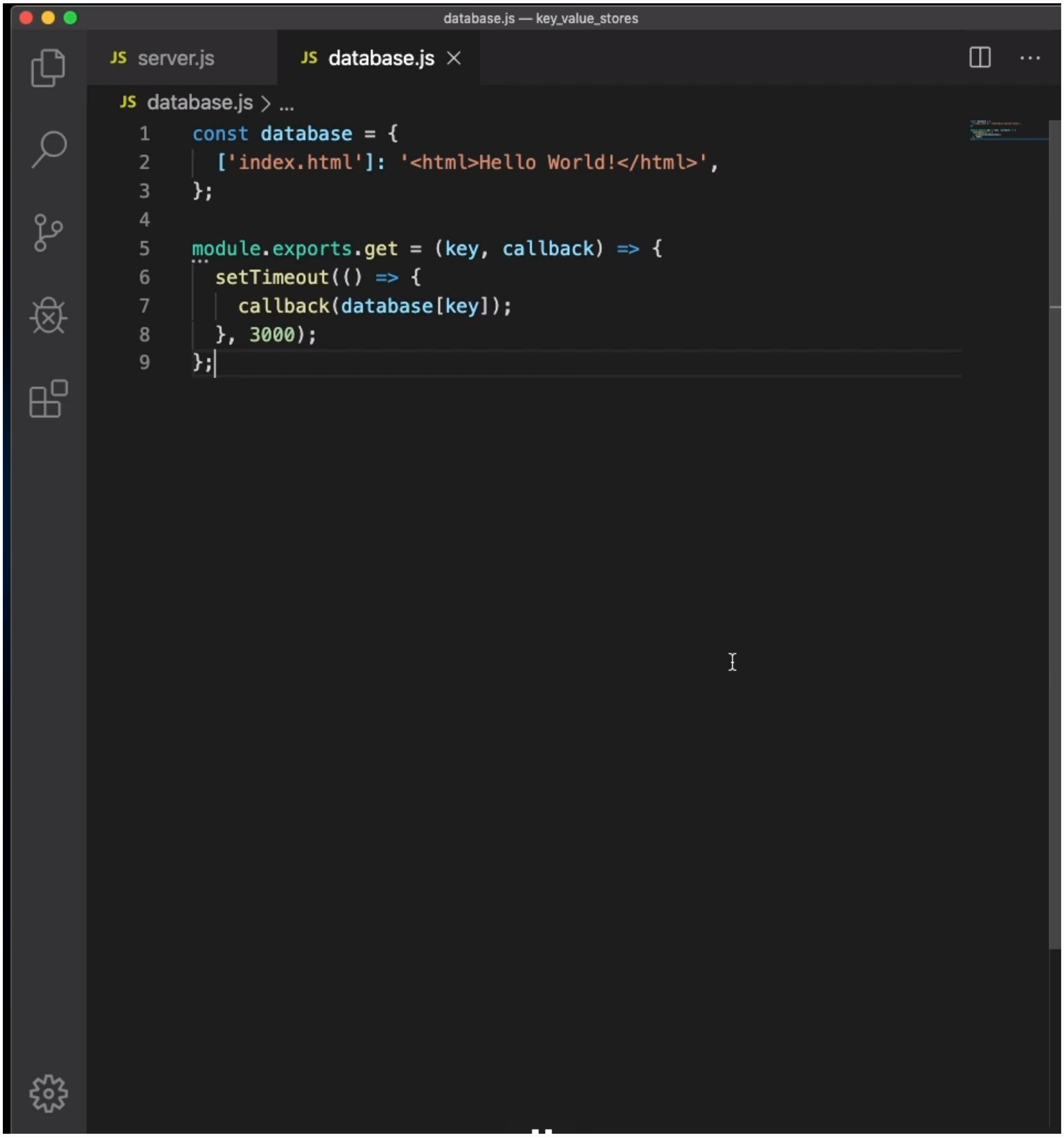
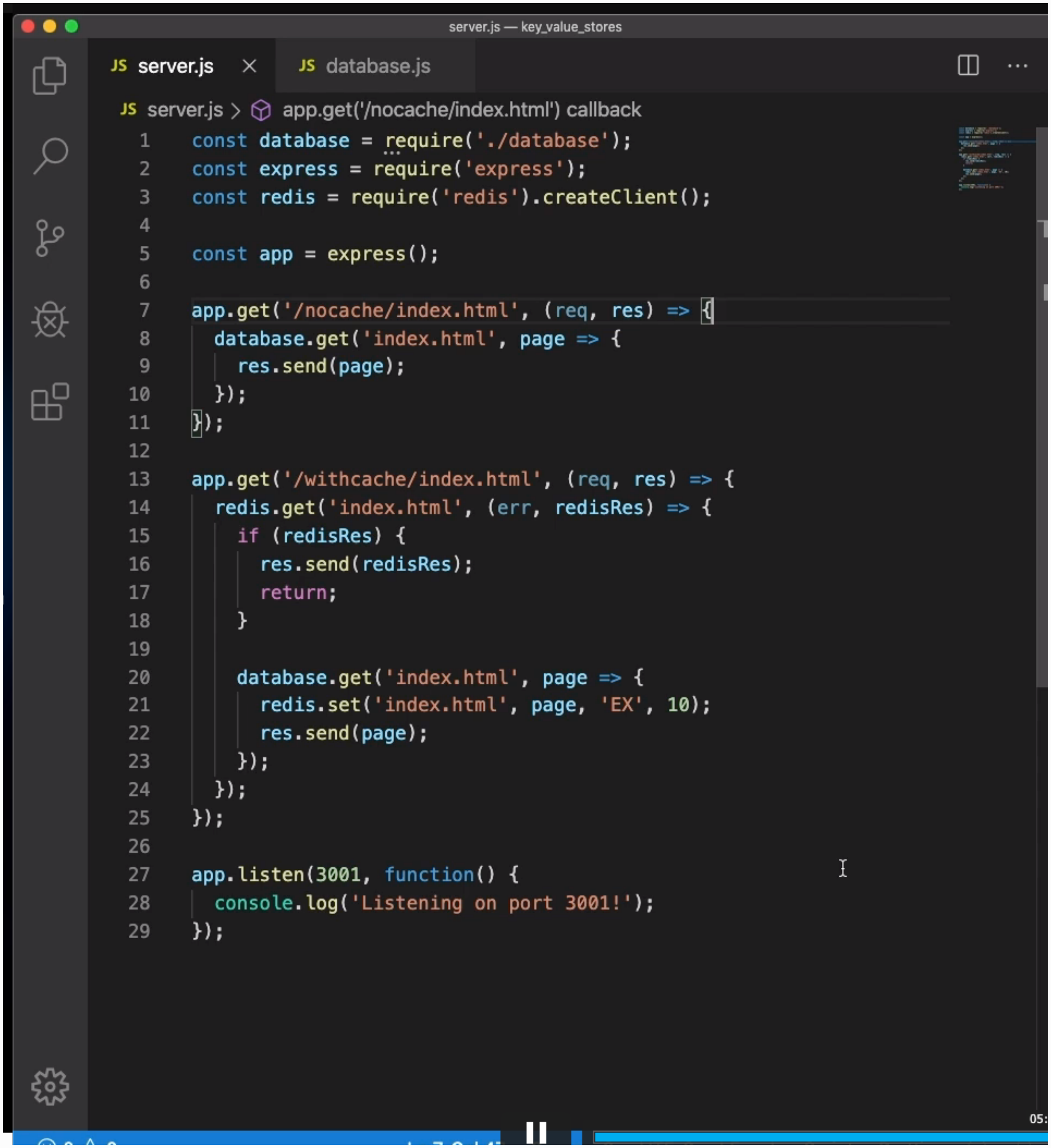
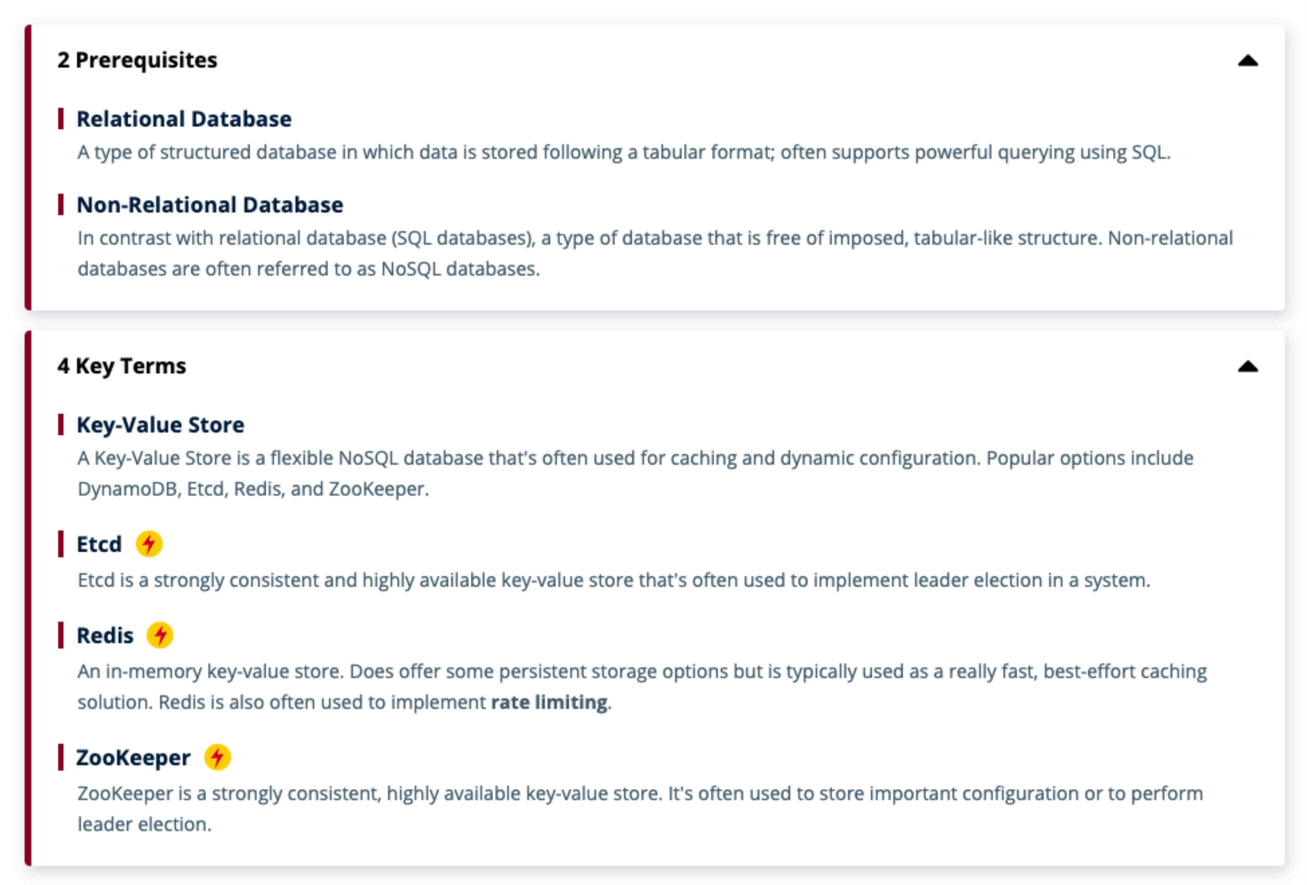
Key-Value Store



```javascript
const database = {
  ['index.html']: '<html>Hello World!</html>',
};

module.exports.get = (key, callback) => {
  setTimeout(() => {
    callback(database[key]);
  }, 3000);
};
```


server.js — key_value_stores
server.js
database.js
server.js > app.get('/nocache/index.html') callback
05:

```javascript
const database = require('./database');
const express = require('express');
const redis = require('redis').createClient();

const app = express();

app.get('/nocache/index.html', (req, res) => {
  database.get('index.html', page => {
    res.send(page);
  });
});

app.get('/withcache/index.html', (req, res) => {
  redis.get('index.html', (err, redisRes) => {
    if (redisRes) {
      res.send(redisRes);
      return;
    }

    database.get('index.html', page => {
      redis.set('index.html', page, 'EX', 10);
      res.send(page);
    });
  });
});

app.listen(3001, function() {
  console.log('Listening on port 3001!');
});
```



2 Prerequisites ▲

Relational Database

A type of structured database in which data is stored following a tabular format; often supports powerful querying using SQL.

Non-Relational Database

In contrast with relational database (SQL databases), a type of database that is free of imposed, tabular-like structure. Non-relational databases are often referred to as NoSQL databases.

4 Key Terms ▲

Key-Value Store

A Key-Value Store is a flexible NoSQL database that's often used for caching and dynamic configuration. Popular options include DynamoDB, Etcd, Redis, and ZooKeeper.

Etcd ⚡

Etcd is a strongly consistent and highly available key-value store that's often used to implement leader election in a system.

Redis ⚡

An in-memory key-value store. Does offer some persistent storage options but is typically used as a really fast, best-effort caching solution. Redis is also often used to implement **rate limiting**.

ZooKeeper ⚡

ZooKeeper is a strongly consistent, highly available key-value store. It's often used to store important configuration or to perform leader election.