```
/*****************************************************************************
 * This program calculates GPA (both weighted and unweighted)
 * It takes Subject Name, Level and Grade as inputs.
 * Subject Name must be entered in the text box whereas Level and Grade
   must be selected from the dropdown boxes
 * You can adjust the no. of subjects using add/delete subject button.
 * 1-10 subjects can be entered.
 * All fields must be filled in or else an error is displayed
 *****************************************************************************/

//Global Variables
var gpaWeighted = 0;
var sumGPAWeighted = 0;
var finalGPAWeighted = 0;
var gpaUnweighted = 0;
var sumGPAUnweighted = 0;
var finalGPAUnweighted = 0;
var isDataValid = "yes";
var numberOfSubjects = 8;
var data = new Array();

onEvent("startButton", "click", function(event) {
  setScreen("InstructionsScreen");
});

onEvent("enterDataButton", "click", function(event) {
  setScreen("inputScreen");
});

onEvent("calculateGPAbutton", "click", function(event) {

 readData();

//Validate the data for subJectName
dataValidation(0);

//validate the data for Level
dataValidation(1);

//validate the data for the Grade
dataValidation(2);

    if (isDataValid=="No"){
      setText("text_error", "You must enter complete Data");
    }
    else{
```

```
39        setText("text_error", "");
40        calculateGPA();
41        setScreen("displayScreen");
42        }

44     resetData();

46   });

48   onEvent("backButton", "click", function(event) {
49      setScreen("inputScreen");
50   });

52   onEvent("startOverButton", "click", function(event) {
53      setScreen("welcomeScreen");
54      resetInputScreen();
55      resetData();
56   });

58   onEvent("addSubjectButton", "click", function(event) {
59      if (numberOfSubjects<10){
60        numberOfSubjects++;
61        showElement("text_subjectName"+numberOfSubjects);
62        showElement("gradeDropdown"+numberOfSubjects);
63        showElement("levelDropdown"+numberOfSubjects);
64        resetData();
65        }
66    });

68   onEvent("deleteSubjectButton", "click", function(event) {
69    if (numberOfSubjects>1){
70        hideElement("text_subjectName"+numberOfSubjects);
71        hideElement("gradeDropdown"+numberOfSubjects);
72        hideElement("levelDropdown"+numberOfSubjects);
73        numberOfSubjects--;
74        resetData();
75    }
76   });

78   function calculateGPA() {
79   //calculateGPA function calculates the GPA based on the data entered
80   //It calls convertGradeToPoints and convertGradePointsToWeight functions
81   //Main algorithm (Parent)

83   for (var i = 1; i < numberOfSubjects+1; i++)
84   {
85      var gradeDropdownId = "gradeDropdown"+i.toString();
86      var gradex = "grade"+i.toString();
87      var levelDropdownId = "levelDropdown"+i.toString();
```

```
88      var levelx = "level"+i.toString();
89      var gpaxWeighted = "gpa"+i.toString();
90      var gpaxUnweighted = "gpa"+i.toString();
91
92      gradex = getText(gradeDropdownId);
93      levelx = getText(levelDropdownId);
94
95      setScreen("displayScreen");
96      //Calcution of GPA
97      convertGradeToPoints(gradex);
98      convertGradePointsToWeight(levelx);
99      gpaxWeighted = gpaWeighted;
100     gpaxUnweighted = gpaUnweighted;
101     sumGPAWeighted = sumGPAWeighted+gpaxWeighted;
102     sumGPAUnweighted = sumGPAUnweighted+gpaxUnweighted;
103   }
104
105   finalGPAWeighted = (sumGPAWeighted/numberOfSubjects).toFixed(3);
106   setText("textAreaGPAWeighted", finalGPAWeighted);
107
108   finalGPAUnweighted = (sumGPAUnweighted/numberOfSubjects).toFixed(3);
109   setText("textAreaGPAUnweighted", finalGPAUnweighted);
110
111   //console.log ("number of Subjects is " + numberOfSubjects );
112
113   sumGPAWeighted = 0;
114   sumGPAUnweighted = 0;
115   }
116
117   function convertGradeToPoints(grade) {
118   //convertGradeToPoints function assigns the GPA value based on the Grade
119   //Child Algorithm 1
120       if (grade == "A+"){
121       gpaUnweighted = 4.333;
122       }
123       else if (grade == "A"){
124       gpaUnweighted = 4.0;
125       }
126       else if (grade == "A-"){
127       gpaUnweighted = 3.666;
128       }
129       else if (grade == "B+"){
130       gpaUnweighted = 3.333;
131       }
132       else if (grade == "B"){
133       gpaUnweighted = 3.0;
134       }
135       else if (grade == "B-"){
136       gpaUnweighted = 2.666;
```

```
137            }
138            else if (grade == "C+"){
139            gpaUnweighted = 2.333;
140            }
141            else if (grade == "C"){
142            gpaUnweighted = 2.0;
143            }
144            else if (grade == "C-"){
145            gpaUnweighted = 1.666;
146            }
147            else if (grade == "D+"){
148            gpaUnweighted = 1.333;
149            }
150            else if (grade == "D"){
151            gpaUnweighted = 1.0;
152            }
153            else if (grade == "D-"){
154            gpaUnweighted = 0.666;
155            }
156            else if (grade == "F"){
157            gpaUnweighted = 0;
158            }
159    }
160
161    function convertGradePointsToWeight(level){
162    //convertGradePointsToWeight function is used to calculate the weighted GPA
163    //Child Algorithm 2
164       if (level == "Honors"){
165            gpaWeighted = gpaUnweighted + 0.5;}
166            else if (level == "AP"){
167            gpaWeighted = gpaUnweighted + 1.0;}
168            else if (level == "Regular"){
169            gpaWeighted = gpaUnweighted;}
170    }
171
172    function readData(){
173    //readData function reads the input data entered to an array: "data"
174     for (var i = 0; i<numberOfSubjects; i++)
175       {
176           var j = i+1;
177           data.push([getText("text_subjectName"+j.toString()),getText("levelDropdown"+j.toString()),getTe
178    +j.toString())]);
179    // console.log(data[i][0]+"  "+data[i][1]+"  "+data[i][2]);
180       }
181    }
182
183    function dataValidation(colName){
184    //dataValidation function validates the data for any empty values
185       for (var i = 0; i<numberOfSubjects; i++)
```

```javascript
186      {
187          if (data[i][colName]===""){
188          isDataValid="No";
189      }
190    }
191  }
192
193  function resetData(){
194  //resetData function empties the data array
195    data.length = 0;
196    isDataValid = "yes";
197  }
198
199  function resetInputScreen() {
200  //resetInputScreen function resets the data when the user clicks on Start Over Button
201
202    numberOfSubjects = 8;
203
204    for (var i=1; i<9; i++) {
205        showElement("text_subjectName"+i);
206        setText("text_subjectName"+i,"Enter Subject "+i);
207        showElement("levelDropdown"+i);
208        setText("levelDropdown"+i,"");
209        showElement("gradeDropdown"+i);
210        setText("gradeDropdown"+i,"");
211
212    }
213    for (var k=9; k<11; k++) {
214        hideElement("text_subjectName"+k);
215        setText("text_subjectName"+k,"Enter Subject "+k);
216        hideElement("levelDropdown"+k);
217        setText("levelDropdown"+k,"");
218        hideElement("gradeDropdown"+k);
219        setText("gradeDropdown"+k,"");
220    }
221  }
222
223  /*****************************Acknowledgements*****************************************
224   * Reading data in to array using push function
225   "The Free Knowledge-Sharing Platform for Technology." Tech.io,
226   tech.io/playgrounds/6181/javascript-arrays---tips-tricks-and-examples.
227   * Rounding GPA
228   "Javascript - Round to at Most 2 Decimal Places (Only If Necessary)" - Stack Overflow,
229   stackoverflow.com/questions/11832914/round-to-at-most-2-decimal-places-only-if-necessary.
230   *********************************************************************************/
231
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