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# Project Overview

**Structure Chart**

This project computes the grade for a student based on a configuration file and a series of data files.

# Top Level Functions

**Main**

Narrative: The main routine will open the files and call routines to read and process the data.

Open the main file

While there is data

 Process a line

Close the file

Print Results

**Function:** OpenMainFile

Narrative: This routine opens the main file for processing

Input: None

Output: An open file stream

Repeat

 Ask for a file name

 Open the file by that name

Until a file has been opened

**Function:** AskForAFileName

Narrative: This is just a prompt routine that will ask the user for a file name.

Input: None

Output: A string containing a potential file name

Prompt for file name

Read in file name

**Function:** ProcessLine

Narrative: This is the main logic for processing a single line from the configuration file.

Input: an input file stream

Output: The overall percentage and student percentage

If(ReadData)

 If category is POINTS

 Calculate Points

 Else if category is AVERAGE

 Calculate average

 Else

 Print error message

 If processing was valid

 Increase overall percentage

 Increase student percentage

**Function:** ReadData

Narrative: Read the data from the configuration file.

Input: an open file stream.

Output:

 The category, a string

 The type, a string

 The filename, a string

 The weight, a float

 A Boolean indicating succss

Read in the data

Convert the integer percentage to a float

If the read was successful

 Return true

Else

 Return false

**Function:**OpenFile

Narrative: A utility routine to open a file with a given file name.

Input: a file name

Output: an open file stream.

Open the file

**Function:** CalculateAverage

Narrative: This will compute the percentage of grades in a file when the type is AVERAGE

Input: The file name, a string

Output: The percent earned, a float

 A bool indicating the success of the result.

OpenFile

Set total to 0

Set count to 0

Read in the percent

While there is data in the file

 Read in the percent sign

 Add the percent to total

 Increase count

 Read in the percent

Close the file

If there was data

 Divide the total by the count

 Return true

Else

 Print an error

 Return false

**Function:** CalculatePoints

Narrative: This routine will compute the percentage of grades in a file when the type is POINTS

Input: a filename

Output:

 The percent earned, a float

 A bool indicating success

Open the file

Set total points to 0

Set points earned to 0

Read the current points and current percent from the file

While the the read was successful

 Accumulate the total percent

Close the file

**Function:** PrintResults

Narrative: This is simply an interface routine to print the results.

Input: The student average and the overall percentage

Output: None

Print the results.