

1 Ajax And Text Types

1. 한글 Data 수신

[greeting_ansi.txt]

Good Morning!

안녕하세요.

[greeting_utf8.txt]

Good Morning!

안녕하세요.

[ajaxdemo.html]

```
<!DOCTYPE html>
```

```
<html>
```

```
<head>
```

```
<meta charset="UTF-8">
```

```
<title>Insert title here</title>
```

```
<script>
```

```
var xmlObj;
```

```
function send(){
```

```
    xmlObj = new XMLHttpRequest();
```

```
    xmlObj.open("GET", "greeting_utf8.txt", true);
```

```
    xmlObj.onreadystatechange = callback;
```

```
    xmlObj.send(null);
```

```
}
```

```
function callback(){
```

```
    if(xmlObj.readyState == 4 && xmlObj.status == 200){
```

```
        document.getElementById("rcvMsg").innerHTML = xmlObj.responseText;
```

```
    }
```

```
}
```

```
</script>
```

```
</head>
```

```
<body>
```

```
<input type="button" id="btn" onclick="send()" value="한글데이터수신" /><br />
```

```
<div id="rcvMsg"></div>
```

```
</body>
```

```
</html>
```

2. 일반 Text Data 수신하기

[sungjuk_utf8.dat]

#각 데이터는 5칸씩 띄워져 있음.

1101	한송이	78	87	83	78
------	-----	----	----	----	----

1102	정다워	88	83	57	98
------	-----	----	----	----	----

1103	그리운	76	56	87	78
------	-----	----	----	----	----

1104	고아라	83	57	88	73
------	-----	----	----	----	----

1105	사랑해	87	87	53	55
------	-----	----	----	----	----

1106	튼튼이	98	97	93	88
------	-----	----	----	----	----

1107	한아름	68	67	83	89
------	-----	----	----	----	----

1108	더크게	98	67	93	78
------	-----	----	----	----	----

1109	더높이	88	99	53	88
------	-----	----	----	----	----

1110	아리랑	68	79	63	66
------	-----	----	----	----	----

1111	한산섬	98	89	73	78
------	-----	----	----	----	----

1112	하나로	89	97	78	88
------	-----	----	----	----	----

[ajaxdemo1.html]

```
<!DOCTYPE html>
```

```
<html>
```

```
<head>
```

```
<meta charset="UTF-8">
```

```
<title>Insert title here</title>
```

```
<script src="js/jquery-3.2.1.min.js"></script>
```

```
<script>
```

```
var xmlObj;
```

```
$(document).ready(function(){
```

```
    $('#btn').click(function(){
```

```
        xmlObj = new XMLHttpRequest();
```

```

68         xmlObj.open("GET", "sungjuk_utf8.dat");
69         xmlObj.onreadystatechange = callback;
70         xmlObj.send(null);
71     });
72 });
73 function displayHeader(){
74     var str = "<h2>성적 데이터(TEXT)</h2>";
75     str += "<table><thead><tr>";
76     str +=
77         "<th>학번</th><th>이름</th><th>국어</th><th>영어</th><th>수학</th><th>전산</t";
78     str += "<th>총점</th><th>평균</th><th>학점</th></tr></thead>";
79     str += "<tbody></tbody>";
80     str += "</table>";
81     return str;
82 }
83 function callback(){
84     if(xmlObj.readyState == 4 && xmlObj.status == 200){
85         $('#rcvMsg').html(displayHeader());
86         myparser(xmlObj.responseText)
87     }
88 }
89 function myparser(data){
90     var str = "";
91     var array = data.split("\n");
92     for(var i = 0 ; i < array.length ; i++){
93         str += "<tr>";
94         var array1 = array[i].split(" "); //5칸으로 구분
95         for(var j = 0 ; j < array1.length ; j++){
96             str += "<td>" + array1[j] + "</td>";
97         }
98         var sum = parseInt(array1[2]) + parseInt(array1[3]) + parseInt(array1[4]) +
99             parseInt(array1[5]);
100         var avg = sum / 4.;
101         avg = avg.toFixed(2);
102         var grade = (avg <= 100 && avg >= 90) ? 'A' :
103             (avg < 90 && avg >= 80) ? 'B' :
104             (avg < 80 && avg >= 70) ? 'C' :
105             (avg < 70 && avg >= 60) ? 'D' : 'F';
106         str += "<td>" + sum + "</td><td>" + avg + "</td><td>" + grade + "</td>";
107         str += "</tr>";
108     }
109     $('#tbody').html(str);
110 }
111 </script>
112 <link rel="stylesheet" type="text/css" href="css/style.css" />
113 </head>
114 <body>
115     <input type="button" id="btn" value="성적데이터수신(TEXT)" /><br />
116     <div id="rcvMsg"></div>
117 </body>
118 </html>
119
120 [css/style.css]
121 @CHARSET "UTF-8";
122 h2{
123     text-align:center
124 }
125 table{
126     margin:auto;
127     width:600px;
128     border-collapse : collapse;
129 }
130 th, td{
131     border : 1px solid black;
132 }
133 th{

```

```

132         background-color:yellow;color:darkblue;
133     }
134     td{
135         text-align:center;
136     }
137
138

```

3. CSV File 수신하기

[sungjuk_utf8.csv]

```

141     1101,   한송이,   78,   87,   83,   78
142     1102,   정다워,   88,   83,   57,   98
143     1103,   그리운,   76,   56,   87,   78
144     1104,   고아라,   83,   57,   88,   73
145     1105,   사랑해,   87,   87,   53,   55
146     1106,   튼튼이,   98,   97,   93,   88
147     1107,   한아름,   68,   67,   83,   89
148     1108,   더크게,   98,   67,   93,   78
149     1109,   더높이,   88,   99,   53,   88
150     1110,   아리랑,   68,   79,   63,   66
151     1111,   한산섬,   98,   89,   73,   78
152     1112,   하나로,   89,   97,   78,   88

```

[ajaxdemo2.html]

```

155     <!DOCTYPE html>
156     <html>
157         <head>
158             <meta charset="UTF-8">
159             <title>Insert title here</title>
160             <script src="js/jquery-3.2.1.min.js"></script>
161             <script>
162                 var xmlObj;
163                 $(document).ready(function(){
164                     $('#btn').click(function(){
165                         xmlObj = new XMLHttpRequest();
166                         xmlObj.open("GET", "sungjuk_utf8.csv");
167                         xmlObj.onreadystatechange = callback;
168                         xmlObj.send(null);
169                     });
170                 });
171                 function displayHeader(){
172                     var str = "<h2>성적 데이터(CSV)</h2>";
173                     str += "<table><thead><tr>";
174                     str +=
175                         "<th>학번</th><th>이름</th><th>국어</th><th>영어</th><th>수학</th><th>전산</th><th>총점</th><th>평균</th><th>학점</th></tr></thead>";
176                     str += "<tbody></tbody>";
177                     str += "</table>";
178                     return str;
179                 }
180                 function callback(){
181                     if(xmlObj.readyState == 4 && xmlObj.status == 200){
182                         $('#rcvMsg').html(displayHeader());
183                         myparser(xmlObj.responseText)
184                     }
185                 }
186                 function myparser(data){
187                     var str = "";
188                     var array = data.split("\n");
189                     for(var i = 0 ; i < array.length ; i++){
190                         str += "<tr>";
191                         var array1 = array[i].split(",");
192                         for(var j = 0 ; j < array1.length ; j++){
193                             str += "<td>" + array1[j].trim() + "</td>";
194                         }
195                         var sum = parseInt(array1[2].trim()) + parseInt(array1[3].trim()) +
196                             parseInt(array1[4].trim()) + parseInt(array1[5].trim());

```

```

197         var avg = sum / 4.;
198         avg = avg.toFixed(2);
199         var grade = (avg <= 100 && avg >= 90) ? 'A' :
200                     (avg < 90 && avg >= 80) ? 'B' :
201                     (avg < 80 && avg >= 70) ? 'C' :
202                     (avg < 70 && avg >= 60) ? 'D' : 'F';
203         str += "<td>" + sum + "</td><td>" + avg + "</td><td>" + grade + "</td>";
204         str += "</tr>";
205     }
206     $('tbody').html(str);
207 }
208 </script>
209 <link rel="stylesheet" type="text/css" href="css/style.css" />
210 </head>
211 <body>
212     <input type="button" id="btn" value="성적데이터수신(CSV)" /><br />
213     <div id="rcvMsg"></div>
214 </body>
215 </html>

```

4. XML Data 수신하기

1)DOM Level 2

-<http://www.w3.org/TR/DOM-Level-2-Core/core.html>

2)Node interface

- a. Element, Document, Text 등 주요 interface가 상속받는 부모 interface
- b. DOM API 의 가장 기본적인 interface
- c. 주요 properties
 - nodeName : String : Node 의 이름
 - nodeValue : String : Node 의 값
 - nodeType : unsigned short : node type
 - parentNode : Node : 부모 node
 - childNodes : NodeList : 자식 node 목록
 - firstChild : Node : 첫번째 자식 node
 - lastChild : Node : 마지막 자식 node
 - previousSibling : Node : 현재 node와 같은 부모를 갖는 자식 node 중 현재 node 이전의 자식 node
 - nextSibling : Node : 현재 node와 같은 node를 갖는 자식 node 중 현재 node 다음의 자식 node
- d. NodeList는 childNodes 로 구한 자식 node에 접근할 수 있도록 하기 위해 다음의 두 가지를 제공
 - length : NodeList 에 저장된 node의 갯수(NodeList의 길이)
 - item(i) : index i에 저장된 node를 구함(i는 0부터 시작)
- e. nodeType
 - 1 : ELEMENT_NODE
 - 2 : ATTRIBUTE_NODE
 - 3 : TEXT_NODE
 - 9 : DOCUMENT_NODE

3)Document interface

- a. 문서 전체를 나타내는 interface로서 document 객체가 Document interface에 해당
- b. documentElement : Element : 문서의 root node를 나타낸다.
- c. Element Node 구하는 2가지 방법
 - NodeList getElementsByTagName(String tagName)
 - Element getElementById(String elementId)

4)Element interface

- a. 태그를 나타내는 interface 이다.
- b. tagName : String : tag의 이름
- c. Element 속성 처리 함수
 - String getAttribute(String name)
 - setAttribute(String name, String value)
 - removeAttribute(String name)

5)Example

```
[usingDOM.html]
<!DOCTYPE html>
<html lang="ko">
  <head>
    <meta charset="utf-8" />
    <title>DOM API를 사용한 HTML 문서 접근</title>
    <script>
      window.onload = function() {
        var roodNode = document.documentElement;
        console.log("root 태그: "+roodNode.tagName);

        var bodyNode = document.getElementsByTagName("body").item(0);
        console.log("body 태그: "+bodyNode.tagName);

        var spanList = document.getElementsByTagName("span");
        console.log("span 태그의 개수: " + spanList.length);
        for (var i = 0 ; i < spanList.length ; i++) {
          var span = spanList.item(i);
          console.log((i+1)+"번째 span의 id : "+span.getAttribute("id"));
        }

        var debugConsoleDiv = document.getElementById("debugConsole");
        console.log("debugConsole 요소: "+debugConsoleDiv.tagName);

        var bodyLastChild = bodyNode.lastChild;
        console.log("body의 마지막 자식 노드: "+bodyLastChild.nodeName);
      }
    </script>
  </head>
  <body>
    <span id="a">a</span>
    <p>test<span id="b">b</span></p>
    <div><p>p</p><span id="c">c</span></div>
    <div id="debugConsole" style="border: 1px solid #000"></div>
  </body>
</html>
```

6) Document interface의 Element node 생성 함수

- Element document.createElement(String tagName)
- Text document.createTextNode(String text)

7) Node interface의 DOM tree 변경 관련 함수

- Node insertBefore(Node newChild, Node refChild) : 현재 node의 자식 node인 refChild node의 previousSibling 자리에 newChild node를 삽입
- Node replaceChild(Node newChild, Node oldChild) : 현재 node의 자식 node인 oldChild node를 새로운 newChild node로 교체한다.
- Node removeChild(Node oldChild) : 현재 node의 자식 node인 oldChild를 현재 node에서 제거한다.
- Node appendChild(Node newChild) : newChild node를 현재 node의 마지막 자식 node로 추가한다.

8) Example

[changeUsingDemo.html]

```
<!doctype html>
<html lang="ko">
  <head>
    <meta charset="utf-8" />
    <title>DOM을 사용한 변경</title>
    <script>
      var count = 0;
      function appendItem() {
        count++;
        var newItem = document.createElement("div");
        newItem.setAttribute("id", "item_" + count);
        var html = '새로 추가된 아이템[' + count + '] + ' +
          '<input type="button" value="삭제" onclick="removeItem(' + count + ')/>';
        newItem.innerHTML = html;
```

```

329         var itemListNode = document.getElementById('itemList');
330         itemListNode.appendChild(newItem);
331     }
332     function removeItem(idCount) {
333         var item = document.getElementById("item_" + idCount);
334         if (item != null) {
335             item.parentNode.removeChild(item);
336         }
337     }
338 </script>
339 </head>
340 <body>
341     <input type='button' value='추가' onclick='appendItem()' />
342     <div id="itemList"></div>
343 </body>
344 </html>

```

9)Example

[books.xml]

```

349 <?xml version="1.0" encoding="utf-8" ?>
350
351 <books>
352     <book>
353         <title>프로젝트 생존 전략</title>
354         <author>스티브 맥코넬</author>
355     </book>
356     <book>
357         <title>JSP 2.0 프로그래밍</title>
358         <author>최범균</author>
359     </book>
360     <book>
361         <title>웹 표준</title>
362         <author>댄 씨더홀</author>
363     </book>
364 </books>

```

[viewBooks.html]

```

367 <!doctype html>
368 <html lang="ko">
369     <head>
370         <meta charset="utf-8" />
371         <title>책정보 보기</title>
372         <script>
373             var xmlObj;
374             window.addEventListener("load", loadBooks, false);
375             function loadBooks() {
376                 xmlObj = new XMLHttpRequest();
377                 xmlObj.open("get", "books.xml", true);
378                 xmlObj.onreadystatechange = loadedBooks;
379                 xmlObj.send(null);
380             }
381             function loadedBooks() {
382                 if (xmlObj.readyState == 4 && xmlObj.status == 200) {
383                     var xmlDoc = xmlObj.responseXML;
384                     var bookList = xmlDoc.getElementsByTagName("book");
385                     var message = "책 개수 : " + bookList.length + "권\n";
386                     for (var i = 0 ; i < bookList.length ; i++) {
387                         var book = bookList.item(i);
388                         var title = book.getElementsByTagName("title").item(0).firstChild.nodeValue;
389                         var author =
390                             book.getElementsByTagName("author").item(0).firstChild.nodeValue;
391                         message += title + "(" + author + ")\n";
392                     }
393                     alert(message);
394                 }

```

```

395         </script>
396     </head>
397     <body>
398         책 정보를 alert 으로 출력
399     </body>
400 </html>
401
402 [sungjuk_utf8.xml]
403 <?xml version="1.0" encoding="UTF-8"?>
404 <students>
405     <student hakbun="1101">
406         <irum>한송이</irum><kor>78</kor><eng>87</eng><mat>83</mat><edp>78</edp>
407     </student>
408     <student hakbun="1102">
409         <irum>정다워</irum><kor>88</kor><eng>83</eng><mat>57</mat><edp>98</edp>
410     </student>
411     <student hakbun="1103">
412         <irum>그리운</irum><kor>76</kor><eng>56</eng><mat>87</mat><edp>78</edp>
413     </student>
414     <student hakbun="1104">
415         <irum>고아라</irum><kor>83</kor><eng>57</eng><mat>88</mat><edp>73</edp>
416     </student>
417     <student hakbun="1105">
418         <irum>사랑해</irum><kor>87</kor><eng>87</eng><mat>53</mat><edp>55</edp>
419     </student>
420     <student hakbun="1106">
421         <irum>튼튼이</irum><kor>98</kor><eng>97</eng><mat>93</mat><edp>88</edp>
422     </student>
423     <student hakbun="1107">
424         <irum>한아름</irum><kor>68</kor><eng>67</eng><mat>83</mat><edp>89</edp>
425     </student>
426     <student hakbun="1108">
427         <irum>더크게</irum><kor>98</kor><eng>67</eng><mat>93</mat><edp>78</edp>
428     </student>
429     <student hakbun="1109">
430         <irum>더높이</irum><kor>88</kor><eng>99</eng><mat>53</mat><edp>88</edp>
431     </student>
432     <student hakbun="1110">
433         <irum>아리랑</irum><kor>68</kor><eng>79</eng><mat>63</mat><edp>66</edp>
434     </student>
435     <student hakbun="1111">
436         <irum>한산섬</irum><kor>98</kor><eng>89</eng><mat>73</mat><edp>78</edp>
437     </student>
438     <student hakbun="1112">
439         <irum>하나로</irum><kor>89</kor><eng>97</eng><mat>78</mat><edp>88</edp>
440     </student>
441 </students>
442
443 [ajaxdemo3.html]
444 <!DOCTYPE html>
445 <html>
446     <head>
447         <meta charset="UTF-8">
448         <title>Insert title here</title>
449         <script src="js/jquery-3.2.1.min.js"></script>
450         <script>
451             var xmlObj;
452             $(document).ready(function(){
453                 $('#btn').click(function(){
454                     xmlObj = new XMLHttpRequest();
455                     xmlObj.open("GET", "sungjuk_utf8.xml");
456                     xmlObj.onreadystatechange = callback;
457                     xmlObj.send(null);
458                 });
459             });
460             function displayHeader(){
461                 var str = "<h2>성적 데이터(XML)</h2>";

```

```

462         str += "<table><thead><tr>";
463         str +=
            "<th>학번</th><th>이름</th><th>국어</th><th>영어</th><th>수학</th><th>전산</t
            h>";
464         str += "<th>총점</th><th>평균</th><th>학점</th></tr></thead>";
465         str += "<tbody></tbody>";
466         str += "</table>";
467         return str;
468     }
469     function callback(){
470         if(xmlObj.readyState == 4 && xmlObj.status == 200){
471             $('#rcvMsg').html(displayHeader());
472             myparser(xmlObj.responseXML); //매우 주의할 것
473         }
474     }
475     function myparser(data){
476         var str = "";
477         var root = data.firstChild;
478         var array = root.childNodes;
479         for(var i = 0 ; i < array.length ; i++){
480             if(array[i].tagName == 'student'){
481                 str += "<tr>";
482                 var hakbun = array[i].getAttribute('hakbun');
483                 str += "<td>" + hakbun + "</td>";
484                 var sum = 0, avg, grade;
485                 for(var j = 1 ; j < array[i].childNodes.length - 1 ; j++){
486                     str += "<td>" + array[i].childNodes[j].firstChild.nodeValue + "</td>";
487                 }
488                 for(var k = 2 ; k < array[i].childNodes.length - 1 ; k++){
489                     sum += parseInt(array[i].childNodes[k].firstChild.nodeValue);
490                 }
491                 str += "<td>" + sum + "</td>";
492                 avg = calcAvg(sum);
493                 str += "<td>" + avg + "</td>";
494                 grade = calcGrade(avg);
495                 str += "<td>" + grade + "</td>";
496                 str += "</tr>";
497             }
498         }
499         $('#tbody').html(str);
500     }
501     function calcSum(kor, eng, mat, edp){
502         var sum = parseInt(array1[2].trim()) + parseInt(array1[3].trim()) +
503             parseInt(array1[4].trim()) + parseInt(array1[5].trim());
504         return sum;
505     }
506     function calcAvg(sum){
507         var avg = sum / 4.;
508         return avg;
509     }
510     function calcGrade(avg){
511         avg = avg.toFixed(2);
512         var grade = (avg <= 100 && avg >= 90) ? 'A' :
513             (avg < 90 && avg >= 80) ? 'B' :
514             (avg < 80 && avg >= 70) ? 'C' :
515             (avg < 70 && avg >= 60) ? 'D' : 'F';
516         return grade;
517     }
518     </script>
519     <link rel="stylesheet" type="text/css" href="css/style.css" />
520 </head>
521 <body>
522     <input type="button" id="btn" value="성적데이터수신(XML)" /><br />
523     <div id="rcvMsg"></div>
524 </body>
525 </html>

```