NATIONAL UNIVERSITY
OF COMPUTER & EMERGING SCIENCES
PESHAWAR CAMPUS

Problem Set:	Assignment: AG07	**Semester**:	Fall 2017
Points:	*See autograder*		
Date Set:	*See autograder*	**Due Date**:	*See autograder*
Course:	CS101 Introduction to Computing	**Instructor**:	Dr. Nauman

1 NUCES Grades – With Lists

Since you are reading this, you have already downloaded and extracted the zip file.

1.1 Tasks to do

1. This is a continuation of the NUCES grades assignment. You might want to look at the old description. For ease, the file `nuces-grades-description.pdf` is provided in this archive.

2. There are two main tasks to complete.

   (a) Write a function with the name `calculate_sgpa`. The semantics of this function are the same as in the previous grades assignment. However, this time, we will not be passing in three inputs. We will instead be passing in a single list which has the grades in its elements.

   This means that now, any number of subjects can be input to this function in this single list. Make sure your function can handle any number of subjects – from 0 to say 10.

   The function should also be able to handle the case where a single grade is passed to it *instead* of a list.

   If an invalid grade is passed to the function, it should return None.

   If a None is passed to the function, it should simply return None as the output.

   (b) Of course, the SGPA is calculated based on the credit hours of the subject. So, we need to write another function with the name `calculate_sgpa_weighted`. This function takes in two lists – one for the grades and another for the credit hours. To calculate the total SGPA, the following formula is used:

$$\text{SGPA} = \frac{(g_1 * w_1) + (g_2 * w_2) + \ldots + (g_n * w_n)}{w_1 + w_2 + \ldots + w_n}$$

   where g_i are the grades and w_i are the weights – in this case the credit hours which are used as weights.

   Ideally, you should be able to use the function `calculate_sgpa` in this one to ease your task.

   If the number of items in the two lists is not the same, the function should return None. As before, if a single subject is passed instead of a list, the function should be able to use it.

   Also, as before, if the list contains an invalid grade, it should return None.

3. Run local tests and if they pass, submit the assignment using the submission command given on the Autograder assignment page. (Same as the first assignment.)