Assignment 2 - Client-Server application

This assignment has three parts and focuses on the development of a simple posting system based on nodejs. In this assignment, you will train:

- the development of a stateful client-server application,
- use of asynchronous XHTMLHttpRequest
- testing of your code

Please provide the Dockerfile and/or docker-compose.yml you used in completing the assignment. Failure to provide the needed Dockerfile and/or docker-compose.yml will make it impossible to test the solution you developed and result in 0 marks for this assignment.

Part A) 30 Points

Develop for the nodejs platform a post method called `postmessage` that accepts two parameters (topic and data) and saves them together with a timestamp (date and time) in a file called **`posts.txt`**. Make sure that if the file already exists that you add append it - if it doesn't exist you should create it. To simplify your task, you may use the npm module express and body-parser. No other libraries are to be used.
Obviously, you are free to use any standard nodejs module, e.g. fs.

Part B) 50 Points

Develop a webpage called `posting.html` that allows a user to see all posts and allows the creation of new posts. You should only use asynchronous XMLHttpRequest calls for client-server communication. To improve the user experience, use `alert` to inform the user about the success or failure of posting a new message. Ensure that the displayed posts are up to date, e.g. update the data on the webpage if another user made a post.
No javascript libraries are allowed for this part.

Part C) 30 Points

Write a test report that shows how you tested the nodejs code you developed (e.g. be sure to use loadtest [https://www.npmjs.com/package/loadtest] for the performance test). Your report (short paragraph) should answer the following questions

- How did you test your code?
- How long does it take to process a single post (performance)?
- Does the size of the data submitted to the server impact the performance?
- How does the number of requests impact the performance of the server?
- How does the level of concurrency impact the performance of the server?

What to hand in?

Dockerfile and/or docker-compose.yml file that you used in the assignment. Failure to provide this/these files will result in a zero (0) grade for the assignment.

Part a) -> one file called server.js (make sure that calling nodejs server.js will work).
Part b) -> one file called posting.html (this file should contain all JS code and HTML)
Part c) -> one file called report.pdf that contains your report.