

# SWE2004: Principles in Programming(Spring 2015)

## Programming Lab #4

Due-date: April 2 , 14:45PM

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### Description

Write a program to convert a whole number specified in any base (2..16) to a whole number in any other base (2..16). ``Digits" above 9 are represented by single capital letters; e.g. 10 by A, 15 by F, etc.

### Input

Each input line will consist of three values. The first value will be a positive integer indicating the base of the number. The second value is a positive integer indicating the base we wish to convert to. The third value is the actual number (in the first base) that we wish to convert. This number will have letters representing any digits higher than 9 and may contain invalid ``digits". It will not exceed 10 characters. Each of the input values on a single line will be separated by at least one space.

### Output

Program output consists of the original number followed by the string ``base", followed by the original base number, followed by the string ``=" followed by the converted number followed by the string ``base" followed by the new base. If the original number is invalid, output the statement

original Value is an illegal base original Base number

where original Value is replaced by the value to be converted and original Base is replaced by the original base value.

## Sample Input

2 10 10101

5 3 126

15 11 A4C

## Sample Output

10101 base 2 = 21 base 10

126 is an illegal base 5 number

A4C base 15 = 1821 base 11