

Assignment 3

Hierarchy chart and IPO chart

For modular_grading_average program

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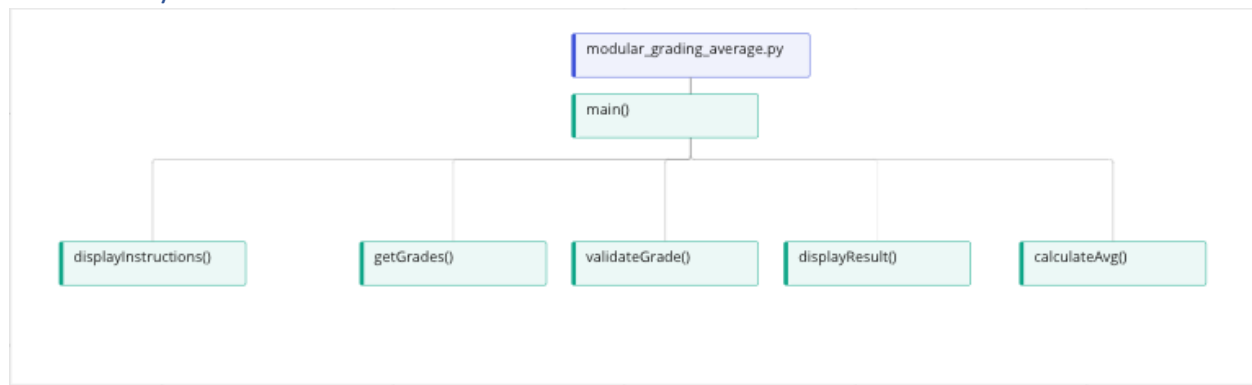
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PROG1700, 1st year

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Hierarchy Chart



Reflect on Hierarchy Chart

This hierarchy chart represents the structure of the `modular_grading_average` program, where `main()` is the main function that calls the other five functions: `displayInstructions()`, `getGrades()`, `validateGrade()`, `displayResult()`, `calculateAvg()`.

IPO Chart

IPO Chart for the displayInstruction()		
Input (parameters)	Process	Output(display or returns(s))
None	None	Instruction for input
IPO Chart for the getGrades()		
Input (parameters)	Process	Output(display or returns(s))
None	1.Create global variable grades list 2.Prompt user to enter quantity of grades (number_of_grades) that user wants to input. 2.Check is value of number_of_grades integer and not empty 3.Prompt user to enter value of grade 4.Check is value of grades integer, not empty and more than 0 and less or equal than 100. 5.Adding values of grade in grades list	None
IPO Chart for the validateGrade()		
Input (parameters)	Process	Output(display or returns(s))
None	1.Create global variable validated list 2.Validated all grades from global list grades and add each of elemets in validated list	None
IPO Chart for the displayResult()		
Input (parameters)	Process	Output(display or returns(s))
None	1.Using two global variables grades and validated to output it	Grades and validated grades: grades, validated
IPO Chart for the calculateAvg()		
Input (parameters)	Process	Output(display or returns(s))
None	1. Create variable avg_g_val for inserting into it validated grade for avg_g 2. Create variable avg_g to intert into it average grade 3. Calculate average grade 4. Validate it as a grade	Average grade and validated average grade : avg_g , avg_g_val
IPO Chart for the main()		
Input (parameters)	Process	Output(display or returns(s))
None	1. Call following functions: displayInstruction(), getGrades(), validateGrade(), displayResult(), calculateAvg().	None

Reflect on IPO chart

This IPO chart represents how the program works. It describes the input, process, and output, of each function in the modular_grading_average program. In all cases input(parameter) table is empty because each function creates a variable inside itself and if the variable is global, other functions use this variable as well.

The output table is not empty only in calculateAvg() and displayResult() because these functions output the result of working other functions, except the main() function that is used to call all functions above it.

Source:

Code:

https://github.com/artf7/PROG1700/blob/246b7c924e6148246bbb3b6688c1b7927aaf76ab/A3/modular_grading_average.py