Task 2

To import data from a CSV file into a database table, you can follow these steps:

1. Choose a database management system (e.g., MySQL, PostgreSQL, SQLite, etc.) and create a table with the appropriate structure (columns and data types) that matches the CSV file's content.
2. Install a library or use a built-in function in your preferred programming language that allows you to read CSV files and interact with the chosen database system. For example, in Python, you can use the pandas library for CSV manipulation and psycopg2 for PostgreSQL interaction.
3. Read the CSV file using the chosen library, ensuring that the data types and formatting are preserved.
4. Insert the data from the CSV file into the database table using the appropriate SQL INSERT statements or library functions.

To export data from a database table into a CSV file, you can follow these steps:

1. Choose a programming language and libraries that allow you to read data from the chosen database system and write CSV files. For example, in Python, you can use pandas for data manipulation and sqlite3 for SQLite database interaction.
2. Connect to the database and retrieve the data from the desired table using SQL SELECT statements or library functions.
3. Convert the retrieved data into the appropriate format (CSV) while preserving data types and formatting. You can use the pandas library to handle this step efficiently.
4. Write the converted data into a CSV file using the chosen library's functions for CSV file writing.

By following these steps, you can ensure that the data types and formatting are preserved during the import/export process.

id,name,department,salary

1,John Doe,HR,50000

2,Jane Smith,IT,60000

3,Alice Johnson,Finance,55000

1. Import the required libraries and create a connection to the SQLite database:

import sqlite3

import pandas as pd

*# Create a connection to the SQLite database*

conn = sqlite3.connect('employees.db')

1. Read the CSV file and create a DataFrame:

*# Read the CSV file into a pandas DataFrame*

df = pd.read\_csv('employees.csv')

1. Create a table in the SQLite database with the same structure as the CSV file:

*# Create a table in the SQLite database*

conn.execute('''CREATE TABLE employees

(id INTEGER, name TEXT, department TEXT, salary REAL)''')

1. Insert the data from the DataFrame into the SQLite database table:

# Insert the data into the SQLite database table

df.to\_sql('employees', conn, index=False, if\_exists='replace')

1. Retrieve the data from the SQLite database table and store it in a DataFrame:

*# Retrieve the data from the SQLite database table*

df = pd.read\_sql\_query("SELECT \* FROM employees", conn)

1. Write the data from the DataFrame back into a CSV file:

*# Write the data back into a CSV file*

df.to\_csv('exported\_employees.csv', index=False)