



THE UNIVERSITY OF WINNIPEG

Applied Computer Science
ACS-3909
Advanced Internet Programming

Winter 2022

Assignment 1

Due date: Feb 9, 2022, 11:59 pm (CST)

Total Marks: 33

Objectives

Get an understanding of Node.JS, web servers, and some express features. You will create a simple web server that will serve a homepage, some information and an image. This assignment is an excellent opportunity to apply HTML tags, elements, and attributes besides different CSS styles. It will also enhance the sense of modularity by separating CSS file from HTML file.

Task One (6 marks): Include your responses to the following questions in a word document, pdf or text file.

a) (3 marks) Describe the reasons that Node.JS is able to out perform traditional web servers like apache while requiring less system resources?

b) (0.5 marks) What is the command to install a package named express for use in your current Node.JS project?

c) (0.5 marks) What is the command to install a package named express globally?

d) (0.5 marks) What is the command to install a package named express with the version number 4.16.4?

e) (1.5 marks) What are the differences between the versions of the following packages? i.e., what do the symbols ^ and >= mean? What does it mean if we don't include either?

```
"dependencies": {  
  "express": "^4.17.2",  
  "express-handlebars": ">=4.0.2",  
  "express-session": "1.17.2"  
}
```

Task Two (27 marks): For each of the following questions, include your solutions in their own folders. For example, Q1 should be completed in a folder named Q1, Q2 should be in a folder named Q2 etc.

Q1)(10 marks) Create your own Node.JS web application based on the class lectures. Your web server should **serve a homepage** that contains your name, student number, and a photo of you or your favourite meme.

1 mark for correct JavaScript, 1 mark for each of the **4 required files**, and 5 marks are for students that customize the design of the website.

Q2)(5 marks) Copy and modify your solution to Q1 so that it **compresses the response** (using Gzip) before sending it to the client.

3 marks are for the Node.js solution for compressing the result. Be sure to **follow best practices for coding in Node.js** and to comment your code. The remaining 2 marks are **for results demonstrating that your solution actually compresses the file** sent to the client.

Q3)(5 marks) Modify your solution to Q1 so that it uses **express** and **handlebars**.

5 marks are based on the degree in which your solution uses express and handlebars. In other words, your solution cannot be missing any of the main components discussed in class.

Q4)(7 marks) Write **an express web application** that **hosts the file form.html** (attached with this handout) and **displays all the contents** of the submitted application to the server console. The form.html contents of "Your full name" and "E-mail Address" must match your personal information.

Hint: You may want to use the **body-parser** module to answer this question.

5 marks are based on the degree in which your solution performs the above task. Your solution must use **express and handlebars**. **2 marks will be deducted if you failed to follow the instructions.**

Submission Instructions

Zip all files and folders into a single archive named *StudentNumber_Assignment1.zip*. Submit the zip file through Nexus. Do **not** include your node_modules folders.