8.3D: Writing a Multi-Task Server Application

Tasks

This task is to create a server application that can serve dynamic pages based on the path information it is given.

In this example, the page should serve the table for the *Power n* sequence **but** depending on the additional path information it will show the values for a different **base number** (instead of the default 2) and also how many values are shown (the number of iterations in the loop).

For example the following web addresses should hadnled by the code:

- localhost:8080/powertable
- localhost:8080/powertable/7
- localhost:8080/powertable/7/20
- localhost:8080/powertable/3/50

Follow the steps below to complete this task:

1. Create your own local directory (or you can use the same local directory created in Task 8.1).

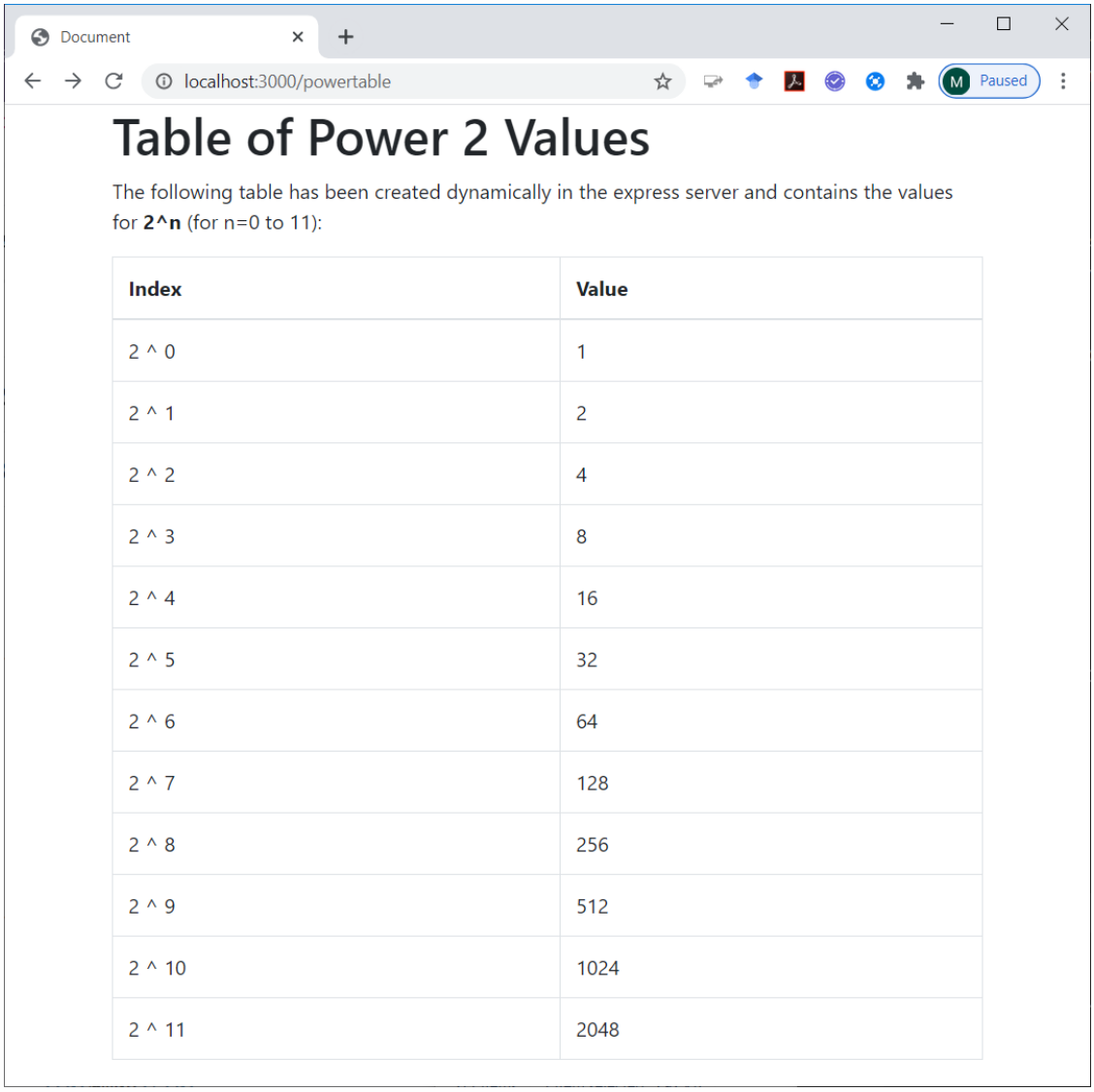
2. Use express module to create a Node.js application (i.e., `multitaskServer.js`) that will set a local web server. The server listens to the port **8080**, and

    - When the user accesses `http://localhost:8080/powertable` using a web browser, the *Power 2* table is displayed.
    - When the user accesses `http://localhost:8080/powertable/7` using a web browser, the *Power 7* table is displayed (or what ever the number in the URL is) for the default **12** iterations.
    - When the user accesses `http://localhost:8080/powertable/7/20` using a web browser, the *Power 7* table is displayed (or what ever the first number in the URL is) for the **20** iterations (or what ever the second number in the URL is).

3. Run the command `node multitaskServer.js` in a Command Prompt (Windows)

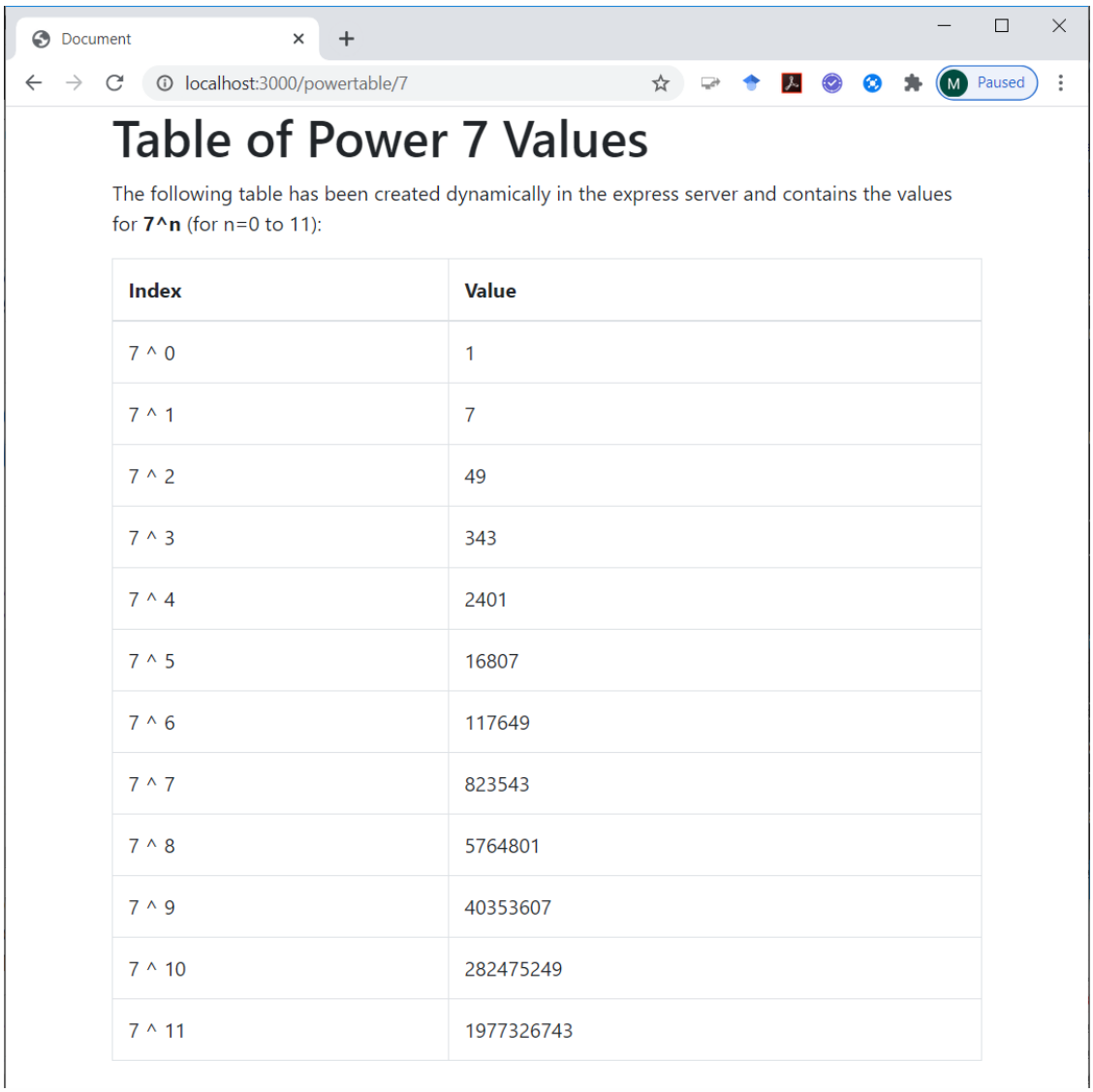
or Terminal (Mac OS) within your local directory to start the server.

4. Open a web browser and visit `http://localhost:8080/powertable`, the power table of base 2 should be displayed (as in *Task 8.2C*) in the window like:



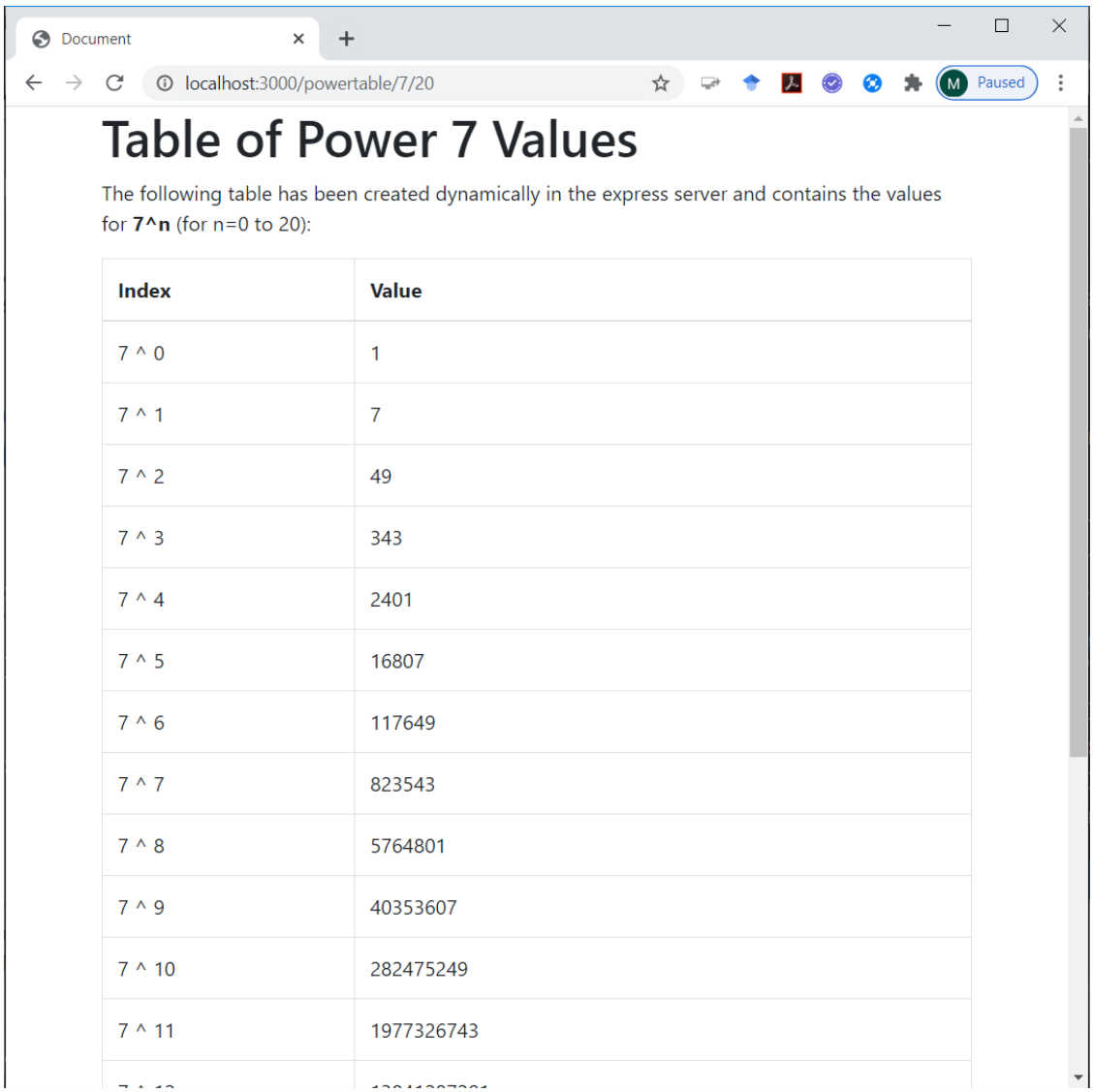
Task8.3.1 Node.js application serving generated *Power 2* page

5. Visit `http://localhost:8080/powertable/7`, the table listing the *Power 7* should be displayed in the window like:

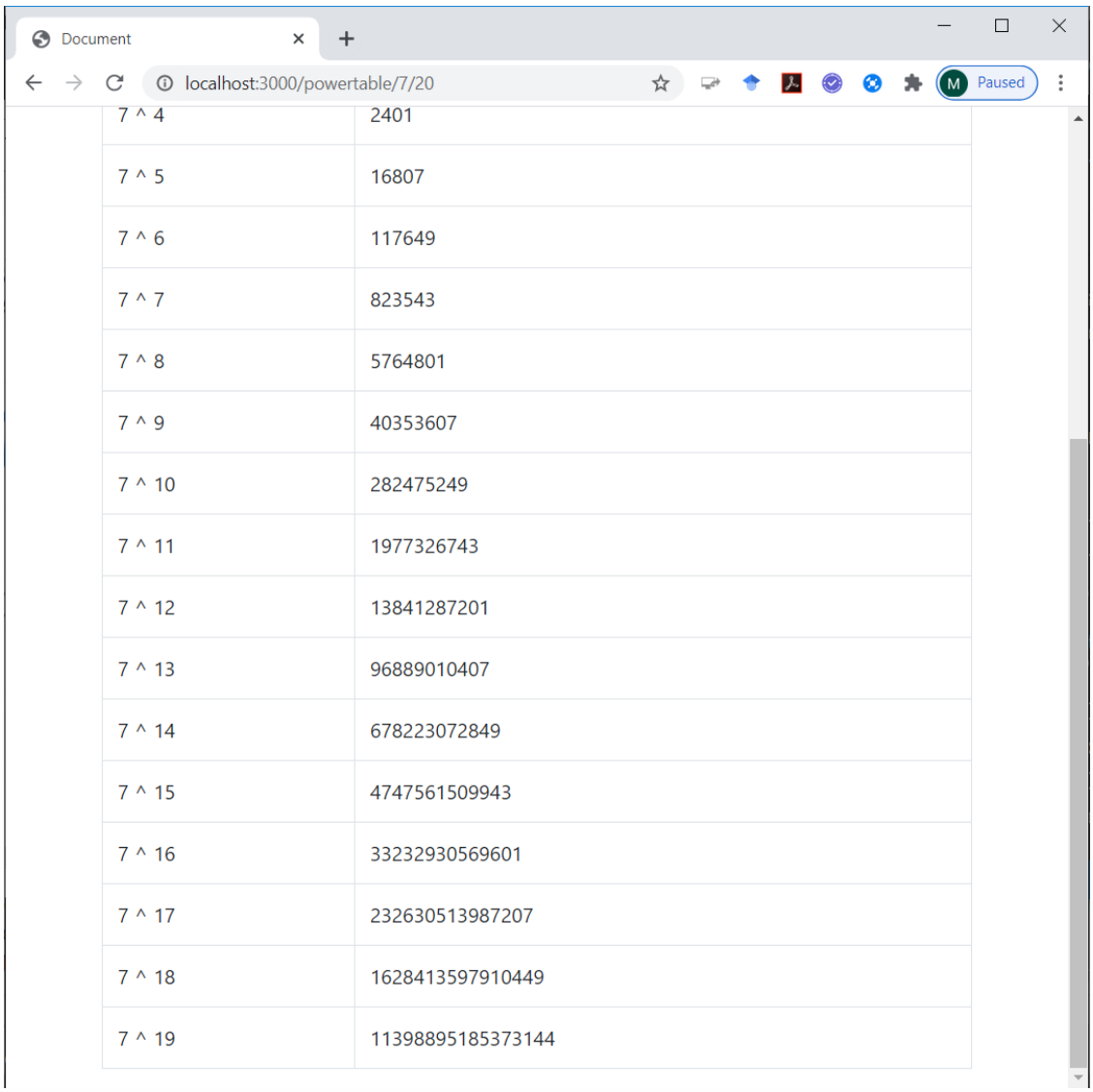


Task8.3.2 Node.js application serving generated *Power 7* page

6. Visit `http://localhost:8080/powertable/7/20`, the table listing the *Power 7* should be displayed with a total of 20 values in the table, like:



Task8.4.1 Node.js application serving generated *Power 7 with 20 iterations* page (*Showing 0-11*)



7 ^ 4	2401
7 ^ 5	16807
7 ^ 6	117649
7 ^ 7	823543
7 ^ 8	5764801
7 ^ 9	40353607
7 ^ 10	282475249
7 ^ 11	1977326743
7 ^ 12	13841287201
7 ^ 13	96889010407
7 ^ 14	678223072849
7 ^ 15	4747561509943
7 ^ 16	33232930569601
7 ^ 17	232630513987207
7 ^ 18	1628413597910449
7 ^ 19	11398895185373144

Task8.4.2 Node.js application serving generated *Power 7 with 20 iterations* page (*Showing 5-19*)

7. Go back to the Command Prompt or Terminal, and shutdown the server.

Hints

To complete this task, review the **Route parameters** section of the *Express* guide on *Routing* and identify how the URL parameters can be passed/processed by respective Express routing functions.

The following webpage is a link to this guide:

- https://expressjs.com/en/guide/routing.html

What will you submit?

You should submit:

- Source code of the file `multitaskServer.js`.
- Screenshot of the browser window showing the *Power 2* table when visiting `http://localhost:8080/powertable`.
- Screenshot of the browser window showing the *Power 7* table when visiting `http://localhost:8080/powertable/7`.
- Screenshot of the **bottom** of the browser window showing the *Power 7 with 30 iterations* table when visiting `http://localhost:8080/powertable/7/30`.