Project 4 Design Document

**Project Requirements:**

In this program, we are focusing on the function & it’s every types. In which we've used every kind of function - no return, return, with parameters, without parameters. In main, we have a central control loop till 4 & calling function according to the case. And, output on the screen at the last.

**Program Inputs:**

* **Average Function** is the main core of this program which is taking input from the user using input stream.

**Program Output:**

* Grade according to the quiz average, assignments average, exam average, project average with the help of 2 functions – Print Prompt & Output Average.

**Test Plan:**

Program inputs

Number input from the user till the input is not -1.

num is Integer

**Integer limit (100 > num >0)**

**Test Output:**

1. **Test 1**

**Enter your quiz grades (-1 to end input):**

**100 95 90 85 -1**

**Enter your assignment grades (-1 to end input):**

**50 100 100 25 0 -1**

**Enter your exam grades (-1 to end input):**

**65 -1**

**Enter your project grades (-1 to end input):**

**80 93 75 -1**

**output should be:**

Your quiz average: 92.5

Your assignment average: 55

Your exam average: 65

Your project average: 82.6667

Your current grade in this course is: 73.8021

Test Case Pass

1. **Test 2**

**Enter your quiz grades (-1 to end input):**

**75 23 -1**

**Enter your assignment grades (-1 to end input):**

**86 74 56 98 80 34 56 95 45 -1**

**Enter your exam grades (-1 to end input):**

**54 76 -1**

**Enter your project grades (-1 to end input):**

**76 34 65 76 -1**

**output should be:**

Your quiz average: 49

Your assignment average: 69.3333

Your exam average: 65

Your project average: 62.75

Your current grade in this course is: 62.1094

Test Case Pass

1. **Test 3**

**Enter your quiz grades (-1 to end input):**

**175 23 -1**

**Enter your assignment grades (-1 to end input):**

**86 74 56 98 80 34 56 95 45 -1**

**Enter your exam grades (-1 to end input):**

**54 -76 -1**

**Enter your project grades (-1 to end input):**

**76 34 65 76 -1**

**output should be:**

Your quiz average: 99

Your assignment average: 69.3333

Your exam average: -11

Your project average: 62.75

Your current grade in this course is: 275.1041

Test Case Pass with some bug, because of wrong values. (Runtime Error)

1. **Test 4**

**Enter your quiz grades (-1 to end input):**

**fail 23 -1**

**Enter your assignment grades (-1 to end input):**

**86 ‘74’ 56 98 80 34 56 95 45 -1**

**Enter your exam grades (-1 to end input):**

**‘A’ -76 -1**

**Enter your project grades (-1 to end input):**

**-1**

**output should be:**

Run Time Error\*\*

Test Case Fail

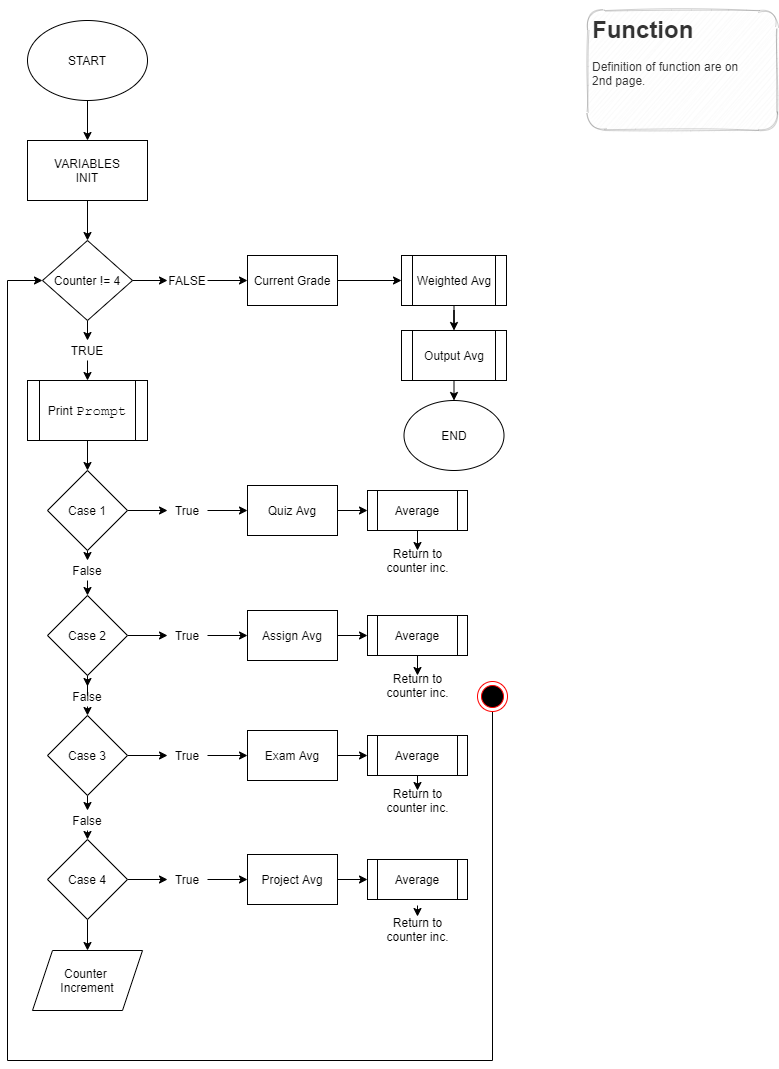
**Solution Overview:**

Algorithm steps for the Program.

1. Start program with declaring Variables for user input & data manipulations

quizAvg, assignAvg, examAvg, projAvg, currentGrade

1. Do while loop till the counter is 4. According to the counter the cases will call the function in the switch case & calculate the data for output.
2. And incrementing the counter.
3. printPrompt will print statements according to the given parameter.
4. Calculating the averages by average function.
5. At last, calculating the current grade of the student by weighted average function.
6. outputAvgerage for printing the final result.
7. End of Program

**Algorithm Flowchart:**

