HTML 5
Application Cache

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What is Application Cache?

- Means that a web application is cached, and accessible without 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

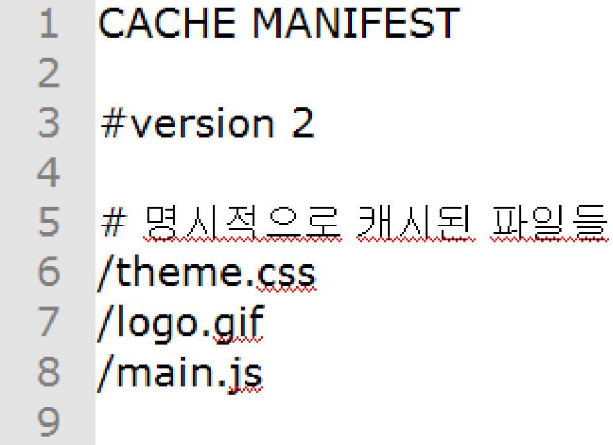
- Is a list of files that define what files should be included for your offline application.
- To work offline, an application needs only a manifest file.
- Is a simple text file, which tells the browser what to cache (and what to never cache).
- Once the manifest is loaded or updated, it triggers an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

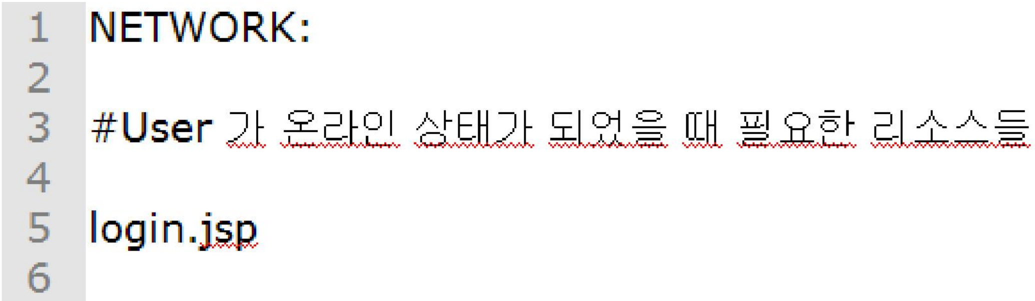


```
CACHE MANIFEST

#version 2

# 명시적으로 캐시된 파일들
/theme.css
/logo.gif
/main.js

```

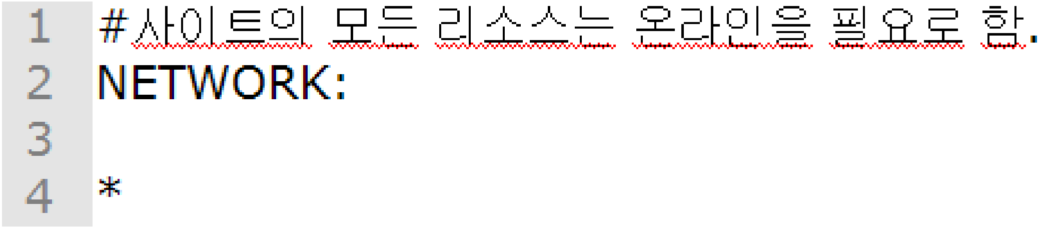
  - When the manifest file is loaded, the browser will download the three files from the root directory of the web site.
  - Then, whenever the user is not connected to the internet, the resources will still be available.

manifest File (Cont.)

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



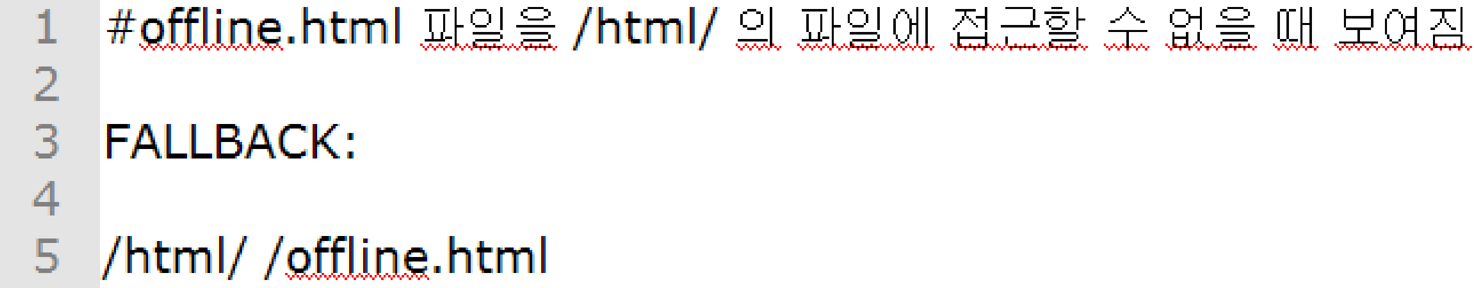
```
NETWORK:

#User 가 온라인 상태가 되었을 때 필요한 리소스들

login.jsp

```



```
#사이트의 모든 리소스는 온라인을 필요로 함.
NETWORK:

*
```

manifest File (Cont.)

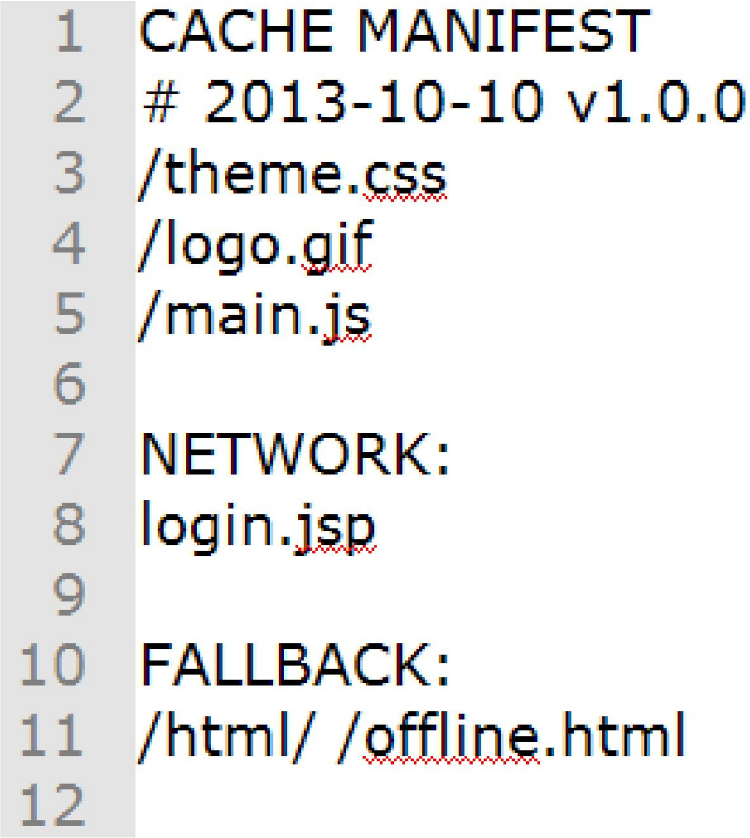
- **FALLBACK**
  - Below specifies that "offline.html" will be served in place of all files in the /html/ catalog, in case an internet connection cannot be established.



```
#offline.html 파일을 /html/ 의 파일에 접근할 수 없을 때 보여짐

FALLBACK:

/html/ /offline.html
```

manifest File (Cont.)

- Complete Cache Manifest File



```
CACHE MANIFEST
# 2013-10-10 v1.0.0
/theme.css
/logo.gif
/main.js

NETWORK:
login.jsp

FALLBACK:
/html/ /offline.html

```

`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

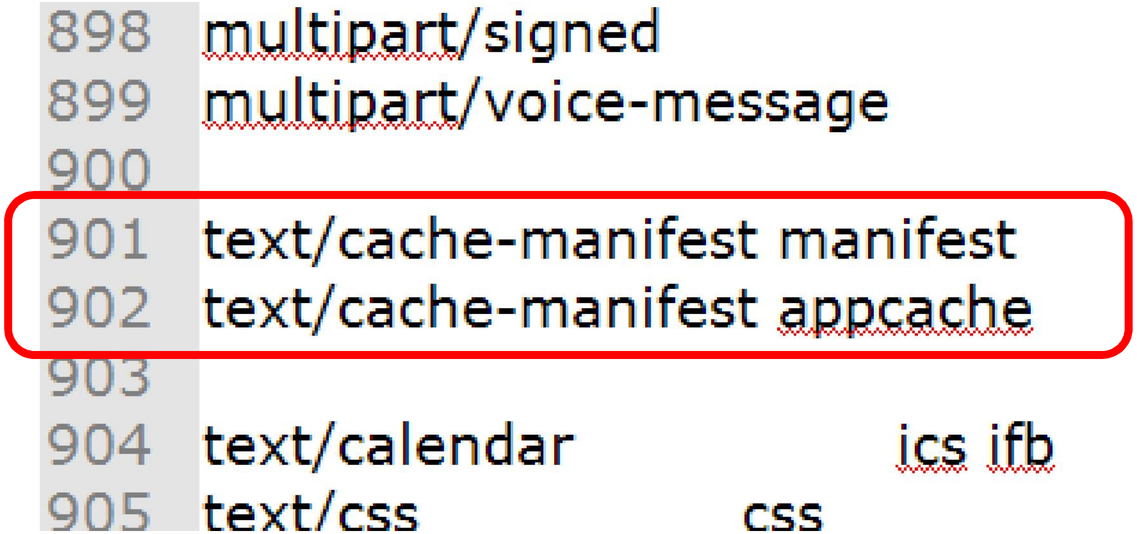
```
<html manifest=“demo.appcache”>
```

`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.)

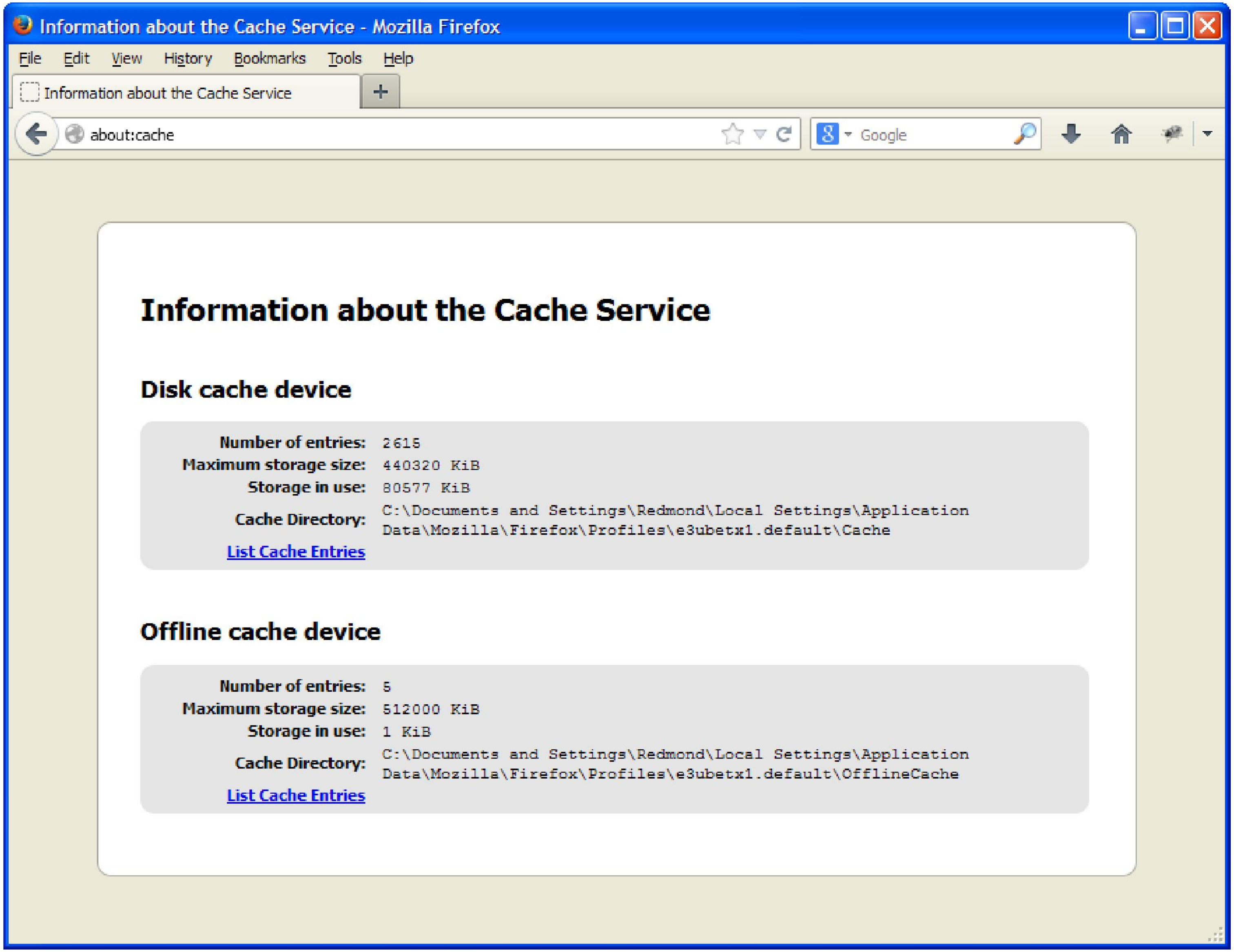
- In Apache Web Server
  - %Installation Folder%\conf\mime.type



```
multipart/signed
multipart/voice-message

text/cache-manifest manifest
text/cache-manifest appcache

text/calendar                 ics ifb
text/css                css
```

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

Viewing the offline cache in Firefox



Information about the Cache Service - Mozilla Firefox
File Edit View History Bookmarks Tools Help
Information about the Cache Service
about:cache
Google

Information about the Cache Service

Disk cache device

```
     Number of entries:  2615
Maximum storage size:  440320 KiB
        Storage in use:  80577 KiB
       Cache Directory:  C:\Documents and Settings\Redmond\Local Settings\Application
                         Data\Mozilla\Firefox\Profiles\e3ubetx1.default\Cache
    List Cache Entries
```

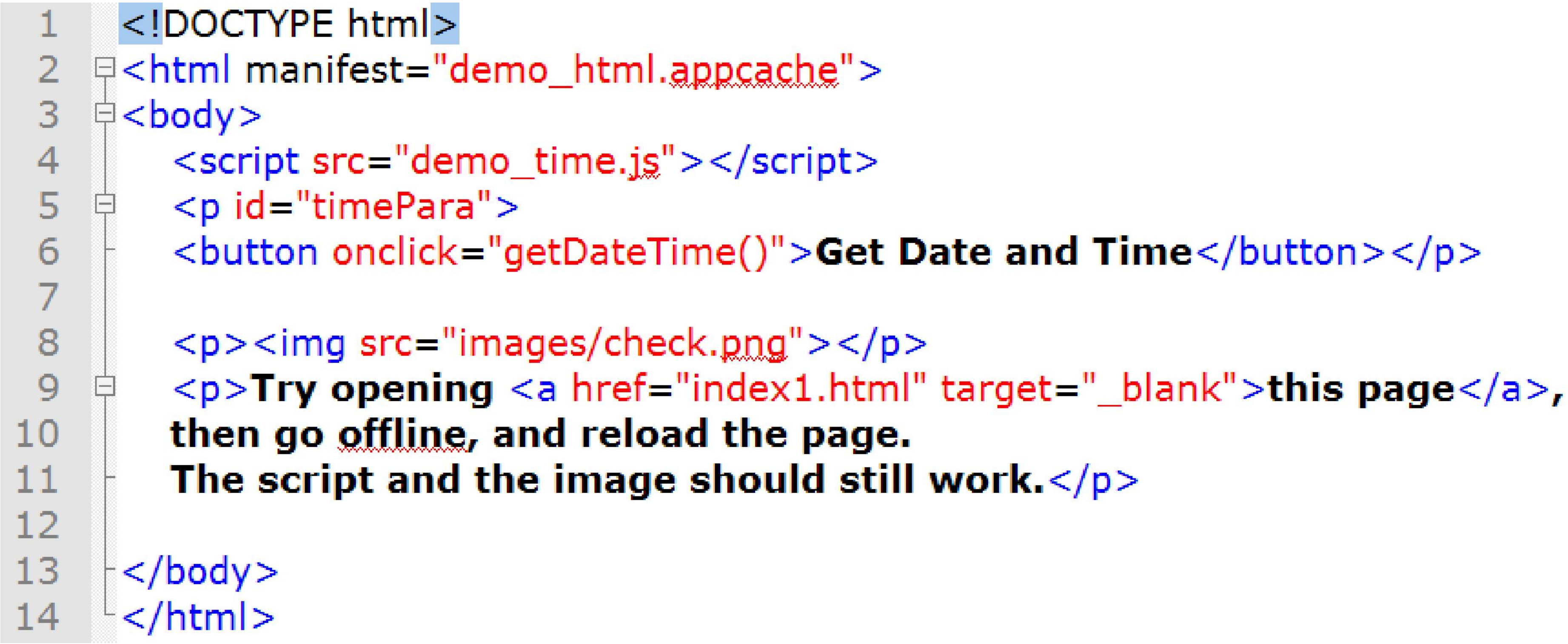
Offline cache device

```
     Number of entries:  5
Maximum storage size:  512000 KiB
        Storage in use:  1 KiB
       Cache Directory:  C:\Documents and Settings\Redmond\Local Settings\Application
                         Data\Mozilla\Firefox\Profiles\e3ubetx1.default\OfflineCache
    List Cache Entries
```

Lab1 : Offline Cache

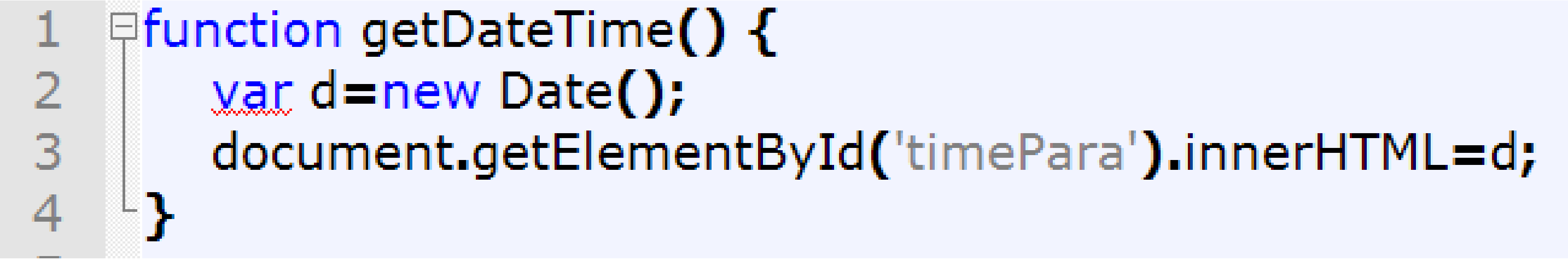
- Web Browsers
  - IE10, Firefox, Google Chrome, Opera, Safari
- Text Editors
  - Notepad++ or Editplus
- Files
  - offlinedemo.html
  - demo_time.js
  - demo_html.appcache

Lab1 : offlinedemo.html



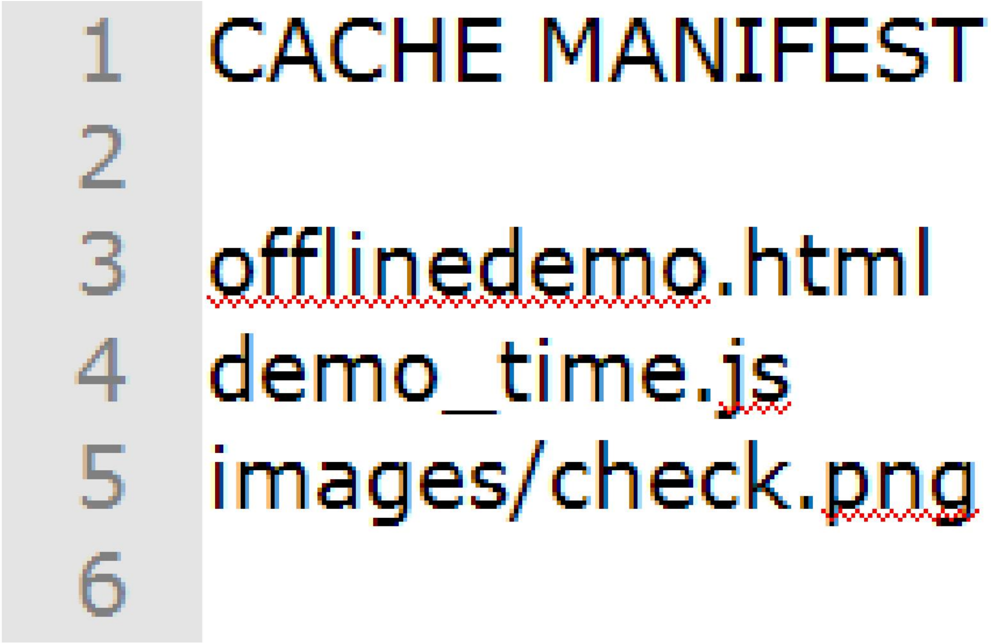
```html
<!DOCTYPE html>
<html manifest="demo_html.appcache">
<body>
    <script src="demo_time.js"></script>
    <p id="timePara">
    <button onclick="getDateTime()">Get Date and Time</button></p>

    <p><img src="images/check.png"></p>
    <p>Try opening <a href="index1.html" target="_blank">this page</a>,
    then go offline, and reload the page.
    The script and the image should still work.</p>

</body>
</html>
```

Lab1 : demo_time.js



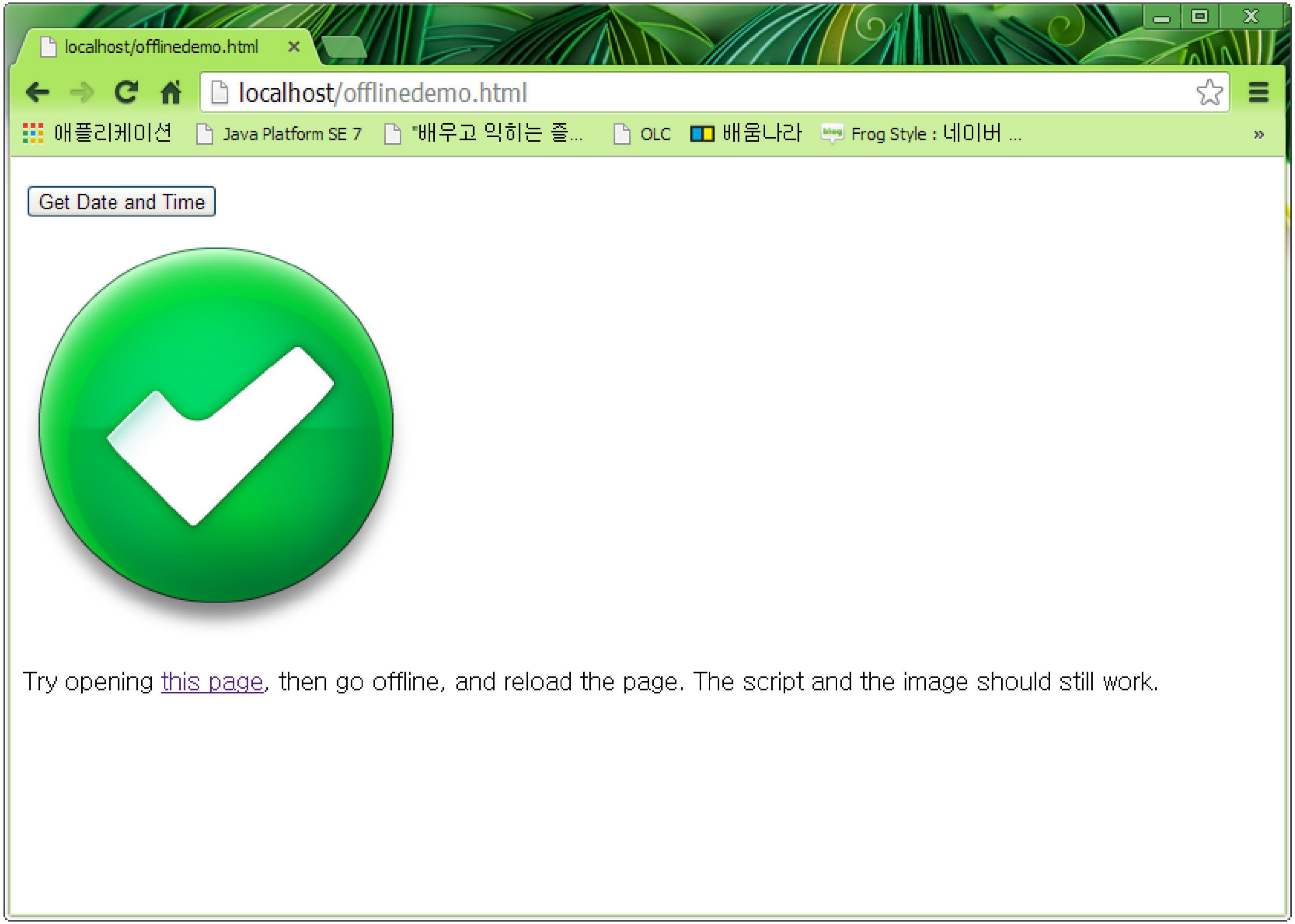
```
function getDateTime() {
    var d=new Date();
    document.getElementById('timePara').innerHTML=d;
}
```

Lab1 : demo_html.appcache



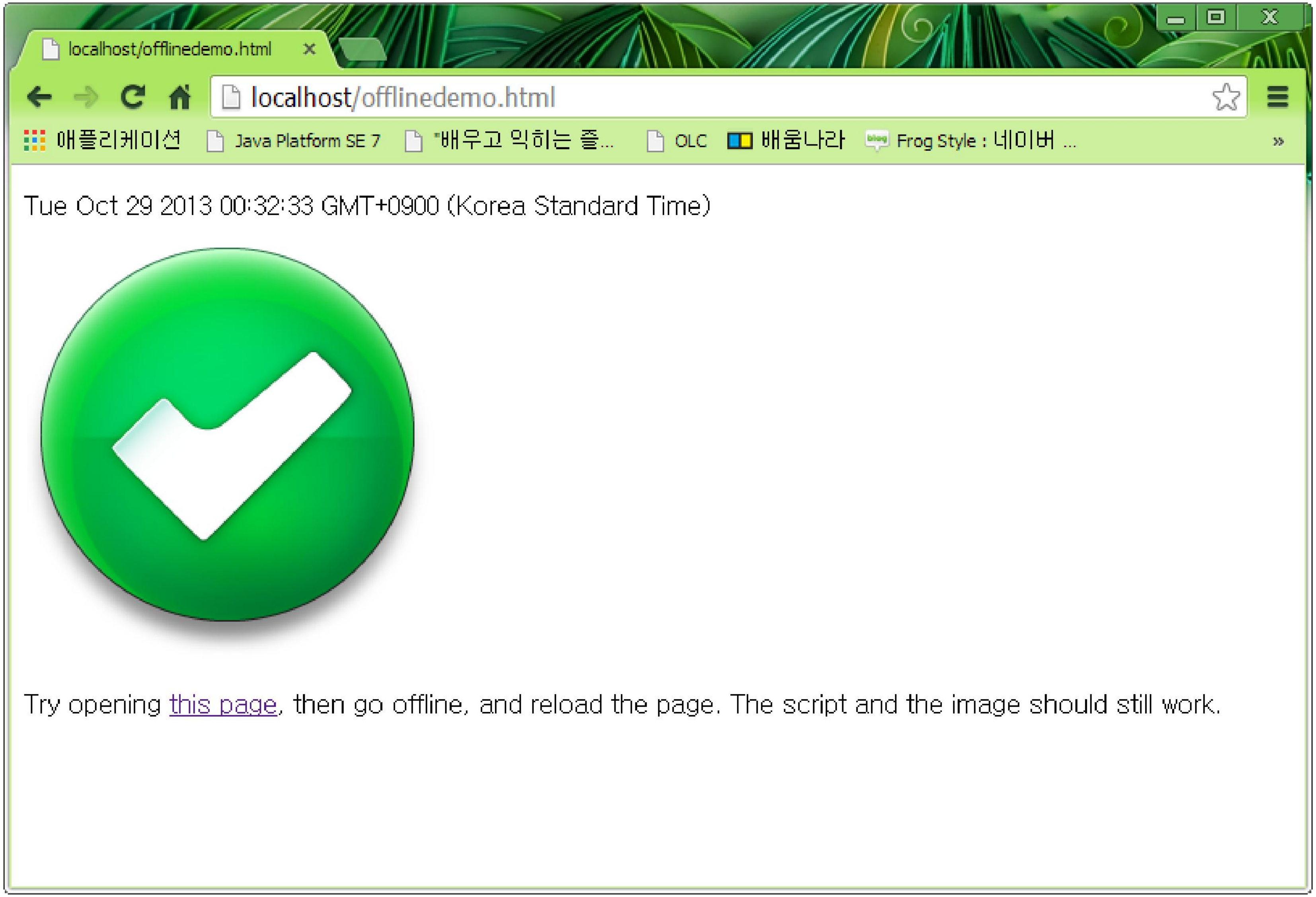
```
CACHE MANIFEST

offlinedemo.html
demo_time.js
images/check.png

```

Lab1 : Result



Try opening this page, then go offline, and reload the page. The script and the image should still work.

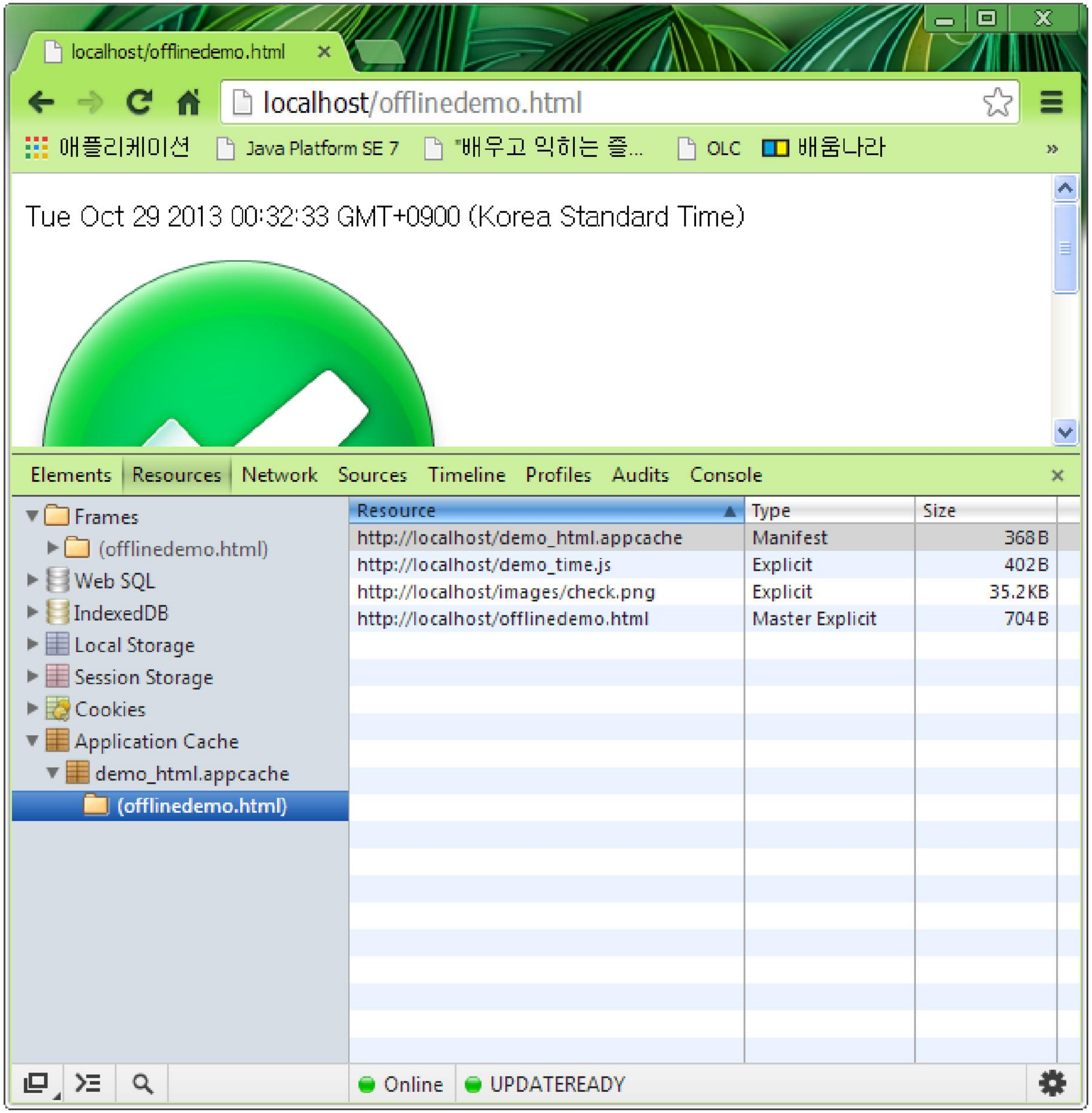
Lab1 : Result



Tue Oct 29 2013 00:32:33 GMT+0900 (Korea Standard Time)

Try opening this page, then go offline, and reload the page. The script and the image should still work.

Lab1 : Result



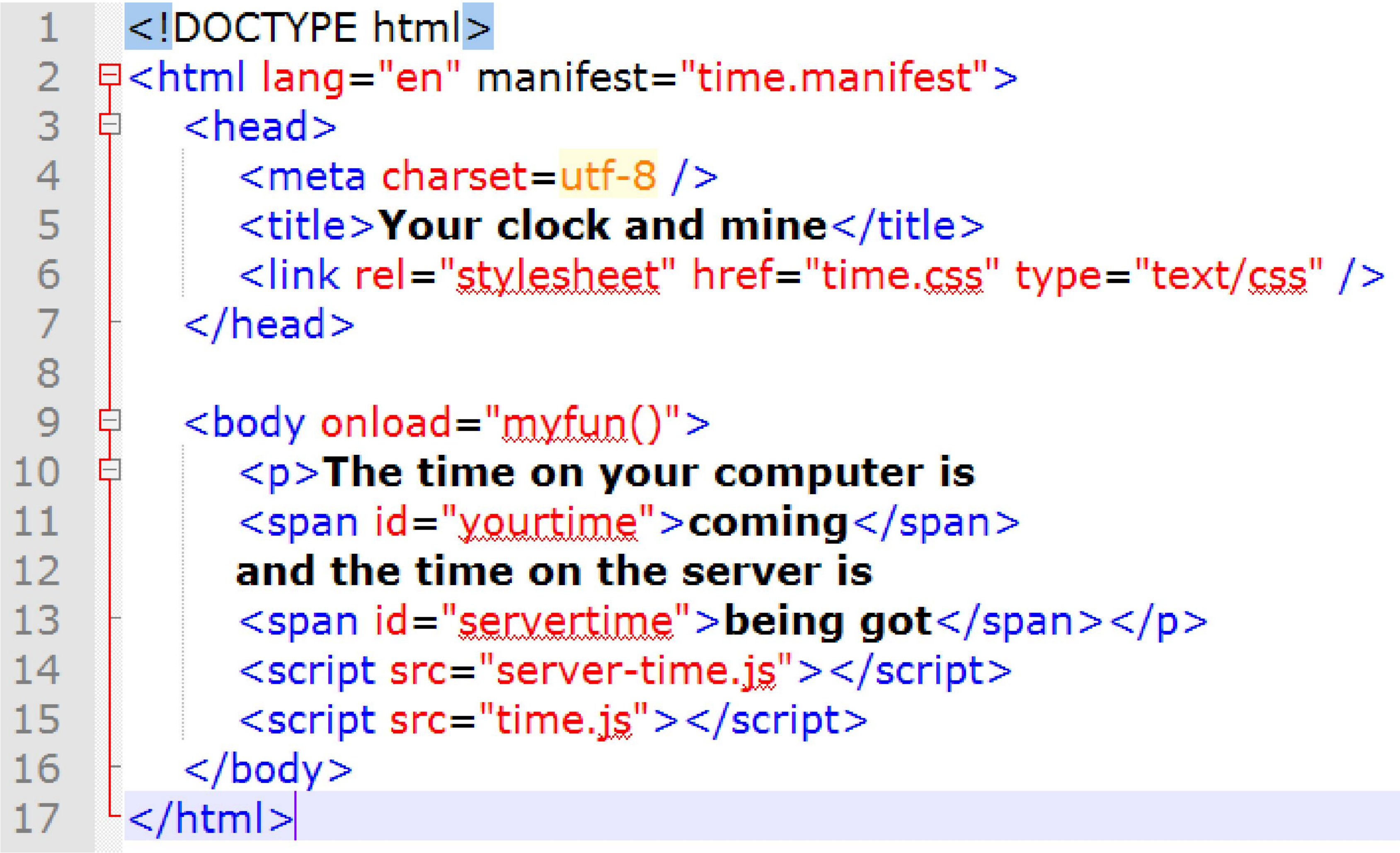
Tue Oct 29 2013 00:32:33 GMT+0900 (Korea Standard Time)

Resource	Type	Size
http://localhost/demo_html.appcache	Manifest	368 B
http://localhost/demo_time.js	Explicit	402 B
http://localhost/images/check.png	Explicit	35.2 KB
http://localhost/offlinedemo.html	Master Explicit	704 B

Lab2 : Offline Cache

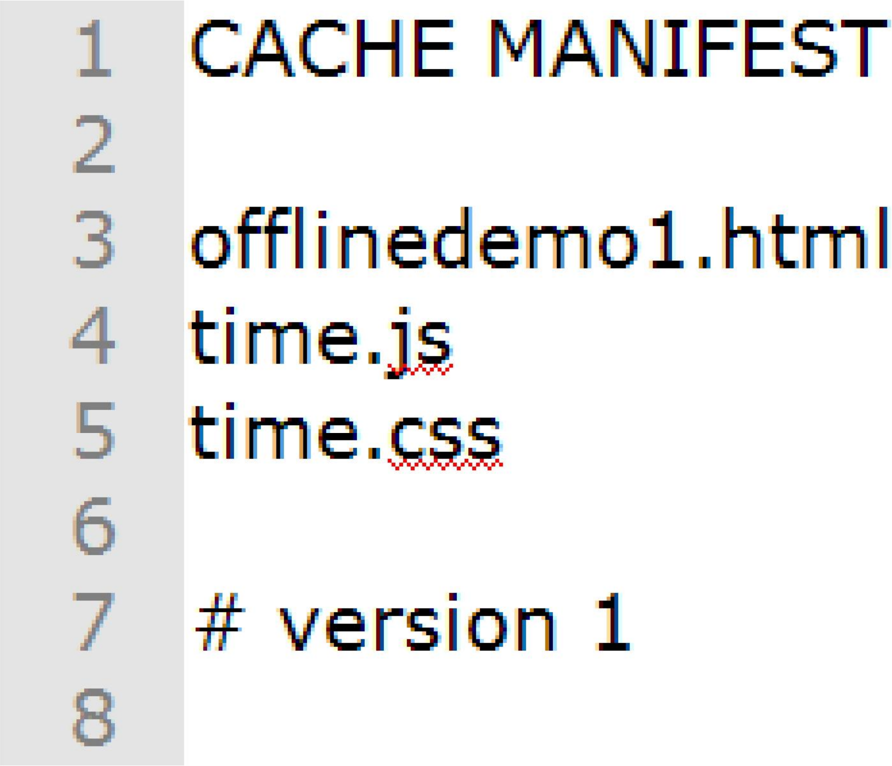
- Web Browsers
  - IE10, Firefox, Google Chrome, Opera, Safari
- Text Editors
  - Notepad++ or Editplus
- Files
  - offlinedemo1.html
  - time.manifest
  - server-time.js
  - time.js
  - time.css

Lab2 : offlinedemo1.html



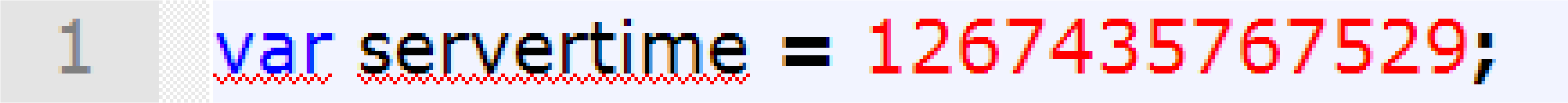
```html
<!DOCTYPE html>
<html lang="en" manifest="time.manifest">
    <head>
        <meta charset=utf-8 />
        <title>Your clock and mine</title>
        <link rel="stylesheet" href="time.css" type="text/css" />
    </head>

    <body onload="myfun()">
        <p>The time on your computer is
        <span id="yourtime">coming</span>
        and the time on the server is
        <span id="servertime">being got</span></p>
        <script src="server-time.js"></script>
        <script src="time.js"></script>
    </body>
</html>
```

Lab2 : time.manifest



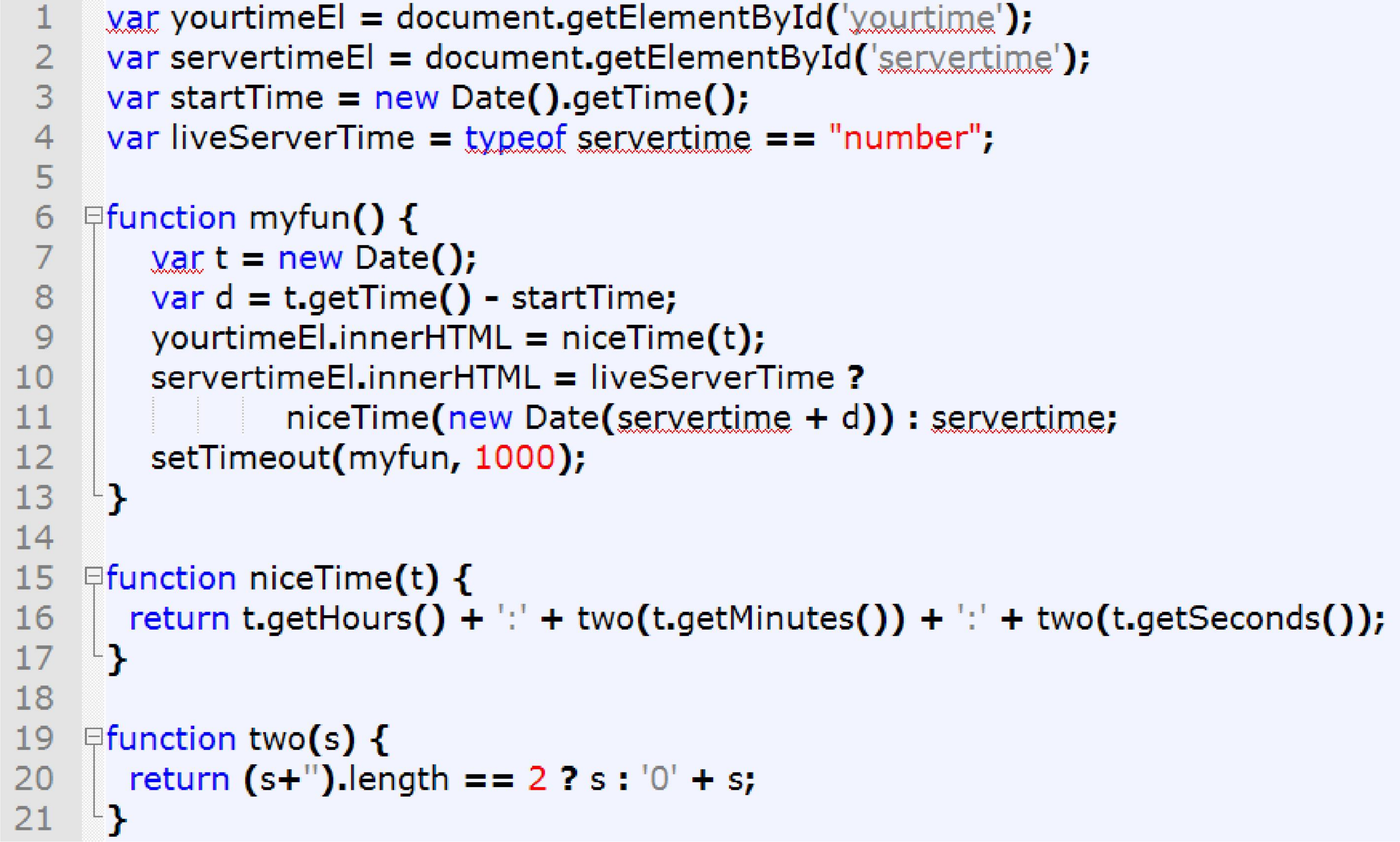
```
CACHE MANIFEST

offlinedemo1.html
time.js
time.css

# version 1

```

Lab2 : server-time.js



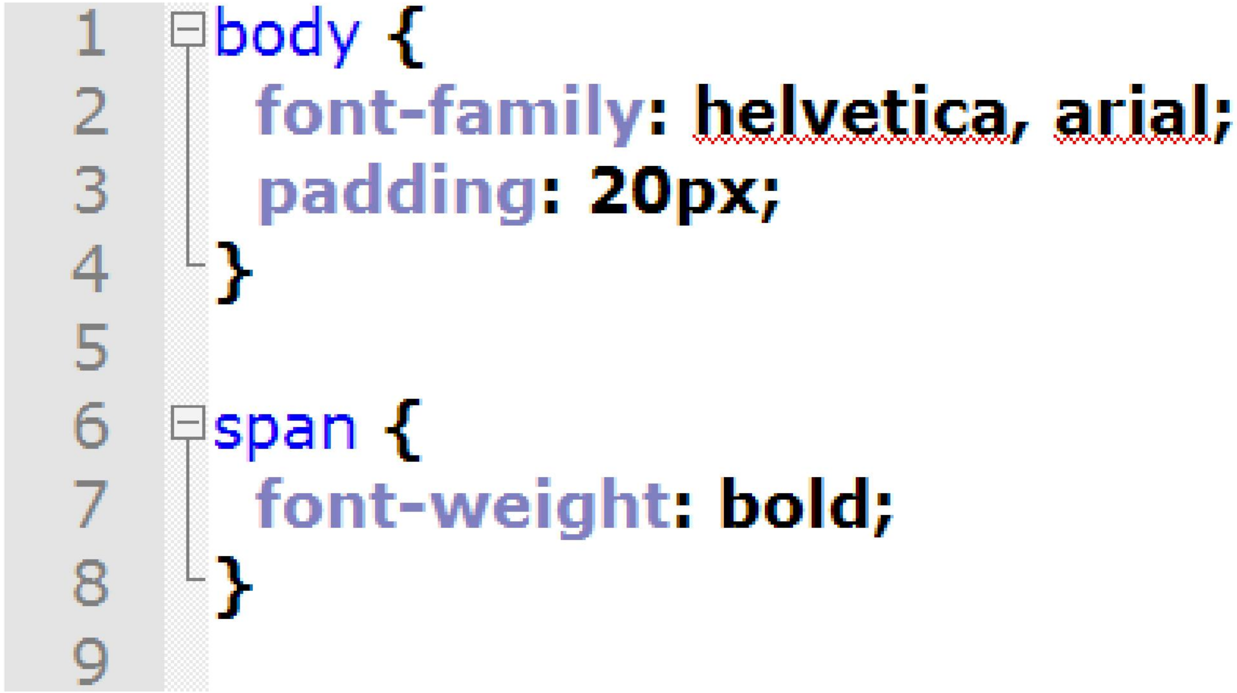
```
var servertime = 1267435767529;
```

Lab2 : time.js



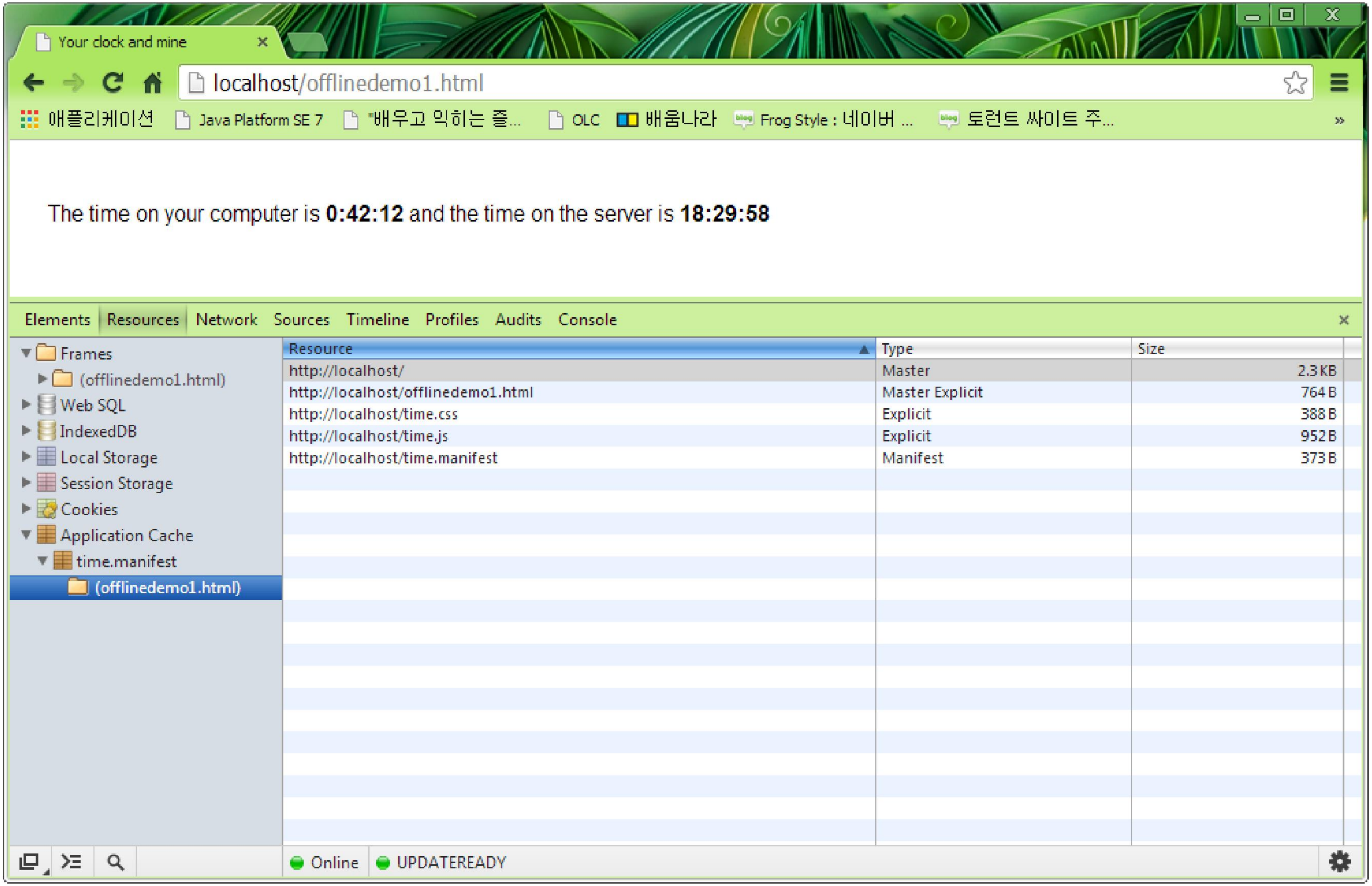
```
var yourtimeEl = document.getElementById('yourtime');
var servertimeEl = document.getElementById('servertime');
var startTime = new Date().getTime();
var liveServerTime = typeof servertime == "number";

function myfun() {
    var t = new Date();
    var d = t.getTime() - startTime;
    yourtimeEl.innerHTML = niceTime(t);
    servertimeEl.innerHTML = liveServerTime ?
            niceTime(new Date(servertime + d)) : servertime;
    setTimeout(myfun, 1000);
}

function niceTime(t) {
  return t.getHours() + ':' + two(t.getMinutes()) + ':' + two(t.getSeconds());
}

function two(s) {
  return (s+'').length == 2 ? s : '0' + s;
}
```

Lab2 : time.css



```css
body {
  font-family: helvetica, arial;
  padding: 20px;
}

span {
  font-weight: bold;
}
```

Lab2 : Result



The time on your computer is **0:42:12** and the time on the server is **18:29:58**

Resource	Type	Size
http://localhost/	Master	2.3 KB
http://localhost/offlinedemo1.html	Master Explicit	764 B
http://localhost/time.css	Explicit	388 B
http://localhost/time.js	Explicit	952 B
http://localhost/time.manifest	Manifest	373 B

● Online ● UPDATEREADY