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PROGRAM DESCRIPTION: A Program to Calculate the grades of a user, using the course outline as a point of reference. Inputs for the program will be the marks for each assessment, ordered by type. The assessments include the Pre-Class Activities, In Class Exercises, and Assignments. Once the user finishes their entry, the output will be the user’s grade as a percentage and the user’s percentage for each type of assessment.

PROGRAM NAME: Grade Calculator

* STEP 1:
  + Output:

The Output for the program would be a string variable displaying the

user’s grade as a percentage and the user’s percentage for each type of assessment.

* STEP 2:
  + Input:

The Input for the program would be:

* + - Total marks in each Pre-Class Activities validated as a float input
    - Total marks in In Class Exercises validated as a float input
    - Total marks in Assignments validated as a float variable
* STEP 3:
  + Process:
    - A function would be used to call for, accept and store input in a list.
    - Pre-Class Activities marks input will be accepted and stored as a list
    - In Class Exercises marks input will be accepted and stored as a list
    - Assignments marks input will be accepted and stored as a list
    - The sum of input is determined using a for loop
    - The user grade percentage in relation to a standard total grade is determined
    - The user grade percentage for each assessment in relation to a standard total grade for each assessment type is determined
    - Both total grade percentage and each assessment type grade percentage is displayed as a string.
    - User is prompted to end program
* STEP 4:
  + Pseudocode:
    - * 1. Declarations:

pre\_class\_grade as a list

in\_class\_grade as a list

assignments\_grade as a list

PERCENT\_CONVERSION as a constant

MINIMUM \_GRADE as a constant

MAXIMUM\_PRE\_CLASS\_GRADE as a constant

TOTAL\_PRE\_CLASS\_GRADE as a constant

MAXIMUM\_IN\_CLASS\_GRADE as a constant

TOTAL\_ IN\_CLASS\_GRADE as a constant

MAXIMUM\_ASSIGNMENT\_GRADE as a constant

TOTAL\_ ASSIGNMENT\_GRADE as a constant

NUMBER\_OF\_ASSESMENT\_TYPE as constant

* + - * 1. Display a “Welcome to a Grade Calculation Program”
        2. Input:

Declare a function grade\_function for input weight, grade name and grade list.

Create a for loop to allow input for the weight number of times for each assessment type, with each entry validated as between 0 and weight inclusive.

Calculate the percentage using (sum\_pre\_class / TOTAL\_PRE\_CLASS\_GRADE) \* PERCENT\_CONVERSION

Declare each assessment type percent as a float

Call the function using weight, Maximum Grade Input, Name of Assesment, Assesment list, and Total assesment grade, equal to each assessment type percent

Declare a variable total\_percent and add the three previous percentages together.

* + - * 1. Output:

Display a message stating the total percentage and percentage of each assessment type

Prompt the user to end the program

* STEP 5:
  + Desk Check

|  |  |  |  |
| --- | --- | --- | --- |
| Pre-Class Input | In-Class Input | Assignment Input | Result |
| “Space bar” | null | null | Program displays error message and asks for valid input |
| kajsjsl | null | null | Program displays error message and asks for valid input |
| -1 | null | null | Program displays error message and asks for valid input |
| 9 | null | null | Program displays error message and asks for valid input |
| 0 – 4 inclusive “7 times” | “Space bar” | null | Program runs at Pre-Class input, but displays error message and asks for number input at In-Class input |
| 0 – 4 inclusive “7 times” | jskhs | null | Program displays error message and asks for valid input |
| 0 – 4 inclusive “7 times” | -89 | null | Program displays error message and asks for valid input |
| 0 – 4 inclusive “7 times” | 6 | null | Program displays error message and asks for valid input |
| 0 – 4 inclusive “7 times” | 0 – 4 inclusive “8 times” | “Space bar” | Program runs at Pre-Class input and In-Class activity input, but displays error message and asks for number input at Assignment input |
| 0 – 4 inclusive “7 times” | 0 – 4 inclusive “8 times” | jkhkls | Program displays error message and asks for valid input |
| 0 – 4 inclusive “7 times” | 0 – 4 inclusive “8 times” | -31 | Program displays error message and asks for valid input |
| 0 – 4 inclusive “7 times” | 0 – 4 inclusive “8 times” | 19 | Program displays error message and asks for valid input |
| 0 – 4 inclusive “7 times” | 0 – 4 inclusive “8 times” | 0 – 10 inclusive “4 times” | Program runs successfully |