03a Exercise - Bubbles

Assignment

Implement www-page using html, Javascript and css (=do not use external libraries except bootstrap (optional)), which has three sections: header, container and footer. Header width is 80% (centered) and height is about 10%. Header contains text "bubbles" (at the moment). Container is also 80% wide and its height is bigger (~80%). Footer height is about 10% and it contains the name of the developer in the middle.

Inside the container there is 10 pieces of bubbles (=circles), which "travels" around the container at random speed and random direction. The direction and speed changes when the bubble bounces back from the containers wall.

Implement the animation using Javascript: create one interval handler function, which takes care of all the bubbles movement (requestAnimationFrame can also be used). Use JS objects and classes as appropriate. Define one global config object which is used to define the operation so that it can be changed easily. Do not pollute the namespace.

When the bubble is clicked, console shows the number of the clicked bubble.

From this assignment, copy the js file(s) into the document, take a screenshot from the ui and add a link to niisku or somewhere, where the live bubbles can be seen.

Solution

Initial files (with bootstrap)

This section is just one example of the possible solutions, you can start with these files or design and implement your own.

Create project folder and files:

- package.json
- index.html
- styles.css
- src/app.js

Add initial html with bootstrap

```
<!DOCTYPE html>
<html>

<head>
  <!-- Required meta tags -->
  <meta charset="utf-8">
  <meta name="viewport" content="width=device-width, initial-scale=1, shrink-to-fit=no">
  <title>Bubble generator</title>
  <link rel="stylesheet" href="styles.css">

  <link rel="stylesheet" href="https://stackpath.bootstrapcdn.com/bootstrap/4.4.1/css/bootstrap.min.css" i
</head>

<body>
  <div class="container" style="width:80%;">
    <div id="bubble-head" class="alert alert-primary" role="alert">
      Bubble generator
    </div>
    <p id="nbr-of-bubbles">Nbr of bubbles </p>

    <div id="bubble-container" class="bubble-container">
      <!-- Test bubble inside the container -->
      <div id="bubble-1" class="bubble-item">1</div>
    </div>
```

```
      <div id="bubble-foot" class="alert alert-primary" role="alert">
        Matti Welin
      </div>

    </div>
    </div>
    <!-- custom javascript here -->
    <script type="text/javascript" src="src/app.js"></script>

    <!-- jQuery first, then Popper.js, then Bootstrap JS -->
    <script src="https://code.jquery.com/jquery-3.4.1.slim.min.js" integrity="sha384-J6qa4849blE2+poT4WnyKhv
    <script src="https://cdn.jsdelivr.net/npm/popper.js@1.16.0/dist/umd/popper.min.js" integrity="sha384-Q6E
    <script src="https://stackpath.bootstrapcdn.com/bootstrap/4.4.1/js/bootstrap.min.js" integrity="sha384-w
  </body>

  </html>
```

Inside the css file define html, body, bubble-head, foot, -container and bubble-items styles.

```
html,
body {
    min-height: 100%;
    height: 100%;
}

#bubble-head {
    text-align: center;
}

#bubble-foot {
    margin: 0 auto;
    bottom: 0;
    width: 100%;
    height: 60px;
    margin-top: 2%;
    text-align: center;
}

#bubble-container {
    min-height: 300px;
    border-color: red;
    border-width: thin;
    border-style: dotted;
    background: black;
}

.bubble-item {
    border-color: blue;
    border-width: thin;
    border-style: solid;
    position: absolute;
    width: 40px;
    height: 40px;
    background: red;
    background: -webkit-radial-gradient(yellow, green);
    /* Safari 5.1 to 6.0 */
    background: -o-radial-gradient(yellow, green);
    /* For Opera 11.6 to 12.0 */
    background: -moz-radial-gradient(yellow, green);
    /* For Firefox 3.6 to 15 */
    background: radial-gradient(yellow, green);
    /* Standard syntax */
    -moz-border-radius: 20px;
    -webkit-border-radius: 20px;
    border-radius: 20px;
    text-align: center;
    line-height: 40px;
}
```

Create stub src/app.js

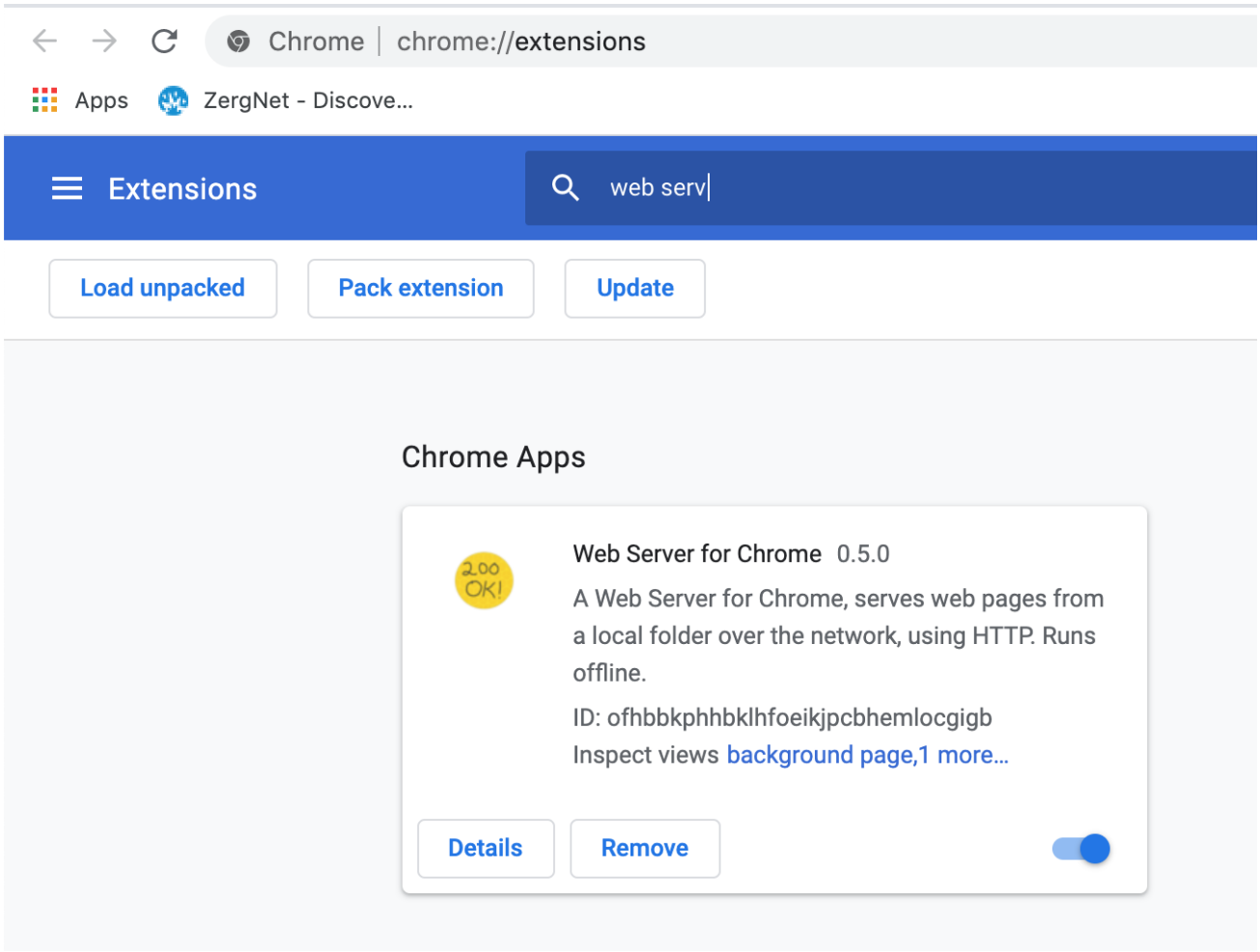
```
// app.js

console.log('app.js starting');
```

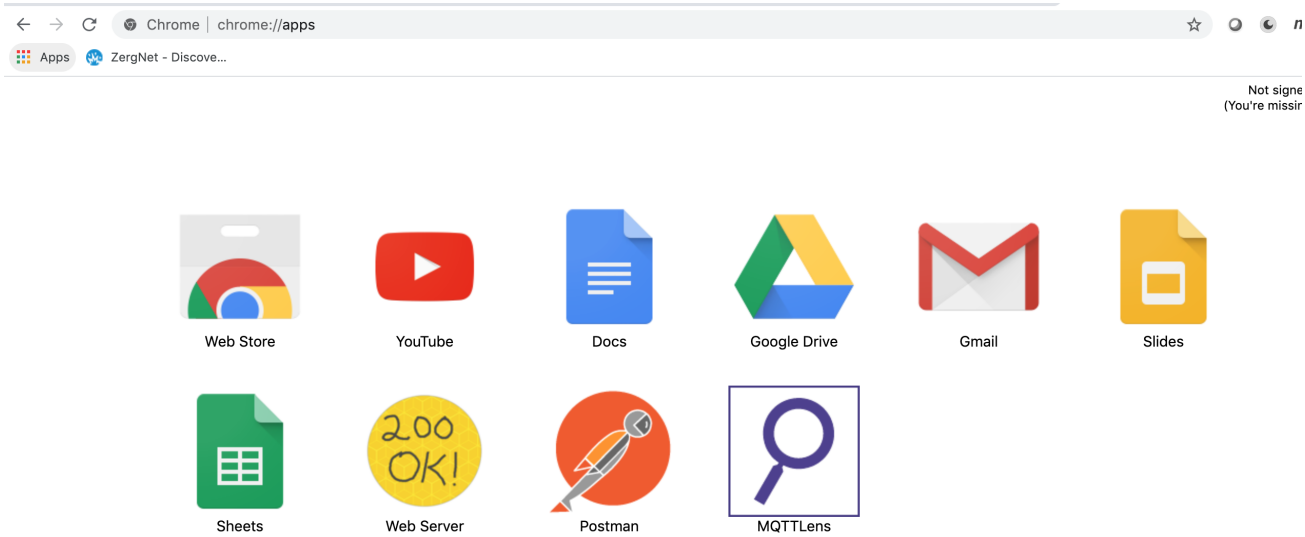
Testing with Web server for Chrome

To test the operation

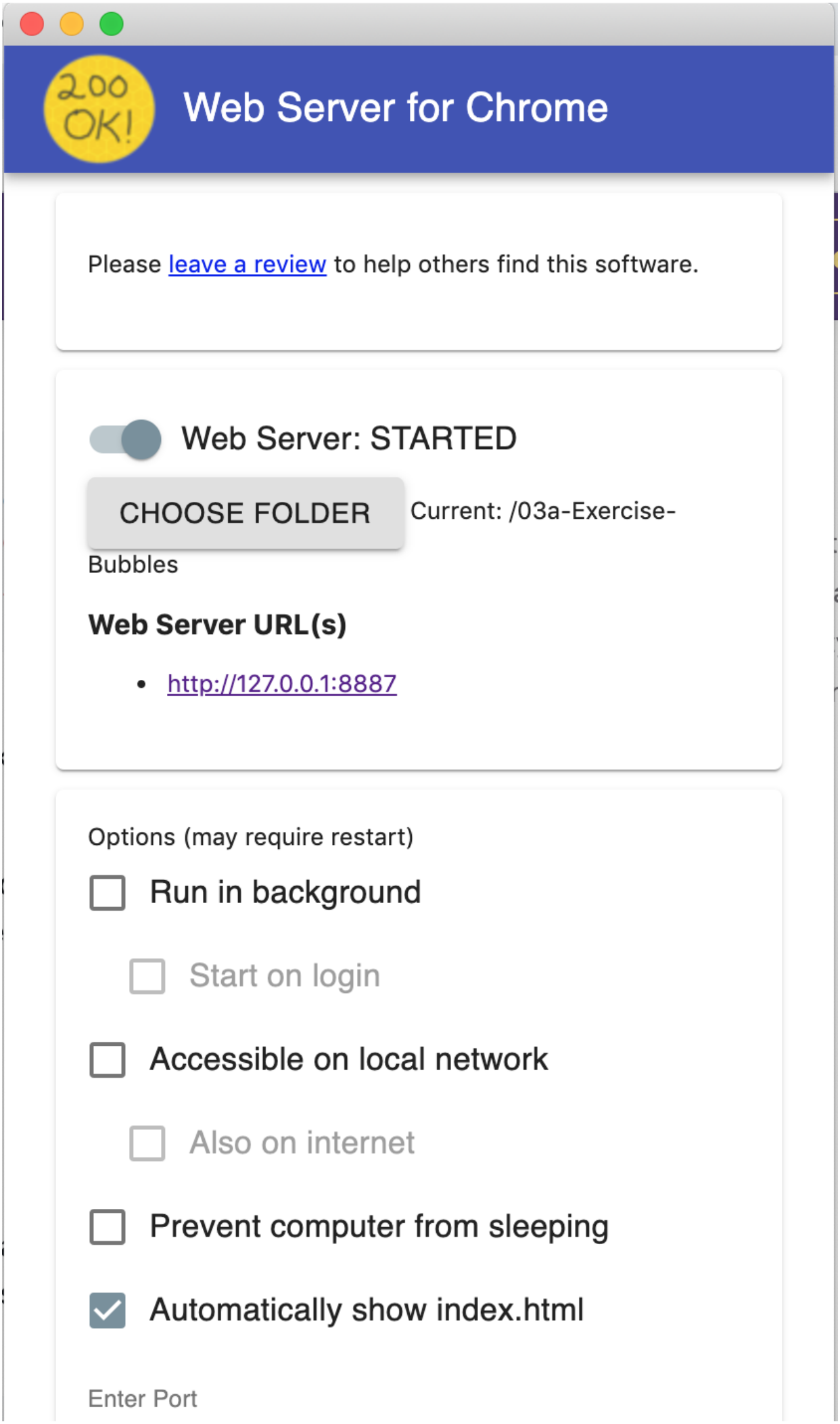
Install Web server for Chrome app

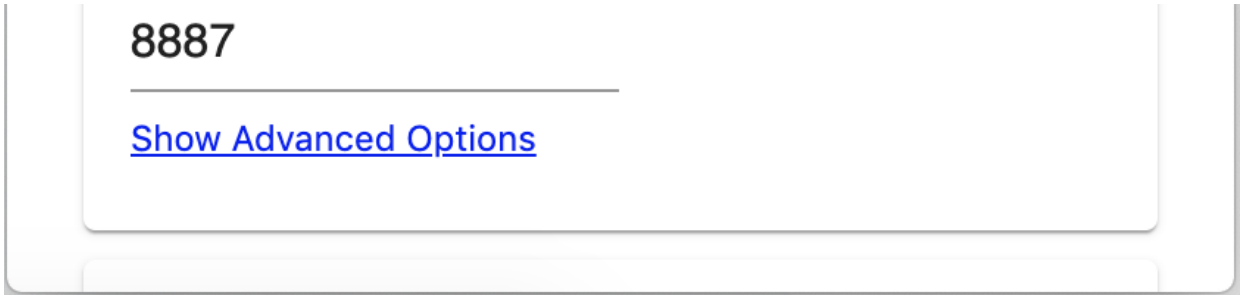


Open the app



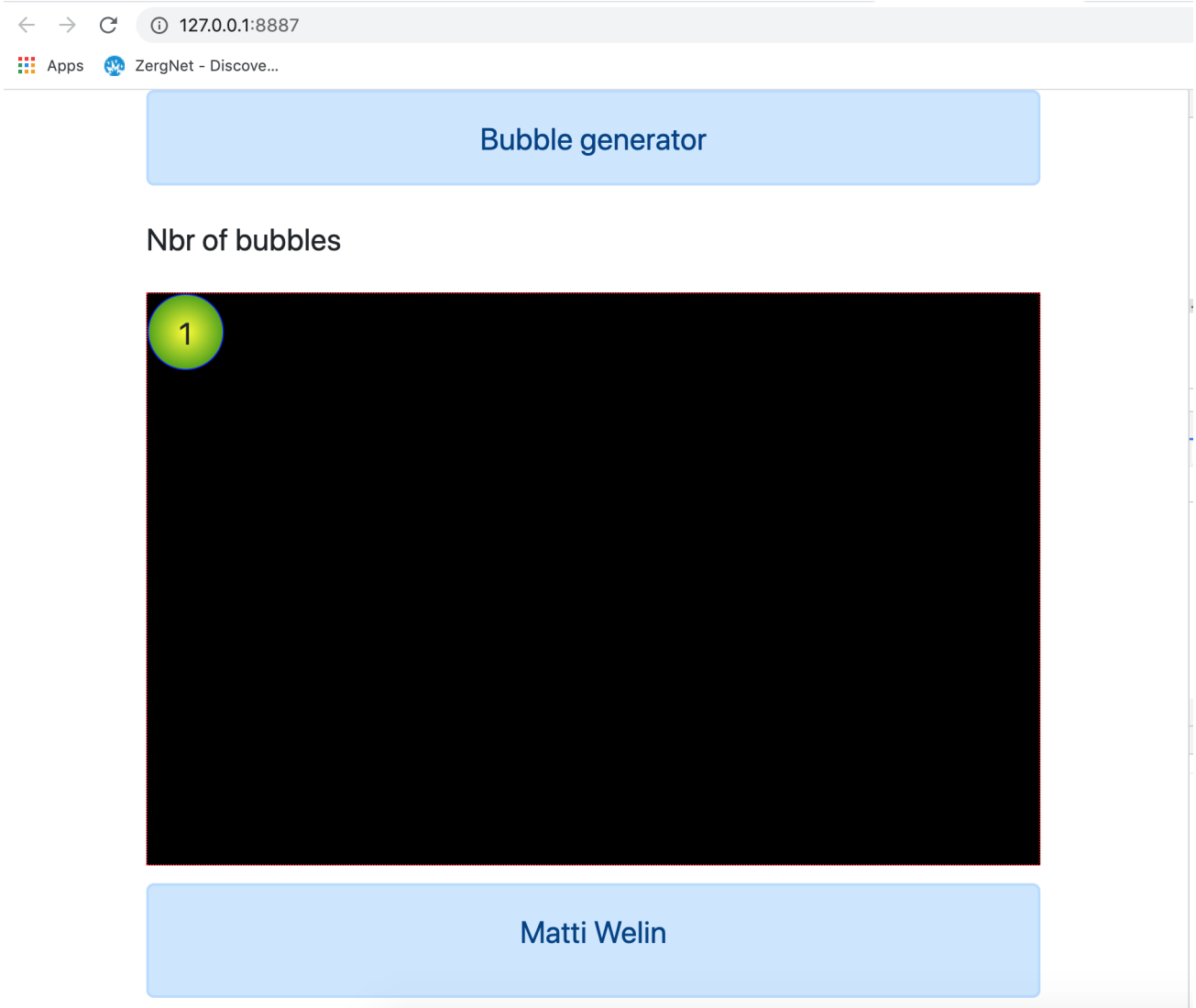
Define the Web server root dir by clicking the `CHOOSE FOLDER`


200 OK!
Web Server for Chrome
Please leave a review to help others find this software.
Web Server: STARTED
CHOOSE FOLDER
Current: /03a-Exercise-Bubbles
Web Server URL(s)
http://127.0.0.1:8887
Options (may require restart)
Run in background
Start on login
Accessible on local network
Also on internet
Prevent computer from sleeping
Automatically show index.html
Enter Port



And finally click the http://127.0.0.1:8887

Check the web page and Chrome developer tools Console (no errors) The app should look



Assignment return

From this assignment, create a pdf document, which describes the classes used to implement the app. Take a screenshot from the browser and include it to the document. Also copy the js file(s) into the document (remember that the source code must stay readable). For testing purposes deploy this web page to the niisku or some other publicity available web-server. In the document add a link to working implementation of your bubbles (where the live bubbles can be seen).

Use Chome debugger tools and find out the FPS of your webpage. Take a screenshot of the FPS while running the web page and include it into the document.

Note! DO NOT put the source code files into some repository and a link to it as a replacement of source code files - I will not use it (and your return will fail automatically).