

==> HTML document for layout and linking with JavaScript and CSS libraries.

```
1 <!DOCTYPE html>
2 <html lang="en">
3
4 <head>
5   <meta charset="UTF-8">
6   <meta name="viewport" content="width=device-width, initial-scale=1.0">
7   <meta http-equiv="X-UA-Compatible" content="ie=edge">
8   <title>Students Distribution</title>
9   <!-- Linking bootstrap files -->
10  <link rel="stylesheet" href="css/bootstrap/bootstrap.min.css">
11  <script src="js/jquery/jquery.js"></script>
12  <script src="js/bootstrap/bootstrap.min.js"></script>
13  <!-- Linking dealing-with-excel files -->
14  <script src="js/excel/xlsx.js"></script>
15  <script src="js/excel/export_excel.js"></script>
16  <!-- Linking local files -->
17  <link rel="icon" href="images/favicon.ico" type="image/x-icon" />
18  <link rel="stylesheet" href="css/main.css">
19  <script src="js/main.js"></script>
20
21
22 </head>
23
24 <body>
25
26   <div class="container-fluid" style="padding: 0px"><div class="row"><div class="col-12"> <div
27   *   id="header_image"></div></div></div></div>
```

```
25
26   <div class="container-fluid" style="padding: 0px"><div class="row"><div class="col-12"> <div
27   *   id="header_image"></div></div></div></div>
28
29   <div class="conatiner">
30
31   </div>
32
33   <div id="content_area"></div>
34
35   <!-- Button to Open the Modal -->
36   <button type="button" id="error_modal" style="visibility: hidden;" class="btn btn-primary" data-
37   *   toggle="modal" data-target="#myModal"></button>
38
39   <!-- The Modal -->
40   <div class="modal fade" id="myModal">
41     <div class="modal-dialog">
42       <div class="modal-content">
43
44         <!-- Modal Header -->
45         <div class="modal-header">
46           <h4 class="modal-title">Input Not Valide !</h4>
47           <button type="button" class="close" data-dismiss="modal">&times;</button>
48         </div>
49
50         <!-- Modal body -->
51         <div class="modal-body">
```

```
index.html  main.js
50     <div class="modal-body">
51         If you select the limited option, you must specify the limit value .
52     </div>
53
54     <!-- Modal footer -->
55     <div class="modal-footer">
56         <button type="button" class="btn btn-danger" data-dismiss="modal">&nbsp;Ok&nbsp;</button>
57     </div>
58
59 </div>
60 </div>
61 </div>
62
63 </body>
64 </html>
```

index.html 0 0 0 0 6:75

LF UTF-8 HTML master Publish GitHub Git (1) 4 updates

==> A File class for handling user input excel file

```
index.html  main.js
1
2 // Defining classes //////////////////////////////////////
3 //
4 class File {
5
6     constructor () {
7         this.file = null;
8         this.rows = null;
9         this.headers = null;
10    }
11
12    handle_file (file) {
13        this.file = file;
14        this.convert_to_json();
15    }
16
17    convert_to_json () {
18        let fileReader = new FileReader();
19        fileReader.readAsBinaryString(this.file);
20        fileReader.onload = (event)=>{
21            let data = event.target.result;
22            let workbook = XLSX.read(data,{type:"binary"});
23            let first_sheet_name = workbook.SheetNames[0];
24            this.rows = XLSX.utils.sheet_to_row_object_array(workbook.Sheets[first_sheet_name]);
25            this.headers = XLSX.utils.sheet_to_row_object_array(workbook.Sheets[first_sheet_name], {raw:true,
26            * header:1})[0];
27            this.create_students_objects();
28        }
29    }
30 }
```

js/main.js 0 0 0 0 25:52

LF UTF-8 JavaScript master Publish GitHub Git (1) 4 updates

```
index.html | main.js
26     this.create_students_objects();
27 };
28 }
29
30 export_excel (department_students, department_name) {
31     let department_students_length = department_students.length;
32     let excel_data = [];
33     for (let i = 0; i < department_students_length; i++) {
34         excel_data.push(Object.values(department_students[i]));
35         for (let j = 0; j < department_students[i].length; j++) {
36             console.log(department_students[i]["wishes"]);
37         }
38     }
39     var myTestXML = new myExcelXML(JSON.stringify(excel_data), this.headers);
40     myTestXML.download(department_name);
41     console.log(this.headers);
42 }
43
44 create_students_objects () {
45     let rows_length = this.rows.length;
46     let row = null;
47     my_students = new Students()
48     for (let i = 0; i < rows_length; i = i +1) {
49         row = this.rows[i];
50         let student_wishes = this.create_student_wishes(row);
51         my_students.add_student(row["الكود"], row["الاسم"], student_wishes, row["حالة النجاح"],
52             * row["المجموع"]);
53     }
54 }
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```

```
78
79     validate_user_options (user_options) {
80         let user_options_length = user_options.length;
81         for (let i = 0; i < user_options_length; i = i +1) {
82             if (user_options[i]["limited"] && !user_options[i]["value"]) {
83                 document.getElementById("error_modal").click();
84                 return false;
85             }
86         }
87         return true;
88     }
89
90     increase_population (user_options, department) {
91         user_options[user_options.indexOf(department)]["population"] += 1;
92     }
93
94     distribute (user_options_ids) {
95         let user_options = this.get_user_options(user_options_ids);
96         let my_students_length = my_students.length();
97         let user_options_length = user_options.length;
98         if (!this.validate_user_options(user_options)) return false;
99         my_students.sort_students();
100
101         for (let i = 0; i < my_students_length; i = i +1) {
102             let student = my_students.get_student(i);
103             for (let j = 1; j <= user_options_length; j = j +1) {
104                 let department = user_options.find(function (element) {return element.department ==
105                 student.get_student_wish(j);})
106                 if (department["unlimited"]) {
107                     student["department"] = department["department"];
108                     this.increase_population(user_options, department);
109                     break;
110                 }
111                 if (department["limited"]) {
112                     if (department["population"] >= Number(department["value"])) {
113                         continue;
114                     } else {
115                         student["department"] = department["department"];
116                         this.increase_population(user_options, department);
117                         break;
118                     }
119                 }
120             }
121         }
122         my_page.dispalay_tables(user_options);
123     }
124 }
125
126 class Student {
127     constructor (id, name, wishes, status, marks)
128     {
129         this.id = id;
```

```
105
106     if (department["unlimited"]) {
107         student["department"] = department["department"];
108         this.increase_population(user_options, department);
109         break;
110     }
111     if (department["limited"]) {
112         if (department["population"] >= Number(department["value"])) {
113             continue;
114         } else {
115             student["department"] = department["department"];
116             this.increase_population(user_options, department);
117             break;
118         }
119     }
120 }
121
122 my_page.dispalay_tables(user_options);
123 }
124
125 }
126
127 class Student {
128     constructor (id, name, wishes, status, marks)
129     {
130         this.id = id;
```

==> A Student class for representing the student data and behavior

==> A Students class for grouping students and their behavior

```
126
127 class Student {
128
129   constructor (id, name, wishes, status, marks)
130   {
131     this.id = id;
132     this.name = name;
133     this.wishes = wishes;
134     this.status = status;
135     this.marks = marks;
136     this.department = null;
137   }
138
139   get_student_wish (i) {
140     let wishes_keys = Object.keys(this.wishes)
141     let wishes_length = wishes_keys.length;
142     for (let j = 0; j < wishes_length; j = j + 1) {
143       if (this.wishes[wishes_keys[j]] == i) return wishes_keys[j];
144     }
145   }
146 }
147
148
149 class Students {
150
151   constructor ()
152   {
153     this.students_list = [];
154     this.header = [];
155   }
156
157   add_student (id, name, wish_list, status, marks) {
158     this.students_list.push(new Student(id, name, wish_list, status, marks));
159   }
160
161   sort_students () {
162     let success_students = this.students_list.filter(student => student.status == "ناجح");
163     let failure_students = this.students_list.filter(student => student.status != "ناجح");
164     success_students.sort(function(a, b){return b['marks'] - a['marks']});
165     failure_students.sort(function(a, b){return b['marks'] - a['marks']});
166     this.students_list = success_students.concat(failure_students);
167   }
168
169   get_student (i) {
170     return this.students_list[i];
171   }
172
173   length () {
174     return this.students_list.length;
175   }
176 }
177
178
```

```
150
151   constructor ()
152   {
153     this.students_list = [];
154     this.header = [];
155     this.departments = [];
156   }
157
158   add_student (id, name, wish_list, status, marks) {
159     this.students_list.push(new Student(id, name, wish_list, status, marks));
160   }
161
162   sort_students () {
163     let success_students = this.students_list.filter(student => student.status == "ناجح");
164     let failure_students = this.students_list.filter(student => student.status != "ناجح");
165     success_students.sort(function(a, b){return b['marks'] - a['marks']});
166     failure_students.sort(function(a, b){return b['marks'] - a['marks']});
167     this.students_list = success_students.concat(failure_students);
168   }
169
170   get_student (i) {
171     return this.students_list[i];
172   }
173
174   length () {
175     return this.students_list.length;
176   }
177 }
178
```

==> A Page class for control the HTML page

```
178
179 class Page {
180   constructor () {
181     this.main_page = `
```

[illegible]


```
217         </div>
218     </div>;
219     this.departments_limits = ` <div class="row" style="font-size: 1.2rem;" style="margin-right: -17px;">
220         <div class="col-12">
221             __DEPARTMENTS__
222         </div>
223     </div>`;
224     this.table = ` <table class="table table-dark table-hover" style="margin-left: 15px; margin-bottom:
    * 15vh;">
225         <thead>
226         <tr>
227             __HEADERS__
228         </tr>
229         </thead>
230         <tbody>
231             __ROWS__
232         </tbody>
233     </table>`;
234 }
235
236 dispaly_main_page () {
237     document.getElementById("header_image").innerHTML = "<img src='images/main_header.png' style='width:
    * 100vw;' />";
238     document.getElementsByClassName("conatiner")[0].innerHTML = this.main_page;
239 }
240
241 dispaly_start_page () {
242     document.getElementById("header_image").innerHTML = "<img src='images/start_header.png' style='width:
    * 100vw;' />";
243     document.getElementsByClassName("conatiner")[0].innerHTML = this.start_page;
244     document.getElementById('file').addEventListener("change", (event) => {
245         my_file.handle_file(event.target.files[0]);
246     });
247 }
248
249 dispaly_departments_limits (departments) {
250     let departments_length = departments.length;
251     let html_flavors_list = ["primary", "success", "danger", "warning", "info"];
252     let html_department = ` <div style="margin: 10px; border: 2px solid #636EC2; border-radius: 10px;
    * padding: 7px; background-color: white; color: #1B5872; text-align: right;" class="row">
253         <input type="number" id="__DEPARTMENT__limited_value" class="col-3"
    * name="__DEPARTMENT__limit_value" style="border-width: 0px; background-
    * color: #F1F2FA;" disabled>
254         <label for="__DEPARTMENT__limited" class="col-2">
255             Limited
256         <input type="radio" class="department_limited"
    * id="__DEPARTMENT__limited" name="__DEPARTMENT__limitation"
    * value="__DEPARTMENT__limited">
257         </label>
258         <label for="__DEPARTMENT__unlimited" class="col-2">
259             Unlimited
260         <input type="radio" class="department_unlimited"
    * name="__DEPARTMENT__limitation" id="__DEPARTMENT__unlimited"
    * value="__DEPARTMENT__unlimited" checked>
261         </label>
262         <p class="col-5">
```

```
263     </p>
264     </div>`;
265     document.getElementById('file').addEventListener("change", (event) => {
266         my_file.handle_file(event.target.files[0]);
267     });
268 }
269
270 dispaly_departments_limits (departments) {
271     let departments_length = departments.length;
272     let html_flavors_list = ["primary", "success", "danger", "warning", "info"];
273     let html_department = ` <div style="margin: 10px; border: 2px solid #636EC2; border-radius: 10px;
274     * padding: 7px; background-color: white; color: #1B5872; text-align: right;" class="row">
275         <input type="number" id="__DEPARTMENT__limited_value" class="col-3"
276     * name="__DEPARTMENT__limit_value" style="border-width: 0px; background-
277     * color: #F1F2FA;" disabled>
278         <label for="__DEPARTMENT__limited" class="col-2">
279             Limited
280         <input type="radio" class="department_limited"
281     * id="__DEPARTMENT__limited" name="__DEPARTMENT__limitation"
282     * value="__DEPARTMENT__limited">
283         </label>
284         <label for="__DEPARTMENT__unlimited" class="col-2">
285             Unlimited
286         <input type="radio" class="department_unlimited"
287     * name="__DEPARTMENT__limitation" id="__DEPARTMENT__unlimited"
288     * value="__DEPARTMENT__unlimited" checked>
289         </label>
290         <p class="col-5">
```

```
261 </label>
262 <p class="col-5">
263     __DEPARTMENT__
264 </p>
265 </div>`;
266 let html_departments = "";
267 let user_options_ids = [];
268 for (let i = 0; i < departments_length; i = i + 1) {
269     user_options_ids.push({
270         "value": departments[i] + "_limited_value",
271         "limited": departments[i] + "_limited",
272         "unlimited": departments[i] + "_unlimited"
273     });
274     html_departments += html_department.replace(/__DEPARTMENT__/g, departments[i]);
275     html_departments = html_departments.replace("__FLAVOR__", html_flavors_list[i%5]);
276 }
277 let departments_limits = this.departments_limits.replace("__DEPARTMENTS__", html_departments);
278
279 document.getElementById("departments_list").innerHTML = departments_limits;
280
281
282 for (let i = 0; i < departments_length; i = i + 1) {
283     document.getElementsByClassName('department_limited')[i].addEventListener("change", (event) => {
284         document.getElementById(event.target.id.replace("_limited", "") + "_limited_value").disabled =
285         * false;
286     });
287     document.getElementsByClassName('department_unlimited')[i].addEventListener("change", (event) => {
288         document.getElementById(event.target.id.replace("_unlimited", "") + "_limited_value").disabled
289         = true;
290     });
291 }
```

```
288 = true;
289 document.getElementById(event.target.id.replace("_unlimited", "") + "_limited_value").value =
290 null;
291 });
292 }
293
294 document.getElementById('distribute').addEventListener("click", (event) => {
295     my_file.distribute(user_options_ids);
296 });
297
298 dispaly_tables (user_options) {
299     let student_keys = Object.keys(my_students.get_student(0));
300     let html_table_header = "";
301     let my_students_length = my_students.length();
302     let html_table_rows = "";
303
304     let table_header = [];
305     let table_rows = [];
306
307     document.getElementById("content_area").innerHTML = "";
308
309     for (let i = 0; i < student_keys.length; i = i + 1) {
310         if (student_keys[i] == "wishes") {
311             for (let k = 0; k < user_options.length; k = k + 1) {
312                 table_header.push(user_options[k]["department"]);
313                 my_students.header.push(user_options[k]["department"]);
314                 my_students.departments.push(user_options[k]["department"]);
315             }
316         }
317     }
318 }
```



```
364     }
365   }
366   let filled_html_table = this.table.replace("__ROWS__", html_table_rows);
367
368   for (let i = 0; i < table_header.length; i = i + 1) {
369     html_table_header += "<th>" + table_header[i] + "</th>";
370   }
371   filled_html_table = filled_html_table.replace("__HEADERS__", html_table_header);
372
373
374   document.getElementById("content_area").insertAdjacentHTML("beforeend", filled_html_table);
375 }
376
377 let department_images_length = document.getElementsByClassName('department_image').length;
378 for (let i = 0; i < department_images_length; i++) {
379   document.getElementsByClassName('department_image')[i].addEventListener("click", (event) => {
380     let department_name = document.getElementsByClassName('department_image')[i].id;
381     let department_students = [];
382     for (let i = 0; i < my_students.length(); i++) {
383       if (my_students.get_student(i).department == department_name)
384         department_students.push(my_students.get_student(i));
385     }
386     my_file.export_excel(department_students, department_name);
387   });
388 }
389
390 }
```

=> The control point of the whole program

```
398 // Initializing classes ////////////////////////////////////////
399 //
400 let my_file = new File();
401 let my_students = new Students();
402 let my_page = new Page();
403
404 //
405
406
407
408
409
410 // Defining event listeners ////////////////////////////////////////
411 //
412 document.addEventListener("DOMContentLoaded", () => {
413
414   my_page.dispaly_main_page();
415   // my_page.dispaly_start_page();
416
417   document.getElementById('start_page').addEventListener("click", (event) => {
418     my_page.dispaly_start_page();
419   });
420
421 });
422
```