1. Accept an integer as input and print the digits (as lower case words) present in it from left to right. Each digit should be printed on a separate line.

   Sample input
   123

   Sample output
   one
   two
   three

   Hint : Use Dictionary

2. Suppose you have an matrix, where ***m*** represents number of rows and ***n*** represents number of columns and , 2<m, n<12 that consists of integer values. Write a program that creates a new matrix in which all the elements are replaced by zeros except the border elements.

   Sample Input

```
1 2 3 4
2 3 4 5
3 4 5 6
4 5 6 7
```

   Sample Output

```
1 2 3 4
2 0 0 5
3 0 0 6
4 5 6 7
```

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3. WAP to reverse a square matrix along row
   For eg:

   1 2 5
   3 4 6

   Will be reversed as

   3 4 6
   1 2 5

4. Find all integer Pythagorean triplets (x, y, z), with $0 < x < y < z < 1000$.
   Count the number of such triplets
   Pythagorean triples are **$x^2+y^2 = z^2$ where x, y and z are the three positive integers**. These triples are represented as (a, b ,c).

5. Write a function that computes the sum of the first terms of the series given below:
   Give two different implementations of the same:

$$2^0 + 2^1 + 2^2 + \cdots + 2^{n-1}$$

a. Iterative
b. Recursive

6. Write a recursive function to multiply two positive integers x and y. You can only use + and - operators. You are not allowed to use the symbol * anywhere in your code!

7. L is a list that contains the scores of students in a Mathematics test. Find the following information:
   - class average
   - median marks
   - mode or the most frequently occurring mark; if there are multiple candidates for the mode,
   - return the smallest among them

Try to avoid using built-in functions or list methods as much as possible.

8. Given a positive integer n, find the largest value of k such that the following inequality is satisfied:

   $2^k <= n$

Input	**Output**
10	3
100	6
1000	9

Write two different implementations of the same function:

- iterative
- recursive