Programming Refresher Workshop

Session 6 Exercises

Learning objectives:

- Breaking a number into its smaller parts
- Constructing a number from its smaller parts
- Understanding the method for additions for number of some bases using base-10 conversion.

Exercise 18 (ex18): Integer Addition of Numbers of Some Bases.

Given a base value *b*, followed by two non-negative base-*b* numbers *n1* and *n2*, compute the sum of *n1* and *n2*, and present your answer as a base-*b* number.

For example, given two numbers *n1* = 712_8, and *n2* = 74_8, the sum of *n1* and *n2* is 1006_8.

Sample run 1

```
Enter a base b : 8
Enter the first number : 712
Enter the second number : 74
The sum is : 1006
```

Sample run 2

```
Enter a base : 2
Enter the first number : 111001010
Enter the second number : 110100
The sum is : 111111110
```

Sample run 3

```
Enter a base : 10
Enter the first number : 458
Enter the second number : 52
The sum is : 510
```

Input

You may assume that *b* is an integer value between 2 and 10 inclusive, and the values to be added are valid base-*b* numbers.

Testing

What are the pre-conditions required for all the functions in your program?

Do you check if the pre-conditions of these functions are met?

What are the cases you should test your program with? Can you list out the cases?

Can your method of doing addition arithmetic over numbers of certain bases be applicable for other arithmetic operation, say division?