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Principles of C Assignment 1 Report

Problem 1013

The problem is to create a program that will classify numbers into groups depending on size and tally how many fit into each group. The solution I used is to firstly create variables to represent the number of numbers in a group, take the input of the numbers then use a if ... else if... else to find what group the number would belong to then increment the variable representing that group by one. Finally the variables representing how many numbers were in each group is printed.

Problem 1014

The problem is to find the circumference and area of all circles with a whole number radius between two inputted values and to sum them all together and output the sum of all areas and the sum of all circumferences. The solution i used to solve this included 3 functions for the main program to use, sum (takes array of ints and its length and returns the sum calculating it using a while loop), calculateAllAreas (takes two radius and calculates the areas of all circles with a radius between the two inputs using a while loop, puts them into an array and returns the sum of this array) and calculateAllCircumferences (takes two radius and calculates the circumference of all circles with a radius between the two inputs using a while loop, puts them into an array and returns the sum of this array). The main program takes the input and makes sure that the larger number is always inputted first ny switching them if this is not the case. It then prints the outputs of calculateAllAreas and calculateAllCircumferences to three decimal places.

Problem 1015

Conversion of int to ascii

This program as long as there are ints to read will read the input and print out the ascii version of it.

Problem 1025

The problem was to find the lowest common multiple and th highest common factor of two numbers. The solucion i used was a function called hcf that used the modulus operation to check if a number was a common factor, if it was a factor the value would be save to a variable and then the next number would be tested up until the number is as big as the lowest input. The largest common factor is then left in the variable and is returned.

The lowest common multiple is found using the product of the two inputs divided by their highest common factor. These results are then returned.

Problem 1030

The problem is to create a program that can divide two numbers then take the nth number after there decimal place. I have done this by firstly taking 3 inputs, the two numbers that will be divided and the number that decides which number were looking for after the decimal place. The numbers are divided then passed into the findNthNumberAfterDecimal function

along with the third input. This function this number times the number by 10 to the power of the third input rounded down then moded by 10 as this uses mathematical functions to reduce the number to only the nth digit after the decimal point.