COMP 281 Assignment1

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Problem 1013 Record Marks

Program takes a list of integers as student's scores, and its input end with 0(0 itself is not someone's mark). Using an array (size 3) is to store the number of students in three different score segments: 0~59, 60~84, >=85. The program then applies a while loop for inputting a group of students' score and counting its numbers, until its input is equal to 0, then end the loop. In the while loop, there are four if statements to count the students' number in different segments of score. The first if statement is to make sure the input number is not equal or less than 0, otherwise break the loop. The other three if statements in the loop are used for counting

and obtaining the students' number in different score segments. Finally, the outputs will be students' numbers in three different score segments.

Problem 1014 Area and circumference of circles

Program takes two radii of two circles as input (radius_1 and radius_2, both integers), and constant PI as 3.14. Using if statement is to make sure the input radius_1 is smaller than radius_2, otherwise assigning the smaller value to radius_1. The program then applying a for loop aims to add the sum of circles' area and the sum of their circumference, until radius_1 reaches to radius_2. The base of for loop is radius_1, and the sum of area equals previous sum of area(r1*r1*pi) add new circle's area. Similarly, the sum of circumference equals previous sum of circumference(r1*r1*pi) add new circles' circumference. Finally, the outputs are the sum of all circles' areas and their circumferences starting from radius_1.

Problem 1015 ASCII code

Initializing the input positive integers and output characters. Program takes a list of positive integers separated by whitespaces (spaces, newlines, TABs) by using a while loop, until the input equal to EOF (end of file), then end the loop. In the while loop, there are two if statement in order to making sure the input integer is positive (greater or equal to 0), otherwise break the loop. Until the input integers are positive then, the program converts integers (ASCII code) to characters. Finally, output the characters.

Problem 1025 Largest common factor & smallest common multiple

Program takes two positive integers (number_1 and number_2). The program applies two if statement. The first if statement is to making sure the input integers are positive. The second if

statements are to make sure number_1 is greater than number_2, if not, assign the bigger value to number_1 and smaller value to number_2. Then program calculates the multiple of two original integers, because the value of these two integers will be changed in the while loop. A while loop is used in finding the largest common factor, until the remainder is equal to 0, then end the loop and out put the largest common factor. In this while loop, program calculates the remainder of the number_1/number_2, and assigns the value of number_2 to number_1, then assigns remainder value to number_2. According to deviation of mathematics axioms, the smallest common multiple = the original multiple of two integers/ the largest common factor. Finally, output the smallest common multiple.

Problem 1030 Precise division

Program takes three integers a, b and n_digit (means the n-th digit after decimal point). Using two if statements is to making sure the input three integers are positive and all of them are at most 6000. The program calculates the division of a and b, assign the result as float type. Then the result of division multiplying 10 with n_digit times to get the n-th digit after the decimal point by applying a for loop. Then converting this float value to integer data type. Finally output the result of n-th digit after the decimal place which equal to n %10.