Design document

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**In-class exercise:** Implementation exercise

**Team name:**

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**Goal:**

Using Recursion; take two numbers in from the user (a human) and add them together then separate the least significant digit and add it the remaining digits and so on until you have a single digit answer.

**Overview:**

The user should be able to enter 2 integers, which are then validated to make sure they are positive, non-negative numbers. Then have that integer parsed into a string then split the string into a sub-string that substring will then be turned into an integer then subtracted and then repeat the process until that number is in the single digits. Then prompt the user to use it again and if not exit the program.

**Requirements:**

Mandatory:

1. Must take 2 unsigned integers from the user.
2. Must end with a single digit.
3. Must validate user input.
4. Must be able to add the two unsigned integers together.
5. Must be able to take the sum of the UInts and parse into a string.
6. Must be able to split string into substrings.
7. Must be able to parse string into unsigned integer.
8. Must be able to subtract UInts.
9. User must be able to exit the program.

Optional:

1. User can use program again.
2. User can exit the program by user input.

Implementation:

1. Takes in two non-zero nonnegative unsigned integers (whose sum is less than 4,294,967,295.
2. Repeat step above until input is validated or user types exit.
3. Take the sum of the 2 numbers.
4. Pass to recursive method
5. Check passed integer to make sure its above 0. If not return 0.
6. Convert integer to a string.
7. Check the length of the string.
8. If the length is 1 then convert into integer. Return integer.
9. If length is greater than 1 take the substring of the converted integer starting from index 0. Continuing to the length of the string -1.
10. Take substring starting at index length -1.
11. Convert both back into integers.
12. Add together the integers.
13. Call recursive method as return.
14. Repeat steps 5-11 until its only a single digit.
15. Then print the remaining digit.
16. Prompt user to repeat program.
17. If “Yes”, run program again.
18. If “no” Exit program.