HTML 5
Application Cache

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https://github.com/swacademy/HTML5

What is Application Cache?

- Means that a web application is cached, and accessible with out an internet connection.
- Gives an application three advantages:
  - Offline browsing - users can use the application when they're offline.
  - Speed - cached resources load faster.
  - Reduced server load - the browser will only download updated/changed resources from the server.

`manifest` File

- Is a list of files that define what files should be included for your offline application.
- To work offline, an application needs only a manifest file.
- Is a simple text file, which tells the browser what to cache (and what to never cache).
- Once the manifest is loaded or updated, it triggers an update on the `applicationCache` object.

`manifest` File (Cont.)

- Has three sections:
  - **`CACHE MANIFEST`** - Files listed under this header will be cached after they are downloaded for the first time
  - **`NETWORK`** - Files listed under this header require a connection to the server, and will never be cached
  - **`FALLBACK`** - Files listed under this header specifies fallback pages if a page is inaccessible

`manifest` File (Cont.)

- **`CACHE MANIFEST`**
  - The first line, **`CACHE MANIFEST`**, is required.

```
1  CACHE MANIFEST
2
3  #version 2
4
5  # 명시적으로 캐시된 파일들
6  /theme.css
7  /logo.gif
8  /main.js
9
```

  - When the manifest file is loaded, the browser will download the three files from the root directory of the web site.
  - Then, whenever the user is not connected to the internet, the resources will still be available.

`manifest` File (Cont.)

- **`NETWORK`**
  - Below specifies that the file “login.jsp" should never be cached, and will not be available offline

```
1  NETWORK:
2
3  #User 가 온라인 상태가 되었을 때 필요한 리소스들
4
5  login.jsp
6
```

```
1  #사이트의 모든 리소스는 온라인을 필요로 함.
2  NETWORK:
3
4  *
```

`manifest` File (Cont.)

- **`FALLBACK`**
  - Below specifies that "offline.html" will be served in place of all files in the /html/ catalog, in case an internet connection cannot be established.

```
1  #offline.html 파일을 /html/ 의 파일에 접근할 수 없을 때 보여짐
2
3  FALLBACK:
4
5  /html/ /offline.html
```

`manifest` File (Cont.)

- Complete Cache Manifest File

```
1  CACHE MANIFEST
2  # 2013-10-10 v1.0.0
3  /theme.css
4  /logo.gif
5  /main.js
6
7  NETWORK:
8  login.jsp
9
10 FALLBACK:
11 /html/ /offline.html
12
```

`manifest` File (Cont.)

- To tell the browser to look for a manifest is simple.
- You add the manifest attribute to the `<html>` element, and point it to the file containing your application's manifest.

```
<!DOCTYPE html>
<html manifest="/time.manifest">
```

or

```
<html manifest="demo.appcache">
```

`manifest` File (Cont.)

- The recommended file extension for manifest files is: `.appcache`.
- A manifest file needs to be served with the *correct* **MIME-type**, which is `text/cache-manifest`.
- *Must* be configured on the web server.

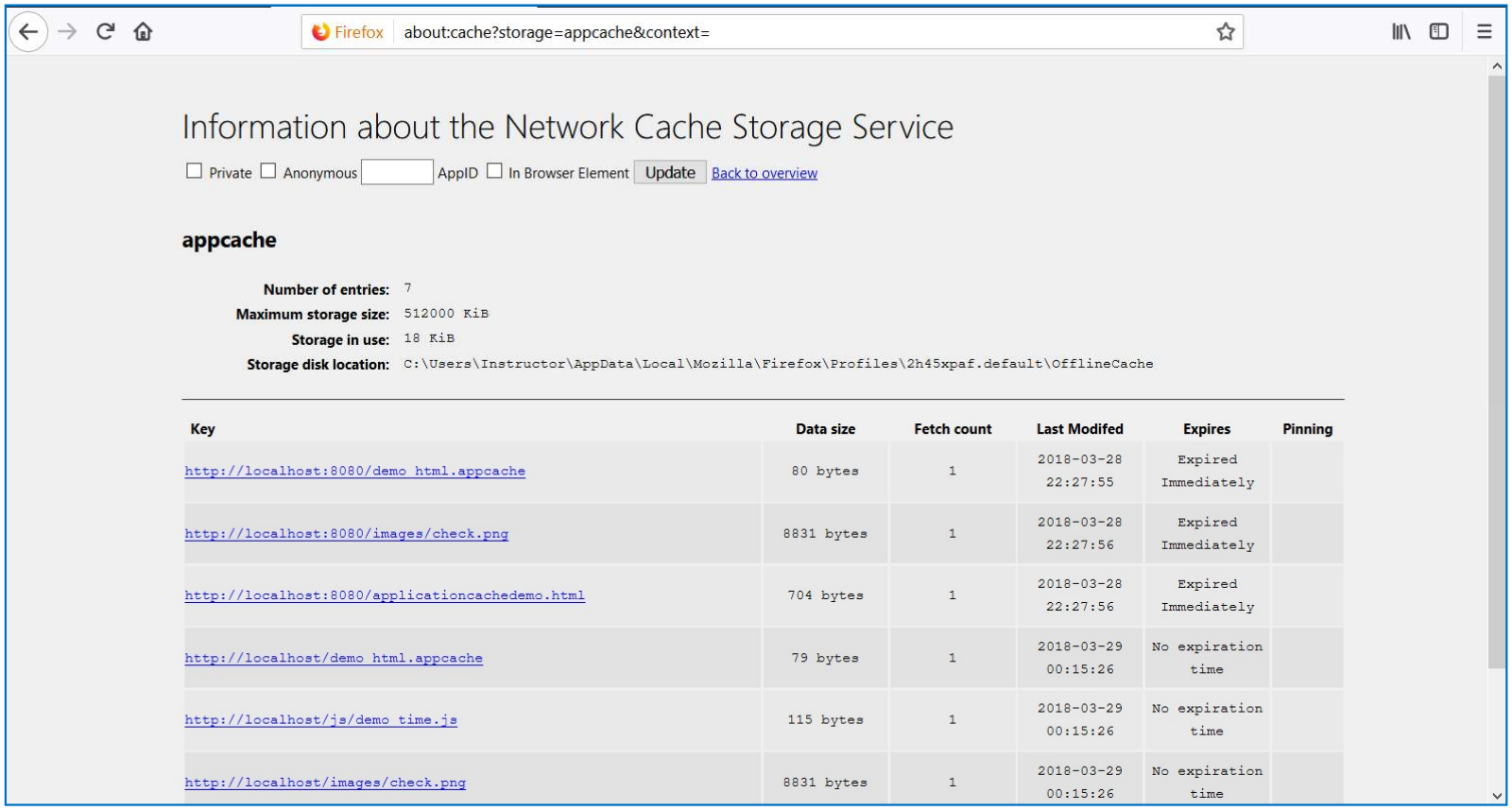
`manifest` File (Cont.)

- In Apache Web Server
  - %Installation Folder%\conf\mime.type

```
898  multipart/signed
899  multipart/voice-message
900
901  text/cache-manifest manifest
902  text/cache-manifest appcache
903
904  text/calendar                ics ifb
905  text/css                     css
```

  - Insert code, then save, then should apache web server restart.

Viewing the offline cache in Firefox



Lab1 : Offline Cache

- Web Browsers
  - Edge, Firefox, Google Chrome, Opera, Safari
- Text Editors
  - Visual Studio Code, Notepad++, Editplus, etc…
- Files
  - applicationcachedemo.html
  - js/demo_time.js
  - images/check.png
  - demo_html.appcache

Lab1 : applicationcachedemo.html

```
1  <!DOCTYPE html>
2  <html lang="en" manifest="demo_html.appcache">
3  <head>
4      <meta charset="UTF-8">
5      <meta name="viewport" content="width=device-width, initial-scale=1.0">
6      <script src='js/demo_time.js'></script>
7      <title>HTML5 Application Cache Demo</title>
8  </head>
9  <body>
10     <div>Date and Time : <span id='datetimehere'></span></div>
11     <p><button onclick='getDateTime()'>Get Date and Time</button></p>
12     <p><img src='images/check.png'></p>
13     <p>Try opening <a href='applicationcachedemo2.html' target='_blank'>This page</a>,
       then go offline, and reload the page. The script and the image should still
       work.</p>
14 </body>
15 </html>
```

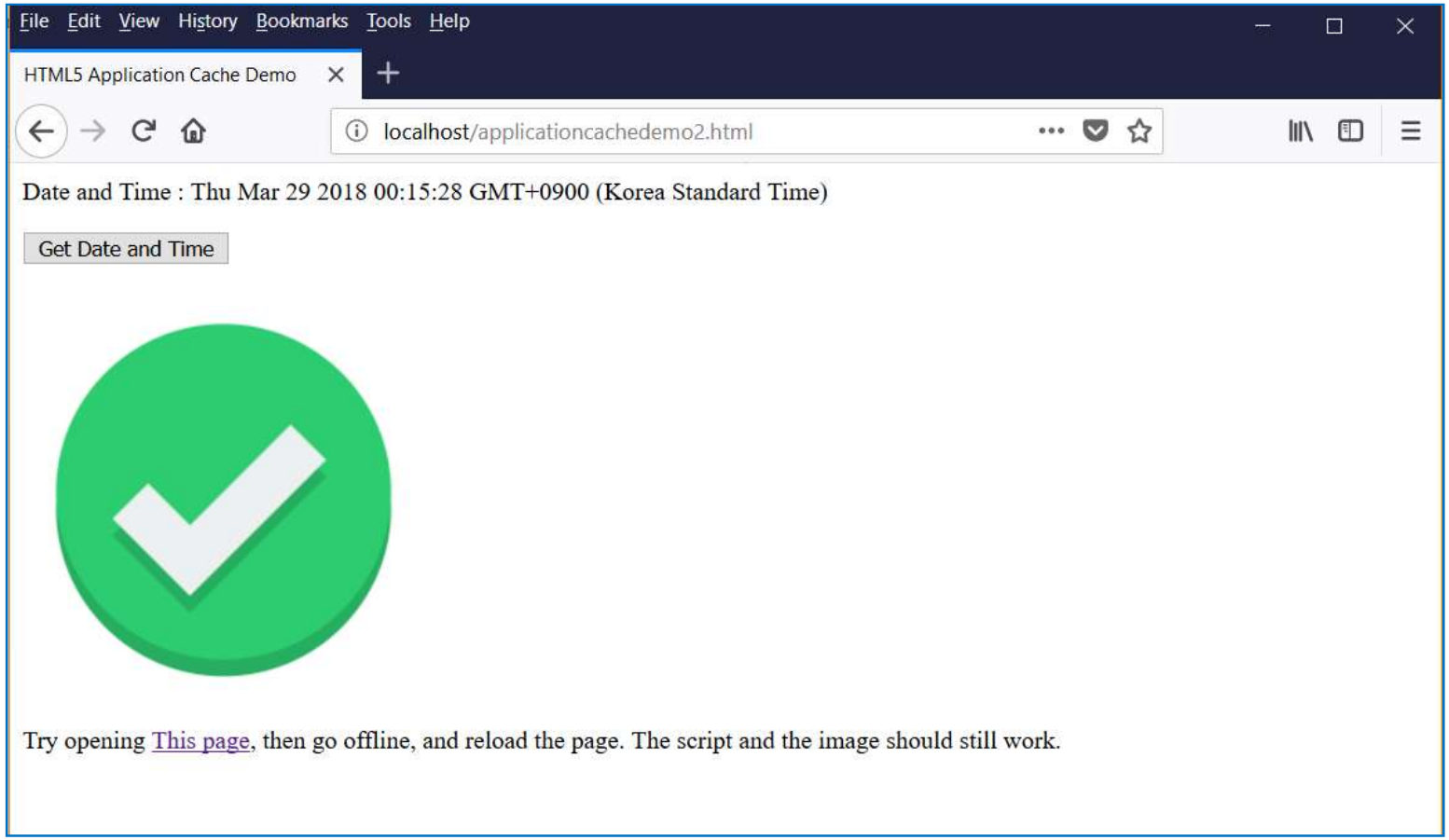
Lab1 : demo_time.js

```
1  function getDateTime(){
2      var now = new Date();
3      document.getElementById('datetimehere').innerHTML = now;
4  }
```

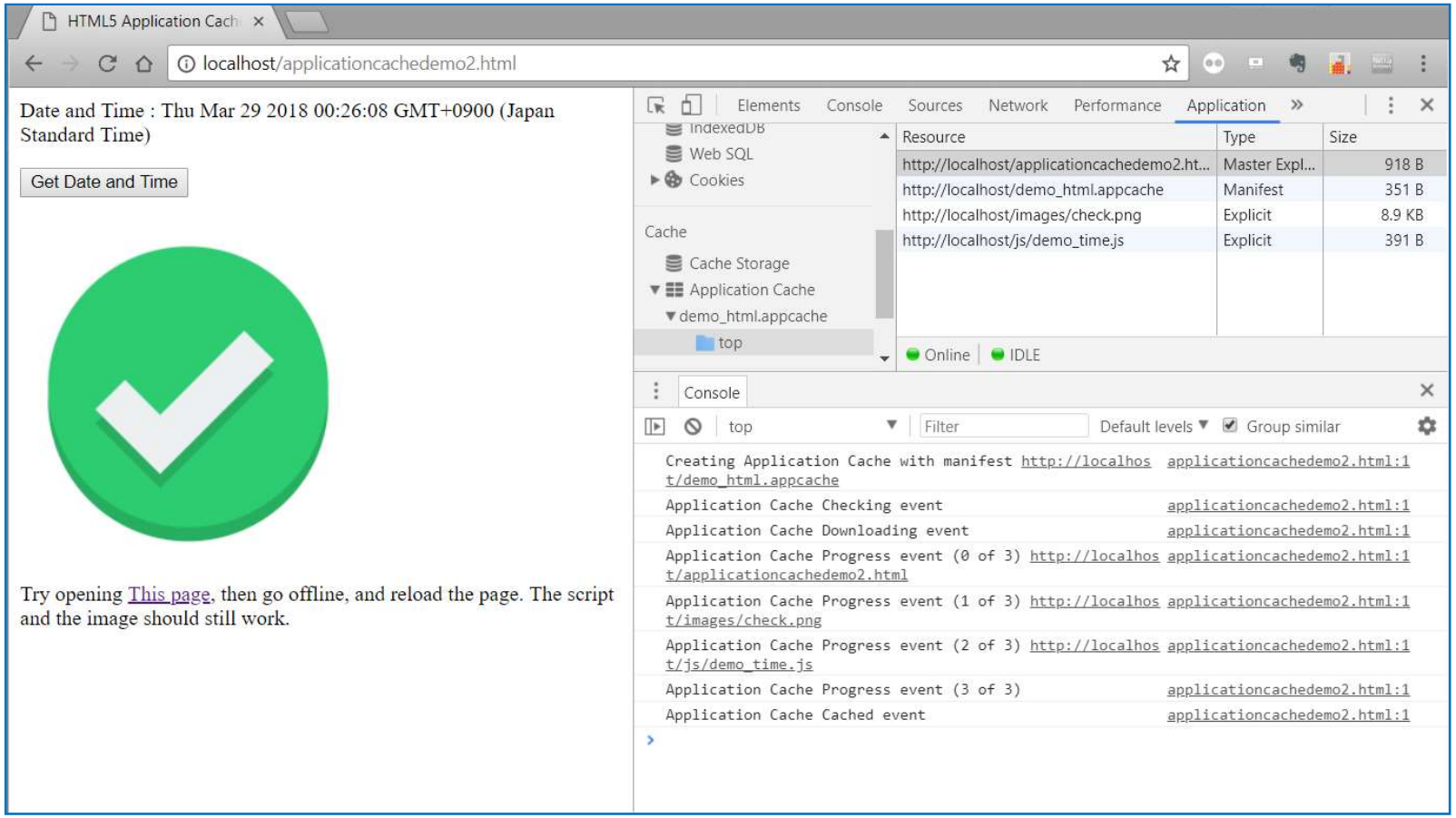
Lab1 : demo_html.appcache

```
1   CACHE MANIFEST
2
3   applicationcachedemo.html
4   js/demo_time.js
5   images/check.png
```

Lab1 : Result


File Edit View History Bookmarks Tools Help
HTML5 Application Cache Demo
localhost/applicationcachedemo2.html
Date and Time : Thu Mar 29 2018 00:15:28 GMT+0900 (Korea Standard Time)
Get Date and Time
Try opening This page, then go offline, and reload the page. The script and the image should still work.

Lab1 : Result


HTML5 Application Cach
localhost/applicationcachedemo2.html
Date and Time : Thu Mar 29 2018 00:26:08 GMT+0900 (Japan Standard Time)
Get Date and Time
Try opening This page, then go offline, and reload the page. The script and the image should still work.
Elements
Console
Sources
Network
Performance
Application
IndexedDB
Web SQL
Cookies
Cache
Cache Storage
Application Cache
demo_html.appcache
top
Resource
Type
Size
http://localhost/applicationcachedemo2.ht...
Master Expl...
918 B
http://localhost/demo_html.appcache
Manifest
351 B
http://localhost/images/check.png
Explicit
8.9 KB
http://localhost/js/demo_time.js
Explicit
391 B
Online
IDLE
Console
top
Filter
Default levels
Group similar
Creating Application Cache with manifest http://localhost/demo_html.appcache
applicationcachedemo2.html:1
Application Cache Checking event
applicationcachedemo2.html:1
Application Cache Downloading event
applicationcachedemo2.html:1
Application Cache Progress event (0 of 3) http://localhost/applicationcachedemo2.html
applicationcachedemo2.html:1
Application Cache Progress event (1 of 3) http://localhost/images/check.png
applicationcachedemo2.html:1
Application Cache Progress event (2 of 3) http://localhost/js/demo_time.js
applicationcachedemo2.html:1
Application Cache Progress event (3 of 3)
applicationcachedemo2.html:1
Application Cache Cached event
applicationcachedemo2.html:1

Lab2 : Offline Cache

- Web Browsers
  - Edge, Firefox, Google Chrome, Opera, Safari
- Text Editors
  - Visual Studio Code, Notepad++, Editplus, etc…
- Files
  - applicationcachedemo1.html
  - js/offline.js
  - js/tracker.js
  - js/log.js
  - css/style.css
  - tracker.appcache

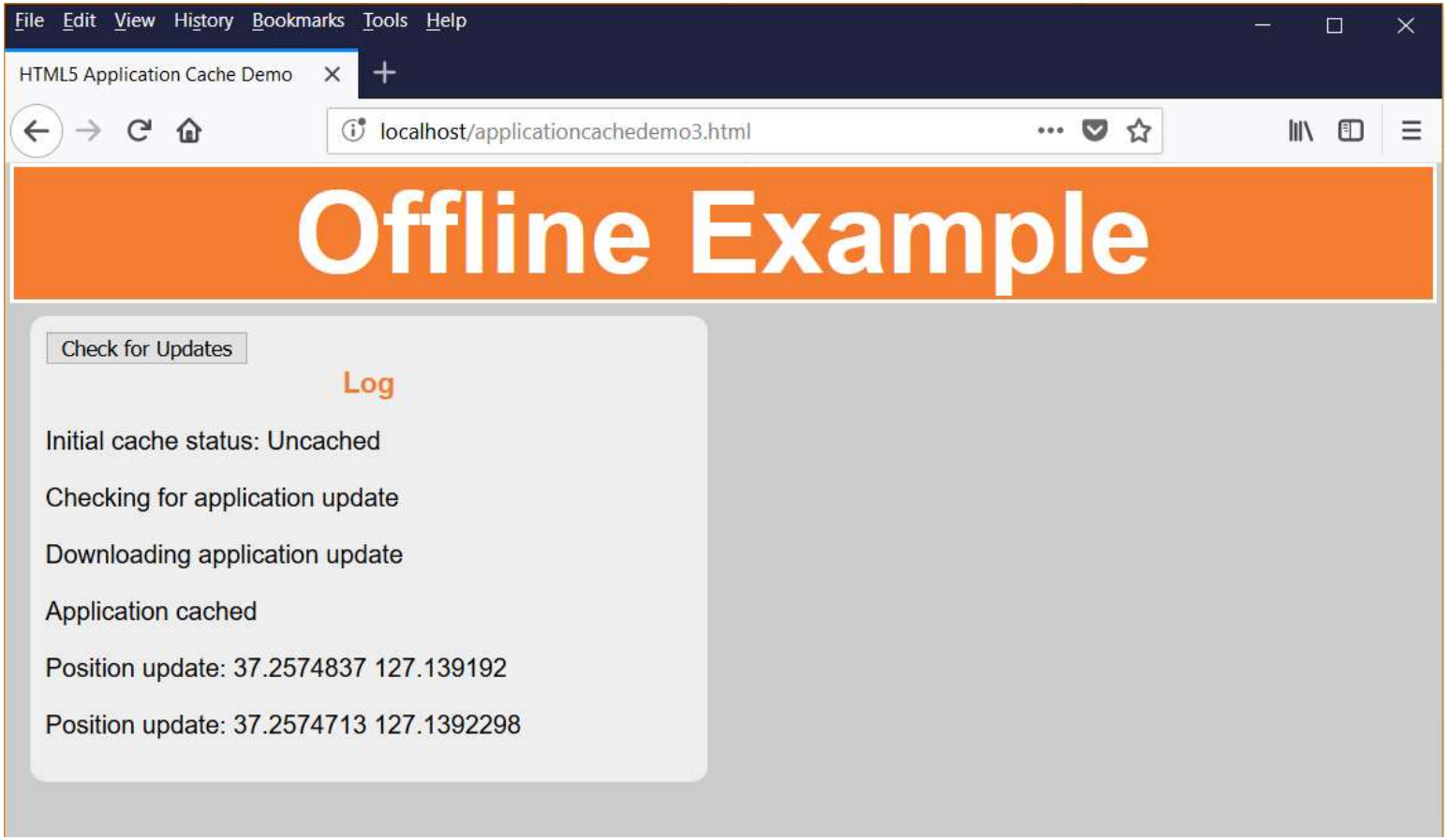
Lab2 : applicationcachedemo1.html

```
2  <html lang="en" manifest="tracker.appcache">
3  <head>
4      <meta charset="UTF-8">
5      <meta name="viewport" content="width=device-width, initial-scale=1.0">
6      <script src='js/log.js'></script>
7      <script src='js/offline.js'></script>
8      <script src="js/tracker.js"></script>
9      <link rel="stylesheet" href='css/style.css' type='text/css'>
10     <title>HTML5 Application Cache Demo</title>
11 </head>
12 <body>
13     <header>
14         <h1>Offline Example</h1>
15     </header>
16
17     <section>
18         <article>
19             <button id="installButton">Check for Updates</button>
20             <h3>Log</h3>
21             <div id="info">
22             </div>
23         </article>
```

Lab2 : tracker.appcache

```
1   CACHE MANIFEST
2   #JavaScript
3   js/offline.js
4   #js/tracker.js
5   js/log.js
6
7   #stylesheets
8   css/style.css
9
10  #images
11
```

Lab2 : Result


File Edit View History Bookmarks Tools Help
HTML5 Application Cache Demo
localhost/applicationcachedemo3.html
Offline Example
Check for Updates
Log
Initial cache status: Uncached
Checking for application update
Downloading application update
Application cached
Position update: 37.2574837 127.139192
Position update: 37.2574713 127.1392298