

National University of Computer and Emerging Sciences



Lab Manual

for

Web Engineering (SL3003)

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Lab 12 – Node Modules

Objectives

- ✓ HTTP Server Handling
- ✓ Working with FS module
- ✓ Understanding Callbacks
- ✓ Handling Events
- ✓ Path Management
- ✓ Working with Streams and Buffers

Tom and Jerry File Server



Story:

You are building a secret messaging server for **Jerry** to send secret notes about **Tom**! 🐱🐱

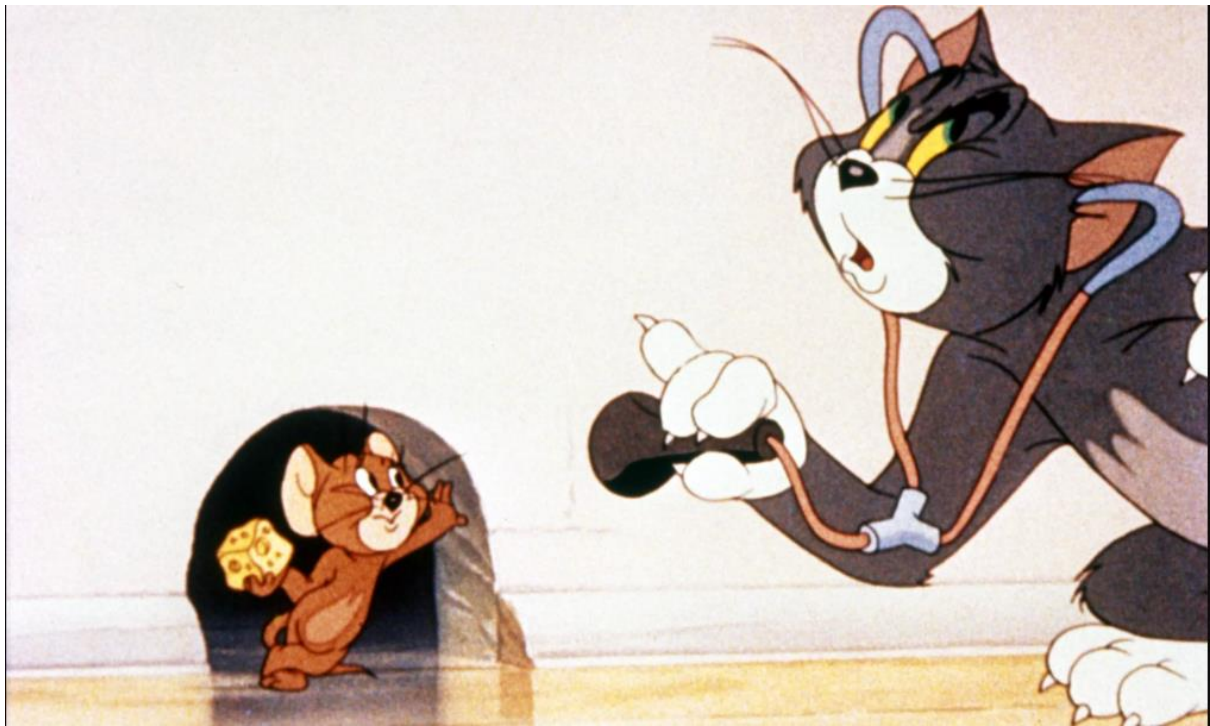
- Jerry writes a message ("Tom is planning something!") through a form.
- Your server saves Jerry's messages safely.
- Later, Jerry can read back all his saved notes.

The server will:

- Save messages.
- Read messages.
- Log secret operations with events.
- Use path, stream, buffer for performance!

Setup your node project with this command:

```
npm i init -y
```



Lab Tasks

1. HTTP Server (http module)

- Create a Node.js HTTP server.
- When Jerry visits /jerry:
 - Show a basic HTML form:

```
<h1>🕵️ Jerry's Secret Message</h1>
<form method="POST" action="/save-message">
  <textarea name="message" placeholder="Write a secret about Tom..."></textarea><br>
  <button type="submit">Send Secret</button>
</form>
```

- When Jerry submits the form (POST /save-message):
 - Save the secret message into a file named jerry_secrets.txt.
 - Use **fs.writeFile** with **callback**.
 - Add timestamps to each secret message.
 - When Jerry visits /read-messages:
 - Stream all the secrets stored in jerry_secrets.txt to him.
 - Show file size too (using **Buffer.byteLength**).
 - Show number of secrets saved.
-

2. Events (events module)

- Create a custom event emitter.
 - Emit a "secretSaved" event after saving a secret.
 - Emit a "secretsRead" event after Jerry reads his messages.
 - Log:
 - "Jerry has saved a new secret!"
 - "🕵️ Jerry is reading his secrets!"
-

3. File Path (path module)

- Use path module to safely resolve and join the file path for jerry_secrets.txt.
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4. Streams and Buffers (fs, stream, buffer modules)

- While reading jerry_secrets.txt:
 - Use **fs.createReadStream** to read.
 - As you stream chunks, use **Buffer.byteLength** to show the size of the data Jerry is reading.
-

4. /tom page

- When /tom page is accessed
 - Show page with message that Tom can't view Jerry's secret messages.

Final URL Flow:

URL	Action
/jerry	Show Jerry's secret message form
/save-message	Save Jerry's secret note
/read-messages	Stream and show all Jerry's notes
/tom	Access Denied page (because Tom is not allowed 😊)

