

Suggestive solution to Ex1

Question 1

File a1.php

```
1  <?php
2  session_start();
3  ?>
4
5  <html>
6  <meta http-equiv="content-type" content="text/html; charset=utf-8"/>
7  <head>
8  <script src="a1.js"></script>
9  <style>
10 div#wine0{
11     color:Green;
12 }
13 div#reg{
14     line-height:50px;
15     height: 50px;
16     width: 250px;
17     border-style:solid;
18     border-width:1px;
19     background: LightGreen;
20     float: left;
21     text-align:center;
22 }
23 div#log{
24     line-height:50px;
25     height:50px;
26     width:250px;
27     border-style:solid;
28     border-width:1px;
29     background:#EEEEEE;
30     float:left;
31     text-align:center;
32 }
33 div#back{
34     height:300px;
35     width:502px;
36     border-style:solid;
37     border-width:1px;
38     clear:both;
39     line-height:30px;
40     text-align:left;
```

```

41  }
42  #msg0,#msg1,#msg2,#msg3,#msg4{
43      padding-left:5px;
44      color:red;
45  }
46  #msg101{
47      padding-left:5px;
48  }
49  </style>
50  </head>
51
52  <body>
53  <div id="wine0">
54      <h1>Wine Tours Vienna</h1>
55  </div>
56
57  <div id="reg">
58      <span onMouseOver="toserver('reg');return true;" onClick="return false;">
59          <b>Registration</b>
60      </span>
61  </div>
62
63  <div id="log">
64      <span onMouseOver="toserver('log');return true;" onClick="return false;">
65          <b>Login</b>
66      </span>
67  </div>
68
69  <div id="back">
70      <span id="msg100"></span>
71  </div>
72
73  </body>
74  </html>

```

File a1.js

```

75  //global xmlhttprequest object
76  var xmlhttp = null;
77  /*
78   *create xmlhttprequest object,
79   *readystate, open() and send()
80   *@param variable param
81   *@return null
82   */

```

```

83  function toserver(param)
84  {
85      if(xmlhttp==null) {
86          //create xmlhttp object
87          if (window.XMLHttpRequest)
88              //code for IE7+, Firefox, Chrome, Opera, Safari
89              try{
90                  xmlhttp=new XMLHttpRequest();
91              }catch(e) {
92                  xmlhttp = null;
93              }
94      }
95      else
96          //code for IE6, IE5
97          try{
98              xmlhttp=new ActiveXObject("Microsoft.XMLHTTP");
99          }catch(e) {
100              xmlhttp = null;
101          }
102      }
103  }
104
105  if(xmlhttp!=null)
106  {
107      //fetch registration or login html from server
108      var x = (param=="reg") || (param=="log");
109      if(x) //prepare a function to handle server response
110          xmlhttp.onreadystatechange=function()
111          {
112              if (xmlhttp.readyState==4 && xmlhttp.status==200)
113              {
114
115                  document.getElementById("msg100").innerHTML=xmlhttp.responseText;
116              }
117          }
118      //to server with URL, async true
119      xmlhttp.open("GET","getform.php?q="+param,true);
120      xmlhttp.send(null);
121  }
122  else
123  {
124      //response
125      xmlhttp.onreadystatechange=function()
126      {

```

```

127         if (xmlhttp.readyState==4 && xmlhttp.status==200)
128         {
129             var str = "msg"+param;
130             document.getElementById(str).innerHTML=xmlhttp.responseText;
131         }
132     }
133
134     //request parameters:
135     var url  = "validation.php?tagid=";
136     if(param=="100"){
137         inval=encodeURIComponent(document.getElementById("3").value);
138         in1=encodeURIComponent(document.getElementById("4").value);
139         url += param + "&inval=" + inval + "&in1=" + in1;
140     }else
141     if (param=="101"){
142         inval=encodeURIComponent(document.getElementById("0").value);
143         in1=encodeURIComponent(document.getElementById("1").value);
144         in2=encodeURIComponent(document.getElementById("2").value);
145         url += param + "&inval=" + inval + "&in1=" + in1+ "&in2=" + in2;
146     }else
147     {
148         inval=encodeURIComponent(document.getElementById(param).value);
149         url += param + "&inval=" + inval;
150     }
151     //HTTP connection to server:use GET
152     xmlhttp.open("GET",url,true);
153     xmlhttp.send(null);
154 }
155 }
156 else
157 {
158     alert("xmlhttp creation error_0.");
159 }
160 }
161
162 /*
163  *submit button:validation
164  *@param variable null
165  *@return null
166  */
167 function check(param)
168 {
169     toserver(param);
170     return false;

```

171 }

File getform.php

```
172 <?php
173 //check $_GET first
174 if(isset($_GET["q"])){
175     $message = $_GET["q"];
176     //registration form
177     if($message=="reg"){
178         echo '
179         <form>
180         Your Full Name:<span id="20"></span><br>
181             <input type="text" name="name" id="0" onblur="toserver(0)" value=""></input>
182             <span id="msg0"></span><br>
183         Email:<br>
184             <input type="text" name="email" id="1" onblur="toserver(1)" value=""></input><span
185 id="msg1"></span><br>
186         Type in a new password:<br>
187             <input type="text" name="pwd" id="2" onblur="toserver(2)" value=""></input>
188             <span id="msg2"></span><br>
189         <p>
190             <input type="submit" id="101" name="submit" value="submit" Onclick="return
191 check(101);"></input>
192             <span id="msg101"></span>
193         </p>
194         </form>;
195     }
196     else
197         //login form
198         if($message=="log"){
199             echo '
200             <form>
201             Customer ID:<br>
202                 <input type="text" name="name" id="3" onblur="toserver(3)" value=""></input><span
203 id="msg3"></span><br>
204             Type in your password:<br>
205                 <input type="text" name="psd" id="4" onblur="toserver(4)" value=""></input><span
206 id="msg4"></span><br>
207             <p>
208                 <input type="submit" id="100" value="submit" Onclick="return check(100);"></input>
209             </p>
210             </form>;
211         }
212     }
```

```

213  ?>

      File validation.php
214  <?php
215  session_start();
216  //load functions
217  require_once('fn.php');
218
219  //check $_GET
220  if((isset($_GET['tagid']))&&(isset($_GET['inval']))) {
221  //get data
222  $tag = $_GET['tagid'];
223  $inval = $_GET['inval'];
224
225
226  //validation:login submit button
227  if($tag=='100')
228  {
229
230      //check $_GET
231      if(!isset($_GET['in1'])) {
232          echo '<br> <span style="color:red;padding-left:5px;">Please type in all entries. Try
233  again.</span>';
234          return;
235      }
236
237      $in1 = $_GET['in1'];
238      if(checkID($inval) && checkID($in1))
239      {
240          $cidpwd = $inval." ".$in1;
241          if(myread($cidpwd)) echo ' ';
243          else echo '<br> <span style="color:red;padding-left:5px;">Please type in all entries. Try
244  again.</span>';
245      }
246      else
247      {
248          echo '<br> <span style="color:red;padding-left:5px;">Please type in all entries. Try
249  again.</span>';
250      }
251  }
252
253  //validation:registration submit button
254  if($tag=='101')

```

```

255 {
256     //check $_GET
257     if(!isset($_GET['in1']) || !isset($_GET['in2'])) {
258         echo '<br> <span style="color:red;padding-left:5px;">Please type in all entries. Try
259 again.</span>';
260         return;
261     }
262
263     $in1 = $_GET['in1'];
264     $in2 = $_GET['in2'];
265     if(checkName($inval) && checkEmail($in1) && checkID($in2))
266     {
267         //generate id with 5 numerical digits
268         $num = mt_rand(10000,99999);
269         //record cid-pwd pair in cid.txt
270         mywrite($num." ".$_SESSION['pwd']);
271         echo "Your customer id is ".$num;
272     }
273     else
274     {
275         echo '<span style="color:red;">Error: Missing or invalid input values.</span>';
276     }
277 }
278
279 //Validation:name
280 if($tag=='0')
281 {
282     if(checkName($inval))
283     {
284         echo '<span style="color:black;">Good</span>';
285     }
286     else
287     {
288         echo 'Error: At least 5 alphabets.';
289     }
290 }
291
292 //Validation: cid and pwd
293 if($tag=='2' || $tag=='3' || $tag=='4')
294 {
295     if(checkID($inval))
296     {
297         echo '<span style="color:black;">Good</span>';
298         //password

```

```

299         if($tag=='2') $_SESSION['pwd']=$inval;
300     }
301     else
302     {
303         echo 'Error: Only accept 5 numerical digits.';
304     }
305 }
306
307 //Validation: email
308 if($tag=='1')
309 {
310     if(checkEmail($inval))
311     {
312         echo '<span style="color:black;">Good</span>';
313     }
314     else
315     {
316         echo 'Error: Email is not valid';
317     }
318 }
319 }
320
321 ?>

```

File fn.php

```

322 <?php
323 /*
324  * php functions
325 */
326 //write customer id to a file cid.txt
327 function mywrite($cidpwd)
328 {
329     $fname = "cid.txt";
330     $myFile = fopen($fname, 'a') or die("Can't open file.");
331     fwrite($myFile, ' '.$cidpwd);
332     fclose($myFile);
333 }
334
335 //check cid-pwd pair
336 function myread($cidpwd)
337 {
338     // get contents of a file into a string
339     $filename = "cid.txt";
340     $handle = fopen($filename, "r") or die("Can't open file.");

```



```

341     $contents = fread($handle, filesize($filename));
342     fclose($handle);
343
344     //last occurrence
345     $pos = strrpos($contents, ".$cidpwd");
346     if ($pos === false) { // note: three equal signs
347         // not found...
348         return false;
349     }
350     else return true;
351
352 }
353
354 //ID & pwd validation:5 numerical digits
355 function checkID($value)
356 {
357     return preg_match('/^[0-9]{5}$/', $value);
358 }
359
360 //name validation
361 function checkName($value)
362 {
363     return preg_match('/^[a-zA-Z]{5}$/', $value);
364 }
365
366 //email validation
367 function checkEmail($value)
368 {
369     return filter_var($value, FILTER_VALIDATE_EMAIL);
370 }
371
372 ?>

```

Question 2

Testcases

Precondition/setup for the test: Browser Firefox version 47.0 and the front page

a. GUI layout test

Item number	Execution	Expected results(PASS/FAIL criteria)	Actual result
1	Front page	Should see Winery at top-left, horizontal registration tab and login tab	PASS
2.	Front page		

Mouse on registration tab

Should see registration form with 3 vertical input fields:
Customer name, email address and password.

PASS

3. Front page

Mouse on login tab

Should see login form with w vertical input fields:
Customer ID and password.

PASS

b. Functional tests for the front page

Item number	Execution	Expected results(PASS/FAIL criteria)	Actual result
-------------	-----------	--------------------------------------	---------------

1	Mouse icon on registration tab		
---	--------------------------------	--	--

	Move mouse to name input field		
--	--------------------------------	--	--

	Type in K, -kk, ^&(), 1219-8 separately		
--	---	--	--

	Then mouse move to other input field		
--	--------------------------------------	--	--

		Should see read error message: At least 5 alphabetic characters on the right side of the input field.	
--	--	---	--

			PASS
--	--	--	------

2	Mouse icon on registration tab		
---	--------------------------------	--	--

	Move mouse to name input field		
--	--------------------------------	--	--

	Type in kkkkk		
--	---------------	--	--

	Then move mouse to other input field		
--	--------------------------------------	--	--

		Should see Good on the right side of the input field.	
--	--	---	--

			PASS
--	--	--	------

3.	Repeat 1 for the email input field. Type in 21212, dff,-sdf,&8d8 separately.		
----	--	--	--

		Should see read error message: At least 5 alphabetic characters on the right side of the input field.	
--	--	---	--

			PASS
--	--	--	------

4.	Repeat 2 for the email input field. Type in abc@abc.com.		
----	--	--	--

		Should see Good on the right side of the input field.	
--	--	---	--

			PASS
--	--	--	------

5.	Repeat 1 for the password input field. Type in 212123, dff,-sdf,&8d8 separately.		
----	--	--	--

		Should see read error message: At least 5 alphabetic characters on the right side of the input field.	
--	--	---	--

			PASS
--	--	--	------

6.	Repeat 2 for the password input field. Type in 11111.		
----	---	--	--

		Should see Good on the right side of the input field.	
--	--	---	--

			PASS
--	--	--	------

7	Move mouse to name input field.Type in kkkkk		
---	--	--	--

	Move mouse to email input field. Type in abc@abc.com		
--	---	--	--

	Move mouse to password input field. Type in 11111.		
--	--	--	--

	Click Submit button.		
--	----------------------	--	--

		Should see Good on the right side of all the input fields.	
--	--	--	--

		Should see Your customer id is 34567 or some random 5-digit	
--	--	---	--

number.

PASS

- 8 Mouse icon on login tab
 Move mouse to customer id input field
 Type in the customer id given in item 7.
 Then mouse move to the password input field
 Type in 11111.
 Click Submit button.

Should see an image replacing the login form. The image has a glass of wine and the statement "Please claim two discount tickets at the winery guest house with your Customer ID. Thank you!"

a. Unit test cases (white box):

Examples test cases for the logic in line numbers 357, 363 and 369 for fh.php.

Line	Input data	Execution	Expected value	actual value
357	1000, 9999 or -10000			

 Type in the password input box
 Move mouse to another input box
 Should see error message: Only accept 5 numerical digits.
 PASS

357 10000, 99999 or 55555

 Type in the password input box
 Move mouse to another input box
 Should see message: Good
 PASS

363 kkkk, -kkkkk or john

 Type in the name input box
 Move mouse to another input box
 Should see error message: At least 5 alphabets.
 PASS

363 kkkkk, kkkkkk or kkkkkkk

 Type in the name input box
 Move mouse to another input box
 Should see message: Good
 PASS

369 kkkk, -kkkkk or john@123

 Type in the email address input box
 Move mouse to another input box
 Should see error message: Email is not valid.
 PASS

369 john@abc.com, john@abc.org or john@abc.net

Type in the email address input box
Move mouse to another input box
Should see message: Good
PASS

Question 3

Written summary

Summary(335 words): Wine Tours Vienna web page design summary

Purpose: To register and log in to order tickets

Web page contents and layout design:

Winery name at top-left corner, two horizontal tabs for registration and login, and a submit button at the bottom. Registration form: 3 vertical input fields for customer name, email address and password. Login form: 2 vertical input fields for customer id and password.

Functional requirements:

1. When the mouse icon is on top of the registration/login tab, the registration/login form appears instantly. After the submit button has been clicked, a customer id will be shown to the right of the button /an acknowledgment of two tickets will be shown to replace the login form.
2. Constraints: At least five alphabetic characters for the name, an email address with a correct email format, 5 numerical digits for the password and customer ID.
3. A red error message will instantly appear at the right of the input field when the mouse is moved away from the input field.

Server/client side scripting language used: PHP/Javascript

Source codes: a1.php, a1.js, getform.php, validation.php and fn.php.

Algorithms and the internals:

a1.php shows two tabs. On Mouse over the registration/login tab, javascript toserver() is called to create an xmlhttprequest object for subsequent HTTP GET to send to getform.php in the server. The responseText is then assigned to the innerHTML to show the registration/login form onxmlhttp.onreadystatechange. When the mouse is moved from an input field to another, toserver() will be evoked again to send the input value to validation.php for validation on the server. Red error message will appear will be echoed back to the innerHTML of the corresponding span to the right of the input field. PHP session is used to record the password entered in the registration form. A customer id is randomly generated and stored with the customer id in cid.txt on the server side for subsequent checking usage when the customer has filled in the login form and clicked the submit button so to obtain the discount tickets. PHP functions are stored in fn.php.
