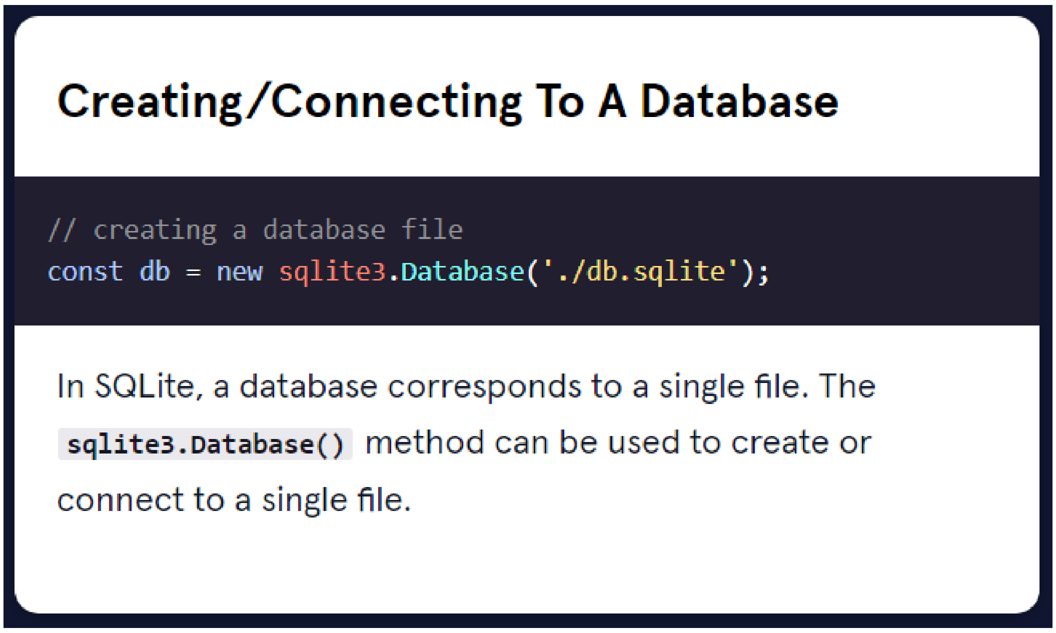
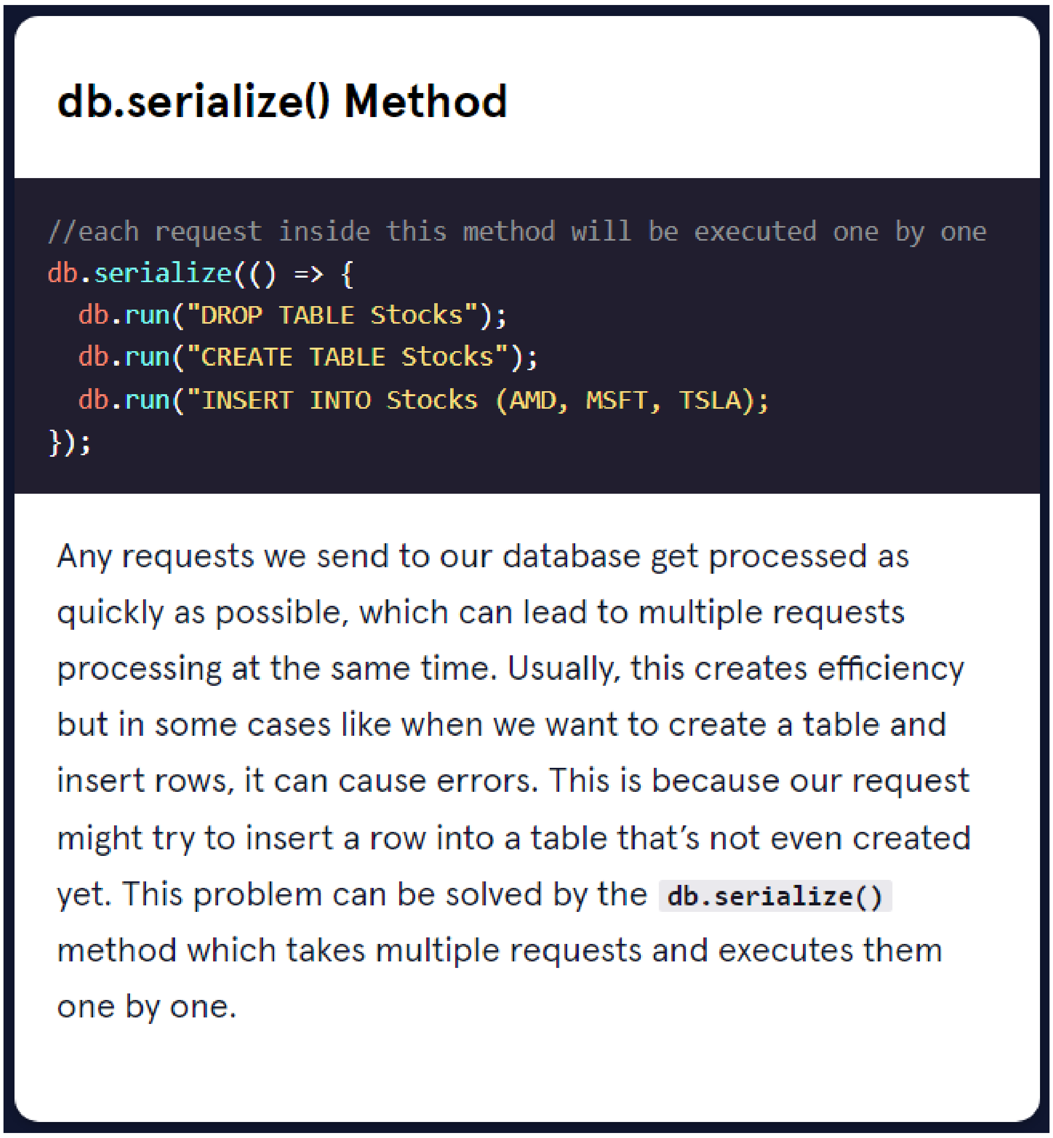
PRACTICE CONCEPTS



Creating/Connecting To A Database

```
// creating a database file
const db = new sqlite3.Database('./db.sqlite');
```

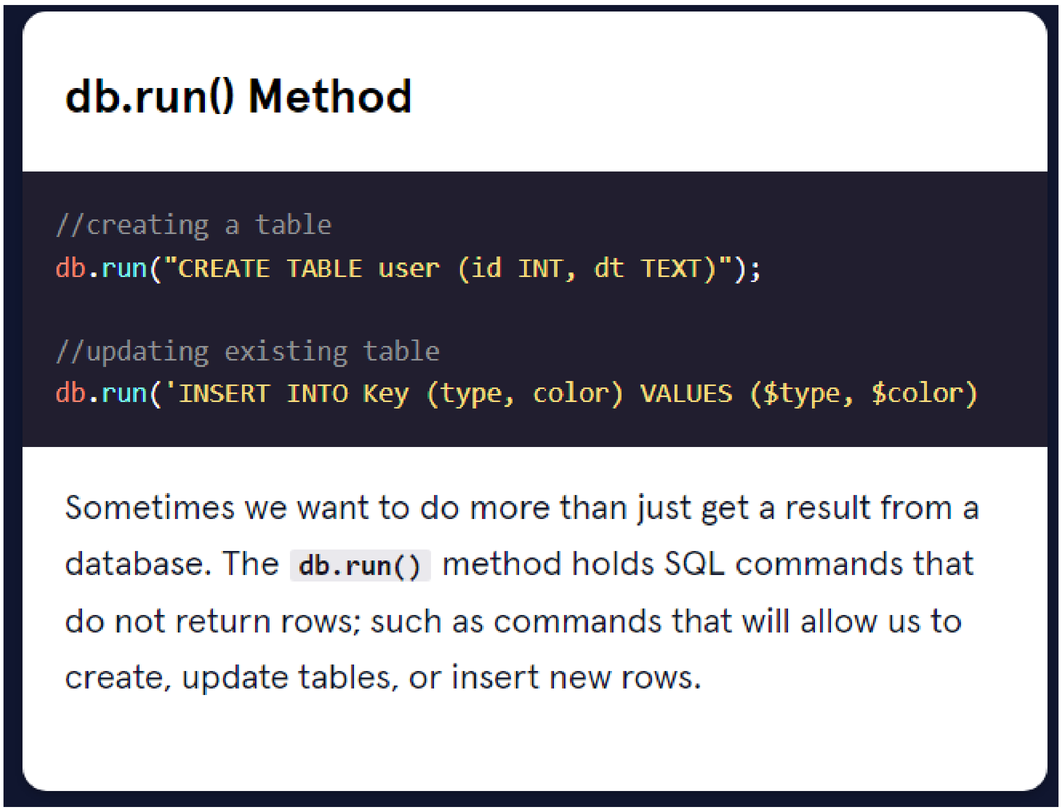
In SQLite, a database corresponds to a single file. The `sqlite3.Database()` method can be used to create or connect to a single file.



db.serialize() Method

```
//each request inside this method will be executed one by one
db.serialize(() => {
  db.run("DROP TABLE Stocks");
  db.run("CREATE TABLE Stocks");
  db.run("INSERT INTO Stocks (AMD, MSFT, TSLA);
});
```

Any requests we send to our database get processed as quickly as possible, which can lead to multiple requests processing at the same time. Usually, this creates efficiency but in some cases like when we want to create a table and insert rows, it can cause errors. This is because our request might try to insert a row into a table that's not even created yet. This problem can be solved by the `db.serialize()` method which takes multiple requests and executes them one by one.

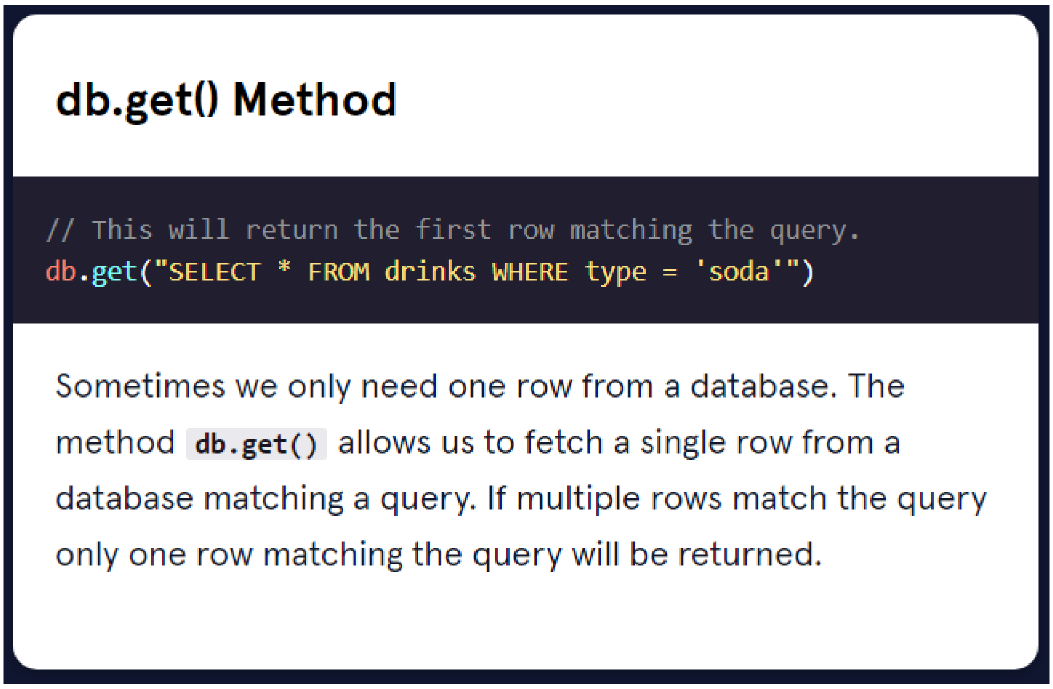


db.run() Method

```
//creating a table
db.run("CREATE TABLE user (id INT, dt TEXT)");

//updating existing table
db.run('INSERT INTO Key (type, color) VALUES ($type, $color)
```

Sometimes we want to do more than just get a result from a database. The `db.run()` method holds SQL commands that do not return rows; such as commands that will allow us to create, update tables, or insert new rows.



db.get() Method

```
// This will return the first row matching the query.
db.get("SELECT * FROM drinks WHERE type = 'soda'")
```

Sometimes we only need one row from a database. The method `db.get()` allows us to fetch a single row from a database matching a query. If multiple rows match the query only one row matching the query will be returned.

db.all() Method

```
// Selects a table named Animal and returns only the rows the
has the pet as a cat
db.all("SELECT * FROM Animal WHERE pet = 'cat'")
```

A query is a statement that speaks to a database and requests specific information from it. The `db.all()` method allows us to execute a query that returns all rows with specific data. For example, we can use `db.all()` to return all rows from a table that has the pet as a cat.

sqlite3 Module

```
//requiring the sqlite3 module

const sqlite3 = require('sqlite3');
```

Node.js and SQLite are separate entities, but both can be used together to create powerful applications. First, we need to link them together by requiring the **sqlite3** module. Once we have required this module in our JavaScript, it will give us access to methods to perform various actions with the database.

Handling Errors

```
// an if statement can be used to log the error
if (err) {
    console.log(err);
}
```

sqlite3 uses Node.js error-first callback style.The first argument in the methods `db.run()`, `db.each()`, `db.get()`, and `db.all()` will always be an Error object. This object will return an error if it exists and return `null` if no errors are found.

db.each() Method

```
db.each("SELECT * FROM Sports WHERE type = 'baseball'",
  (error, row) => {
  // This will be printed everytime a row is returned
  console.log(`${row.name} is a good baseball team`);
};
```

Sometimes we want to perform an action every time a row is returned. Using the `db.each()` method we can do exactly that. `db.each()` takes a query and a callback function that it performs on each row returned from the query. `db.each()` can also take a second callback function, which will be called when all of the queries are completed and processed.