

Programming Assignment 4: Hexadecimal Arithmetic

How I develop your assignment solution

The assignment this week are divided into two parts, part 1: Hexadecimal addition and part 2: Hexadecimal multiplication. In part 2: Hexadecimal multiplication is necessary to use the concept in part 1: Hexadecimal addition. In this situation, I start the part 1: Hexadecimal addition first.

Part 1. Hexadecimal addition

In hexadecimal addition, I first change the hexadecimal number from every digits which the user input into decimal number, I divided the digits into '0' to '9' and 'A' to 'F' and return to the decimal number for the further addition prepare. Before the addition, I declared the length of the number and stored into the array. During the addition, the digits are added separately if there are still digits remaining, the digits are listed in a line as the result and was separated from the number which the user input. The places where the number are placed are depended to the number of spaces which designed to make the format pretty. Lastly, the addition ends until the user input both two number 0.

Part 2. Hexadecimal multiplication

In hexadecimal multiplication, the part 1: hexadecimal addition is needed to used in it as an important basic. The first part of the of hexadecimal multiplication is same as the hexadecimal addition. After the part of the hexadecimal addition in hexadecimal multiplication, I do the hexadecimal multiplication. It iteratively multiplies each digit, considering carry values, and ensures the result is properly formatted in hexadecimal. The length of the product is adjusted to accommodate any remaining carry. The pretty printing format is same as hexadecimal addition and also end the program until the 0 0 was input.

Problems encounter

At first, I start doing this assignment in the wrong way which may cause errors. I use the %X function to calculate the hexadecimal addition and hexadecimal multiplication. I suddenly went struggle and turn out to find the other way to solve the problem. The second try of the assignment I use another way to solve the problem, but it still the wrong way. I change the whole number of hexadecimal included every digits the user input into decimal number, but this still contains errors, so I finally change the way I present in this assignment and finally comes out the correct result.