1. Set the variable test1 to the string 'This is a test of the emergency text system,' and save test1 to a file named test.txt.

:-

test1 = 'This is a test of the emergency text system'

with open('test.txt', 'w') as file:

file.write(test1)

2. Read the contents of the file test.txt into the variable test2. Is there a difference between test 1 and test 2?

:-

with open('test.txt', 'r') as f:

test2 = f.read()

print(test2)

No there is no difference as same file contents are being read.

3. Create a CSV file called books.csv by using these lines:

title,author,year

The Weirdstone of Brisingamen,Alan Garner,1960

Perdido Street Station,China Miéville,2000

Thud!,Terry Pratchett,2005

The Spellman Files,Lisa Lutz,2007

Small Gods,Terry Pratchett,1992

:-

import csv

data = [

['title', 'author', 'year'],

['The Weirdstone of Brisingamen', 'Alan Garner', '1960'],

['Perdido Street Station', 'China Miéville', '2000'],

['Thud!', 'Terry Pratchett', '2005'],

['The Spellman Files', 'Lisa Lutz', '2007'],

['Small Gods', 'Terry Pratchett', '1992']

]

with open('books.csv', 'w', newline='\r\n') as file:

writer = csv.writer(file)

writer.writerows(data)

4. Use the sqlite3 module to create a SQLite database called books.db, and a table called books with these fields: title (text), author (text), and year (integer).

:-

import sqlite3

# Create a connection to the database

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

# Create a cursor object to execute SQL queries

c = conn.cursor()

# Create the table 'books'

c.execute('''CREATE TABLE books

(title TEXT, author TEXT, year INTEGER)''')

# Commit the changes and close the connection

conn.commit()

conn.close()

5. Read books.csv and insert its data into the book table.

:-

import csv

import sqlite3

# create a connection to the database

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

# create a cursor object

c = conn.cursor()

# create the table if it doesn't exist

c.execute('CREATE TABLE IF NOT EXISTS books (title TEXT, author TEXT, year INTEGER)')

# read the CSV file and insert its data into the table

with open('books.csv', 'r') as f:

reader = csv.reader(f)

next(reader) # skip the header row

for row in reader:

title, author, year = row

c.execute('INSERT INTO books (title, author, year) VALUES (?, ?, ?)', (title, author, year))

# commit the changes and close the connection

conn.commit()

conn.close()

6. Select and print the title column from the book table in alphabetical order.

:-

import sqlite3

# connect to the books.db database

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

# create a cursor object to execute SQL queries

c = conn.cursor()

# select the title column from the book table in alphabetical order

c.execute("SELECT title FROM books ORDER BY title")

# fetch all the selected rows

rows = c.fetchall()

# print the selected titles

for row in rows:

print(row[0])

# close the cursor and connection

c.close()

conn.close()

7. From the book table, select and print all columns in the order of publication.

:-

import sqlite3

# connect to database and create cursor

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

cur = conn.cursor()

# execute query and fetch results

cur.execute("SELECT \* FROM books ORDER BY year")

results = cur.fetchall()

# print results

for row in results:

print(row)

# close connection

conn.close()

8. Use the sqlalchemy module to connect to the sqlite3 database books.db that you just made in exercise 6.

:-

from sqlalchemy import create\_engine

# create engine to connect to database

engine = create\_engine('sqlite:///books.db', echo=True)

# test connection by executing a simple query

result = engine.execute('SELECT \* FROM books')

for row in result:

print(row)

9. Install the Redis server and the Python redis library (pip install redis) on your computer. Create a Redis hash called test with the fields count (1) and name ('Fester Bestertester'). Print all the fields for test.

:-

import redis

# create Redis connection

r = redis.Redis(host='localhost', port=6379, db=0)

# create hash and set fields

r.hset('test', 'count', 1)

r.hset('test', 'name', 'Fester Bestertester')

# print all fields for test

print(r.hgetall('test'))

10. Increment the count field of test and print it.

import redis

# Connect to Redis

r = redis.Redis()

# Increment the count field of the test hash

r.hincrby('test', 'count', 1)

# Print the updated count field

count = r.hget('test', 'count')

print(count)