Steps to build DeansFoodList on a fresh Raspberry PiOS install (and as far I know, this works for Windows and Mac, too).

1. Download the files off of Github.
2. Before downloading via the Pi terminal, always run the below commands.
   1. sudo apt update
   2. sudo apt upgrade
3. In the Terminal, install the required packages, starting with npm and node.js (steps ‘a’ && ‘b’ below). Next, install ‘react’ (step ‘c’). From there, the remaining packages can be installed in any order. We recommend installing these packages in the root of the operating system, rather than the project directory, so that they’re not confined to a single project. If there are still errors after installing these packages, install any packages the project lists when you try to run it.
   1. sudo apt install npm
   2. sudo apt install nodejs
   3. npm install react
   4. npm install axios
   5. npm install quagga
      1. Allows webcam to read UPC codes.
   6. npm install react-webcam
   7. npm install web-vitals
   8. npm install adapters
   9. npm install react-dom
   10. npm install react-scripts
   11. npm install express
       1. What we’re using for the backend (SQL server connection), along with cors and mysql2
   12. npm install cors
   13. npm install mysql2
   14. npm install bcryptjs
   15. npm install react-router-dom
   16. npm install uuid
       1. Allows creation of unique IDs for objects.
   17. npm install jsonwebtoken
       1. For token authentication for user login. Keeps user logged in for set amount of time, even after page refreshes.
4. Install MySQL (MariaDB on Raspberry Pi)
   1. sudo apt install mariadb-server
   2. Make a root user
      1. sudo mysql\_secure\_installation
      2. Setup depending on your intentions. For a development/test environment where you only plan to build and test locally, you can deny all the security recommendations.
      3. Reload privileges when prompted.
   3. Make a connection
      1. In the terminal, type *sudo mysql*
      2. If you set a password, you may need to run this command: *sudo mysql -uroot -p*
5. Launch DeansFoodList by navigating to its directory (in a terminal) and running *npm start*
6. Q

Visual Studio Code performance tip: Obviously, using Visual Studio Code for your IDE is optional. We use it and found that disabling hardware acceleration can make using it slightly more tolerable on the Raspberry Pi 4. Open the command palette (CTRL SHIFT P) and type *Preferences: Configure Runtime Arguments*. In the file, uncomment the line that turns off hardware acceleration.

Fresh Pi Install

* MariaDB password: none (I just pressed enter, so there is no password)

**No-IP Port Forwarding**

* Create an account with [No-IP](https://www.noip.com/)
* Create a host name for the DDNS
* Download a DUC (Dynamic Update Client) on personal laptop and Raspberry Pi
* Create a group with a password to update at [this link](https://my.noip.com/dynamic-dns/groups)
  + Note the DDNS key that it generated
* Update the group with specific IP address of home router
  + Make sure it is forwarding towards the public IP address
* Enable port forwarding via logging into router account
  + Reset router after saving new forwarding options
* Start Apache server on Raspberry Pi (“sudo systemctl start apache2” then “sudo systemctl enable apache2”)
* “sudo systemctl status apache2” to ensure that the Apache server is running
* “<http://deansfoodlist.zapto.org>” will point to the /var/www/html folder of the Raspberry Pi