Schema Setup

Object Info Session

**Table: alignment**

**Columns:**

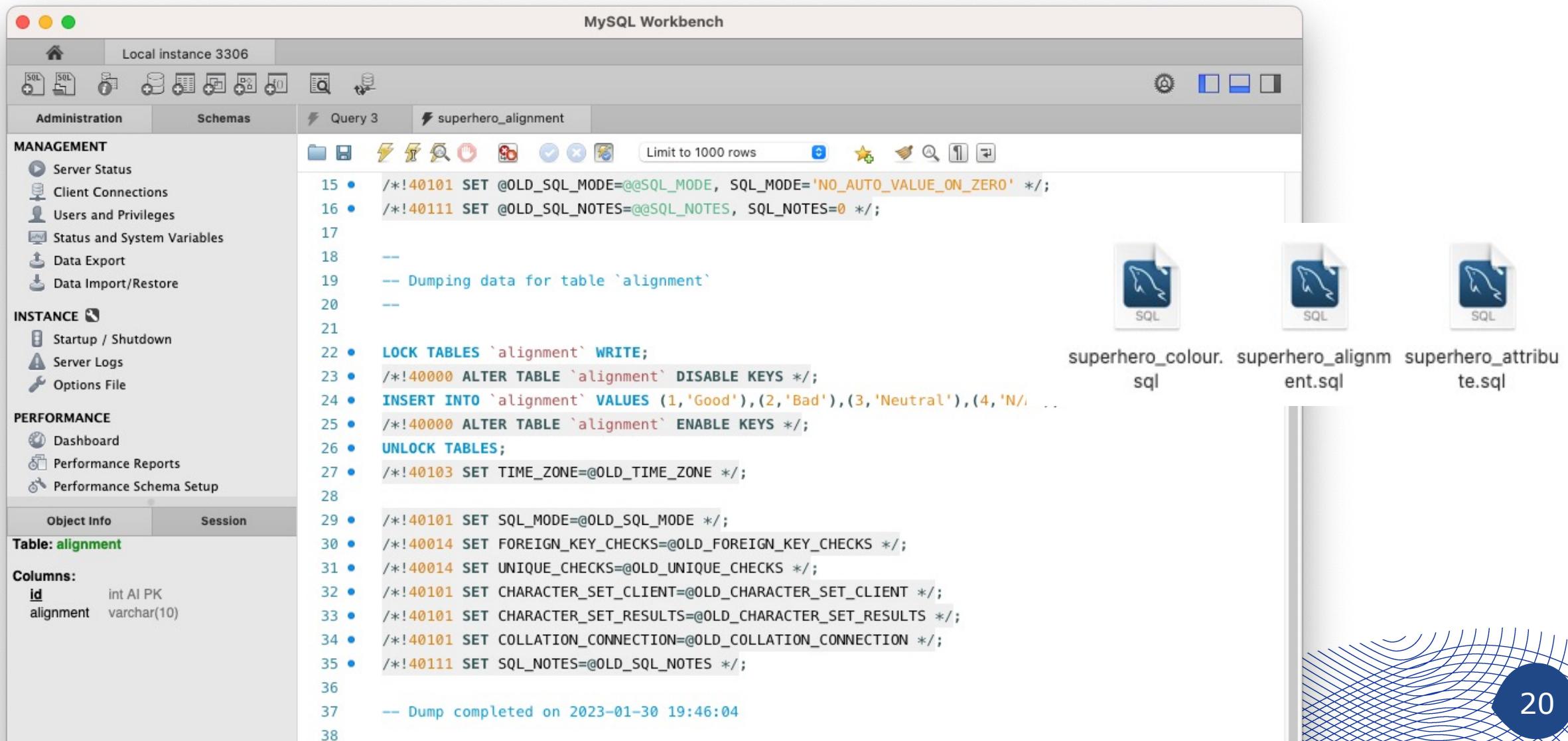
<b>id</b>	int AI PK
alignment	varchar(10)

```

15 • /*!40101 SET @OLD_SQL_MODE=@SQL_MODE, SQL_MODE='NO_AUTO_VALUE_ON_ZERO' */;
16 • /*!40111 SET @OLD_SQL_NOTES=@SQL_NOTES, SQL_NOTES=0 */;
17
18 --
19 -- Dumping data for table `alignment`
20 --
21
22 • LOCK TABLES `alignment` WRITE;
23 • /*!40000 ALTER TABLE `alignment` DISABLE KEYS */;
24 • INSERT INTO `alignment` VALUES (1,'Good'),(2,'Bad'),(3,'Neutral'),(4,'N/...
25 • /*!40000 ALTER TABLE `alignment` ENABLE KEYS */;
26 • UNLOCK TABLES;
27 • /*!40103 SET TIME_ZONE=@OLD_TIME_ZONE */;
28
29 • /*!40101 SET SQL_MODE=@OLD_SQL_MODE */;
30 • /*!40014 SET FOREIGN_KEY_CHECKS=@OLD_FOREIGN_KEY_CHECKS */;
31 • /*!40014 SET UNIQUE_CHECKS=@OLD_UNIQUE_CHECKS */;
32 • /*!40101 SET CHARACTER_SET_CLIENT=@OLD_CHARACTER_SET_CLIENT */;
33 • /*!40101 SET CHARACTER_SET_RESULTS=@OLD_CHARACTER_SET_RESULTS */;
34 • /*!40101 SET COLLATION_CONNECTION=@OLD_COLLATION_CONNECTION */;
35 • /*!40111 SET SQL_NOTES=@OLD_SQL_NOTES */;
36
37 -- Dump completed on 2023-01-30 19:46:04
38

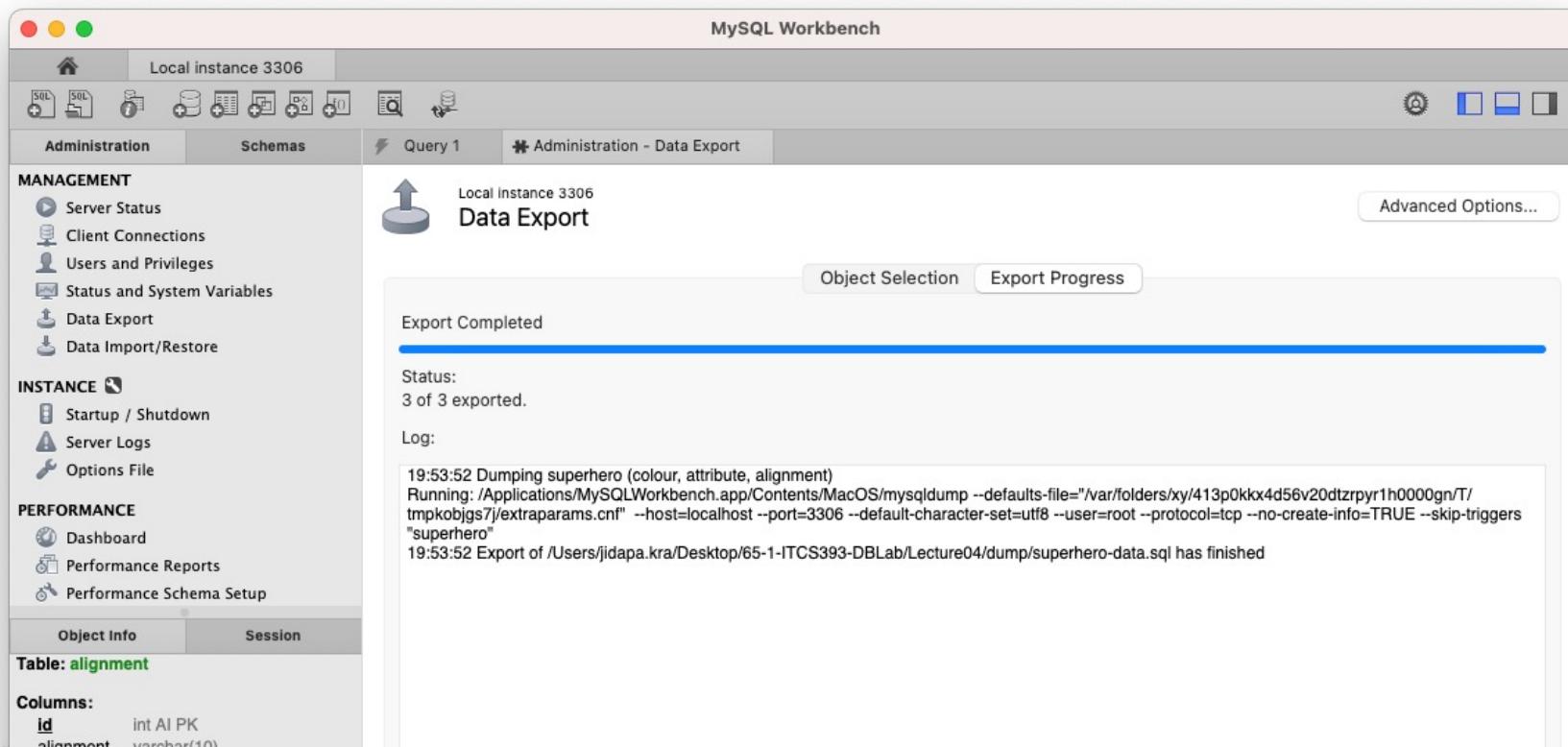
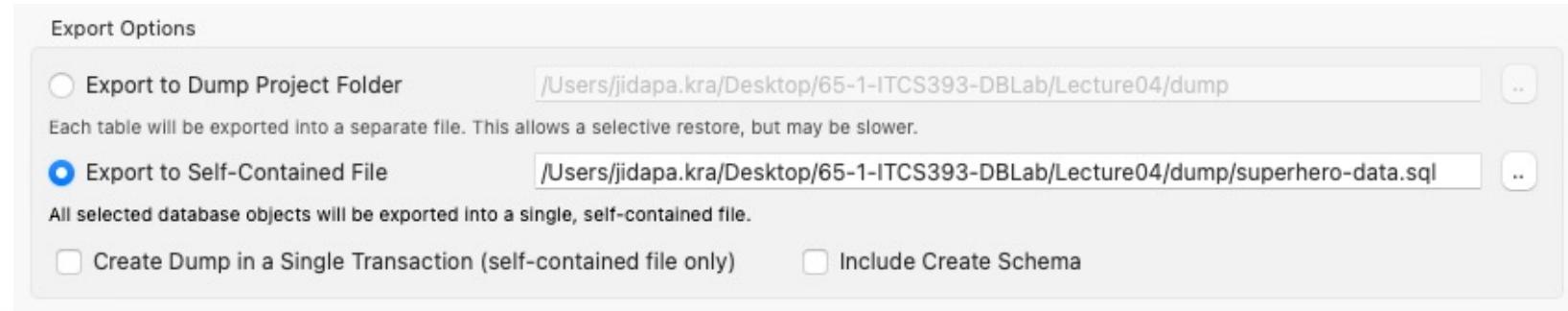
```

superhero\_colour.sql superhero\_alignm ent.sql superhero\_attribu te.sql



# Export from existing tables (2b)

Administration - Data Export – Export to Self-contained File



Select the folder to dump the file

All selected database objects will be exported into a single, self-contained file.

# Export from existing tables (3b)

Administration - Data Export – Export to Self-contained File

MySQL Workbench

Local instance 3306

Administration      Schemas      Query 1      Administration - Data Export      superhero-data

Limit to 1000 rows

```

18  --
19  -- Dumping data for table `alignment`
20  --
21
22 • LOCK TABLES `alignment` WRITE;
23 • /*!40000 ALTER TABLE `alignment` DISABLE KEYS */;
24 • INSERT INTO `alignment` VALUES (1,'Good'),(2,'Bad'),(3,'Neutral'),(4,'N/A');
25 • /*!40000 ALTER TABLE `alignment` ENABLE KEYS */;
26 • UNLOCK TABLES;
27
28 --
29 -- Dumping data for table `attribute`
30 --
31
32 • LOCK TABLES `attribute` WRITE;
33 /*!40000 ALTER TABLE `attribute` DISABLE KEYS */;
34 INSERT INTO `attribute` VALUES (1,'Intelligence'),(2,'Strength'),(3,'Speed'),(4,'Durability'),(5,'Power');
35 /*!40000 ALTER TABLE `attribute` ENABLE KEYS */;
36 UNLOCK TABLES;
37
38 --
39 -- Dumping data for table `colour`
40 --

```

**Object Info**      Session

**Table: alignment**

**Columns:**

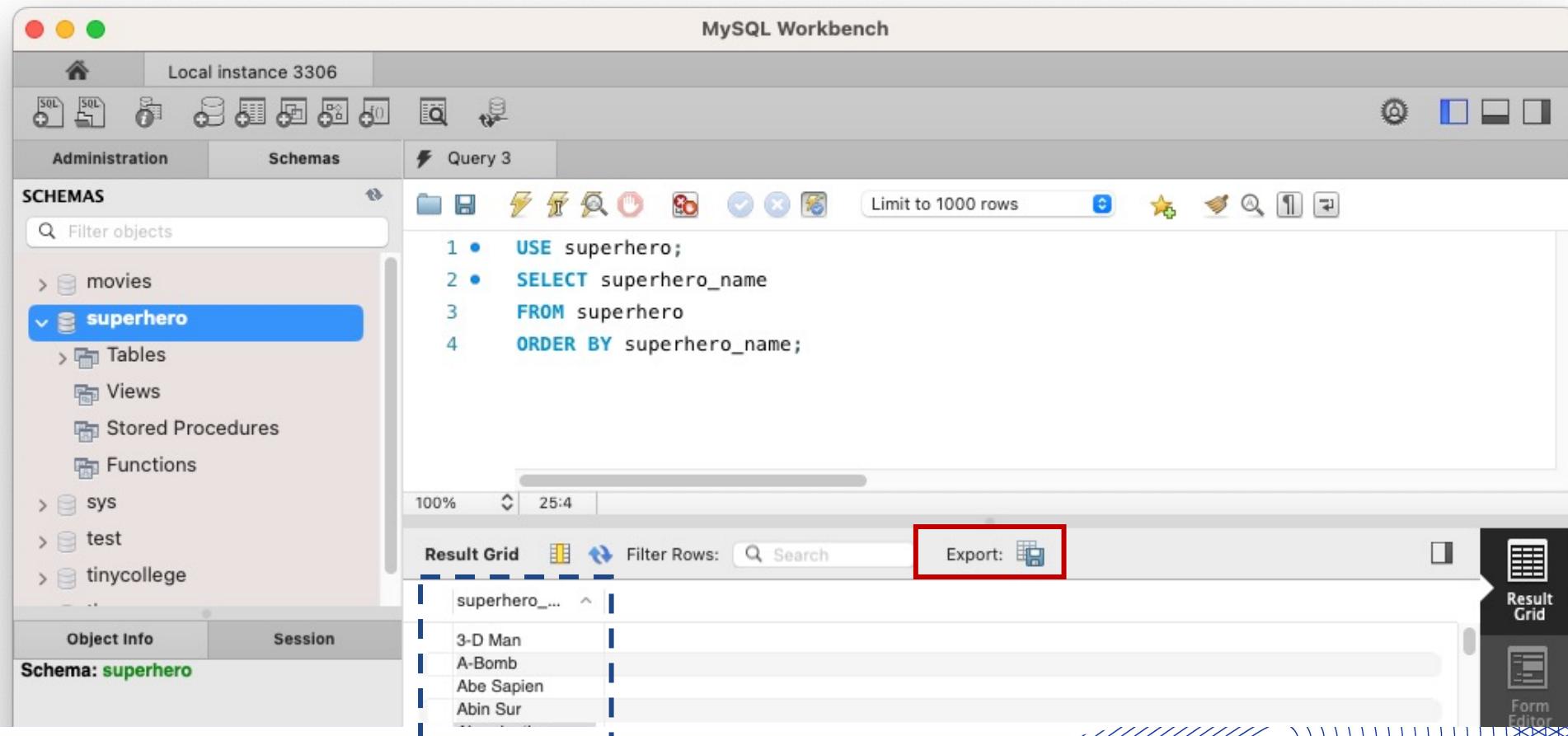
<b>id</b>	int AI PK
alignment	varchar(10)



superhero-  
data.sql

# Export SQL Result (1)

After executing the SQL query, the SQL result can be exported to common file formats including CSV, JSON etc.



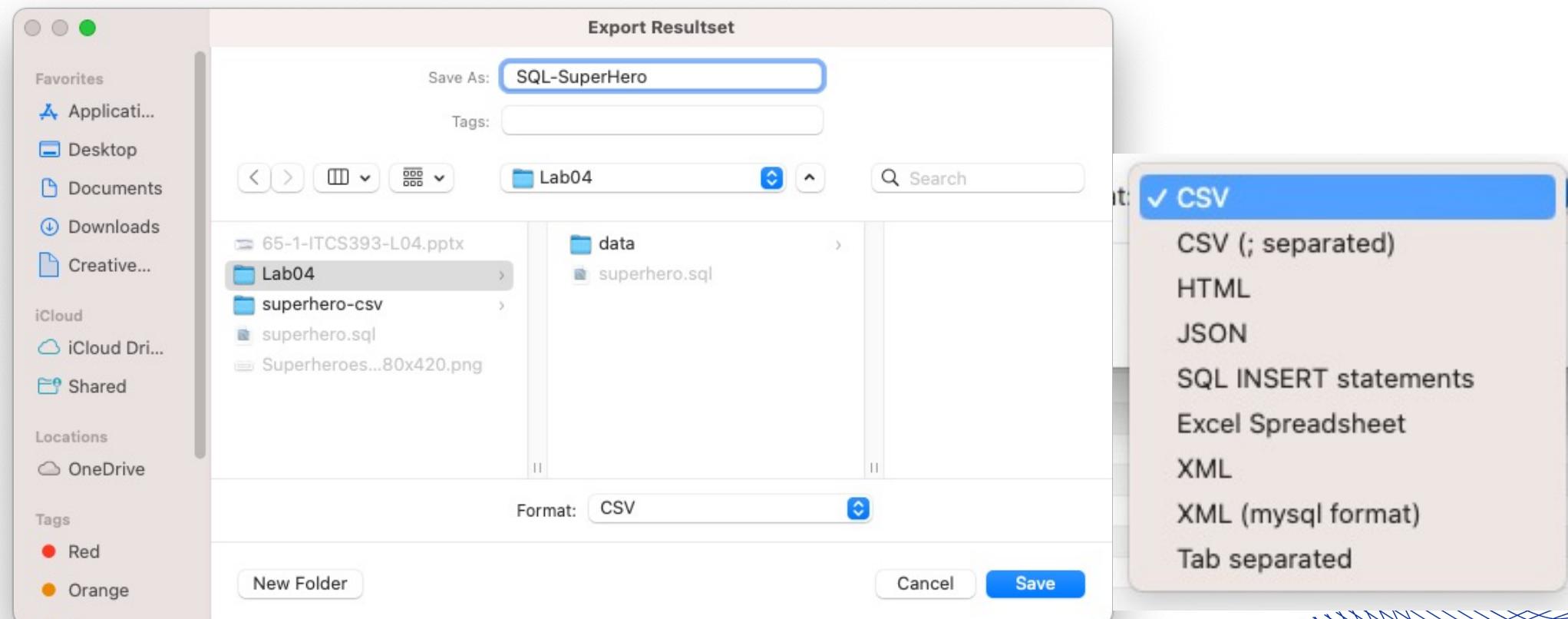
The screenshot shows the MySQL Workbench interface. On the left, the 'SCHEMAS' tree view has 'superhero' selected. The central pane displays a query window with the following SQL code:

```
1 • USE superhero;
2 • SELECT superhero_name
3 FROM superhero
4 ORDER BY superhero_name;
```

The results of this query are shown in the 'Result Grid' at the bottom, listing superhero names: 3-D Man, A-Bomb, Abe Sapien, and Abin Sur. A red box highlights the 'Export:' button in the toolbar at the bottom of the results grid, which is used to save the query results to various file formats.

# Export SQL Result (2)

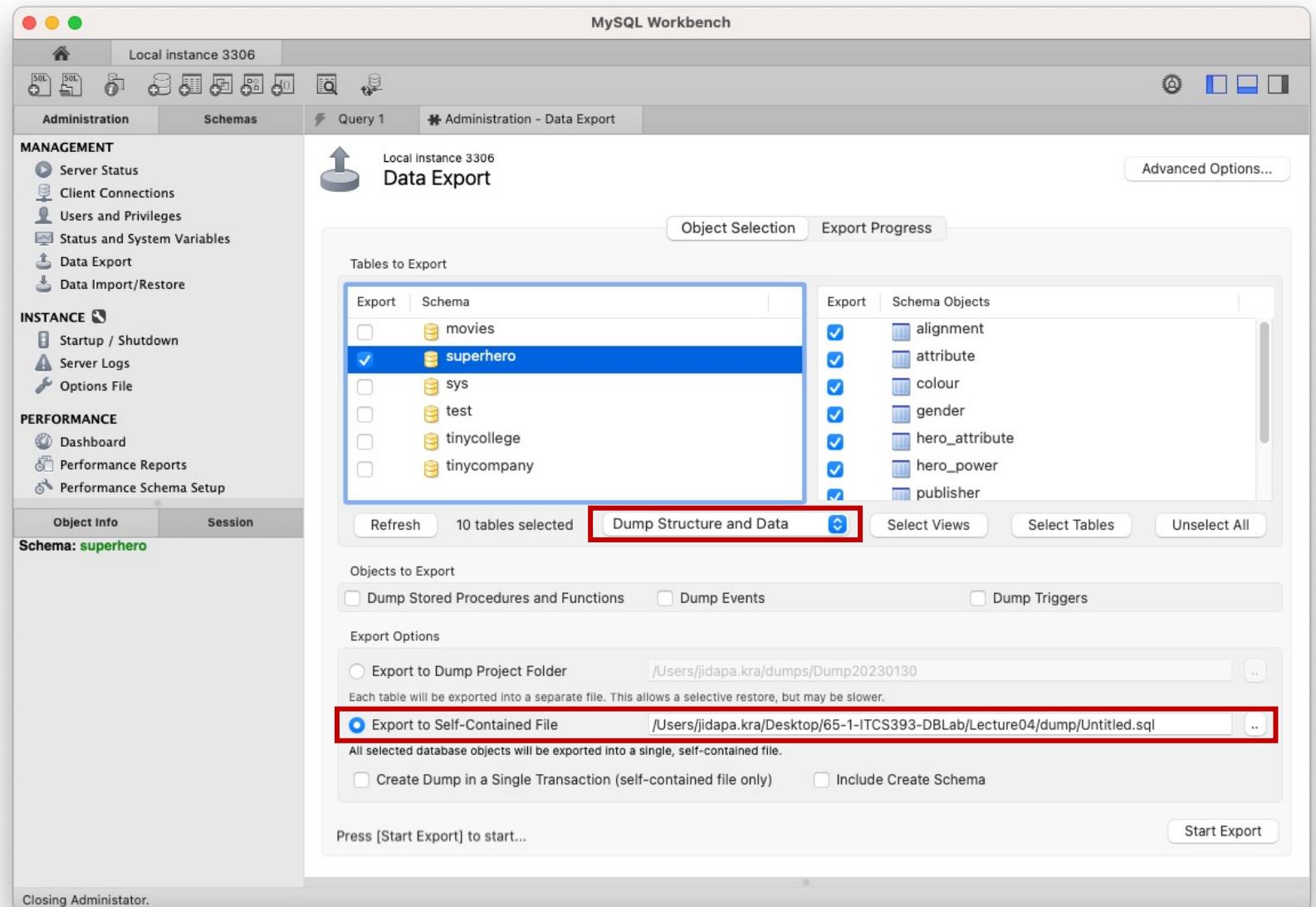
Select the destination, file name, and file type



# Back Up

The full backup can be done by the Data Export in Administration

Select "Dump Structure and Data" and export to Self-contained file.



# Back Up

MySQL Workbench

Local instance 3306

Administration Schemas Query 2 Administration - Data Export superhero

**MANAGEMENT**

- Server Status
- Client Connections
- Users and Privileges
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- Data Import/Restore

**INSTANCE**

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- Options File

**PERFORMANCE**

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- Performance Schema Setup

Object Info Session

Schema: superhero

```

20  --
21
22 • DROP TABLE IF EXISTS `alignment`;
23 • /*!40101 SET @saved_cs_client      = @@character_set_client */;
24 • /*!50503 SET character_set_client = utf8mb4 */;
25 • CREATE TABLE `alignment` (
26   `id` int NOT NULL AUTO_INCREMENT,
27   `alignment` varchar(10) DEFAULT NULL,
28   PRIMARY KEY (`id`)
29 ) ENGINE=InnoDB AUTO_INCREMENT=5 DEFAULT CHARSET=utf8mb4 COLLATE=utf8mb4_0900_ai_ci;
30 • /*!40101 SET character_set_client = @saved_cs_client */;

31
32 --
33 -- Dumping data for table `alignment`
34 --
35
36 • LOCK TABLES `alignment` WRITE;
37 • /*!40000 ALTER TABLE `alignment` DISABLE KEYS */;
38 • INSERT INTO `alignment` VALUES (1,'Good'),(2,'Bad'),(3,'Neutral'),(4,'N/A');
39 • /*!40000 ALTER TABLE `alignment` ENABLE KEYS */;
40 • UNLOCK TABLES;
41

-- Table structure for table `attribute`

```

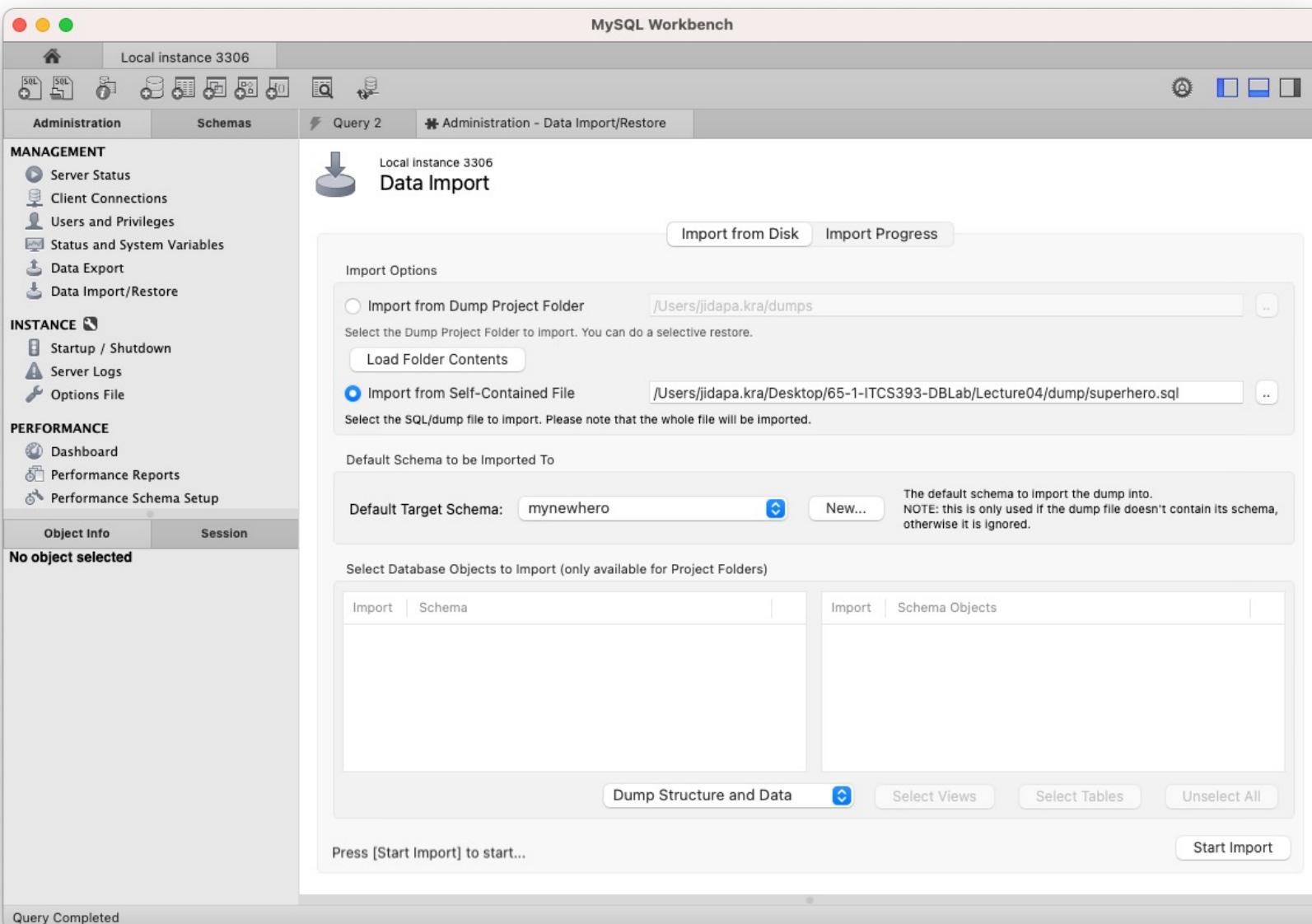
100% 3:32

Action Output



superhero.sql

# Restore the Database file



Restore a database  
from "Data Import/  
Restore" in  
"Administration"

Select the target  
database or "New"

# Restore the Database file

