

CSIS 3280 – Assignment #1 – GPA Calculator

Solution

The flow of the program is as follows:

- The program will present a page to the user indicating that there are currently no grades to calculate a GPA
- The program allows the user to create, edit and delete course marks to calculate their GPA
- If the user does not change the email address they will update the current record, if the user does change the email address the program will add a new Person.
- The program notifies the user if validation fails or of any CRUD operations. The program should also notify the user if an operation failed.
- You must use the Douglas College official grading policy to determine the GPA, as you cannot store the letter grade you may omit the "UN" grade.

Requirements:

1. The app can only read/write one CSV file
2. The entire application only uses one file to present the view and handle all the operations of the application. (think about the lab03-shi-89.php file for example.)
3. The app must update the CSV file immediately as the form allows.
4. If there are any input errors or problems with the file the program should notify the user. (Input Validation)
5. You must use a Course class and parse the CSV into the course object
6. You are not permitted to have any HTML other than in your Page class.
7. You must use the structure of the CSV file, you may not modify it.
8. Each Course result must be highlighted according to the following (less than 65 percent (red), greater than 65 percent (yellow), greater than 73 percent (green))
9. The Courses must be sorted by percentile achieved.
10. The appropriate GPA, letter grade and any other generated data must be reflected immediately.
11. You may only show either an edit or a create form, by default you should show a create form. You may not display both at the same time.
12. All the users actions must access one file only via the web browser.
13. You may not use PHP sessions. Or any super global variables for storage other than \$_SERVER, \$_POST and \$_GET.
14. When submitting your assignment ensure that you place both you and your partner's full names and student numbers in the submission comments. **Students who's names do not show up in the assignment submission comments will not receive any marks for the assignment**
15. **Your program must not display any errors or warnings.**
16. Standard Assignment Submission Guidelines apply.
17. Both students names according to the naming convention must appear in the title in order for those students to receive marks.
18. You may work in pairs or individually.
19. You may not modify any of the provided interface files, they must be implemented as is.

The following classes and file structure must be observed:

Filename	Description
Assignment1_GroupX.php	This is the controller file for your project it will respond appropriately to all the GET and POST traffic it receives. This is the only file that the user uses.
inc/config.inc.php	This file holds all the constants for your program such as the path to the CSV file
data/transcript.csv	This is your data file, I suggest taking a copy of it as you may delete it by accident while testing.
inc/FileService.class.php	This is a static class that handles all the file interactions
inc/Page.class.php	This is a static class that contains a class for all the HTML output
inc/Course.class.php	This contains the class definition for your Course.
inc/Validation.class.php	This static class is used to validate your forms.
inc/CourseService.class.php	This is the static class where all the logic to deal with the CRUD (Courses in your transcript) operations and others for the book reside.
inc/ICourseService.class.php	This interface must be implemented in your CourseService class
inc/ICourse.class.php	This interface must be implemented in your Course class
inc/IFileService.class.php	This interface must be implemented in your FileService class

Submission Guidelines:

As this is an assignment please use the Assignment Submission Naming convention instead of the Lab Submission Guidelines.

Submissions will be graded on a sliding scale according the following grid:

Category	Points	Feedback
Project Submitted and files named properly	1	
Program fully commented including classes, functions, and any other logical operations.	2	
File is parsed into Course objects, error handling is implemented with the file parsing.	3	
Program structure is adhered to. Classes are used appropriately, include files are used with proper separation of concerns, input is validated	5	
Program Interface - Interface is improved upon from the screenshot below, you are permitted to use any HTML framework you would like but you must put a reference in your page class.	1	

Appendix

Below is a screenshot of the GPA calculator with data.

GPA Calculator - Sam Hill 89, Johny Walker 36

Short Name	Long Name	Percentage	Credit Hours	Letter Grade	GPA Points	Edit	Delete
CSIS 3280	Webscripting with PHP	90	3	A	4	Edit	Delete
CSIS 2200	Systems Analysis and Design	73	3	B-	2.67	Edit	Delete
CSIS 2175	Programming II	65	3	C+	2.33	Edit	Delete
CSIS 2280	Web Server Administration	55	3	C-	1.67	Edit	Delete

The GPA for the courses listed is: 2.67

Create Course

Short Name

Full Name

Percentile

CreditHours

Add

Below is a screenshot of the GPA calcualtor's edit form

Edit Course

Short Name

Full Name

Percentile

CreditHours

Edit

Below is a screenshot of the GPA calcualtor with no grades in it

GPA Calculator - Sam Hill 89, Johny Walker 36

Sorry there are no courses to list, please create one below.

Please enter some courses to have your GPA calculated.

Create Course

Short Name

Full Name

Percentile

CreditHours



Hints

1. PHP 7 is fast, sometimes the file operation will not complete in time for the rest of the code to run, you may want to clear the file cache when you read a file:

```
//Clear the file cache  
clearstatcache();
```

2. Sometimes its usefull to hand in hidden "input" fields to let the controller what you want to do.
3. Break things down one at a time to work on your Assignment, remember one large problem can be solved with many small solutions!
4. If you want to clear the address bar and just do a normal request with no parameters you can use `$_SERVER['PHP_SELF']` to populate the the form "action".

```
$_SERVER[ 'PHP_SELF' ];
```

References

- Douglas College grading policy - <https://www.douglascollege.ca/programs-courses/general-information/grading>
- <https://www.sfu.ca/students/advising-resources/calculators/gpa-calculator.html>
- <http://www.back2college.com/gpa.htm>

Evaluation

This assignment is worth 5% of your grade for this course, it will be graded on a sliding scale.

Ensure your submission meets the above requirements and is able to perform all the CREATE, READ, UPDATE and DELETE operations without incident. Make sure your input is validated as well.

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