A

Write a Program to print a message. In this program, there is no input.
You just have to print a predefined message.

Input

No input.

Output

Print the following message.

Hello.
This is a test program.
I passed this test with 100% marks.

B

You will be given two positive integers M and N. You have to print the evaluated values of the following expressions in different lines.

1. $M+N$

2. $M-N$

3. $M*N$

4. M/N

5. $M\%N$

Conditions

$1 \le M, N \le 2^{31} - 1$

Input

A single line with two positive integers M and N.

Output

Five lines containing the results for each arithmetic operations.

Sample Input 1

10 2

Sample Output 1

12
8
20
5
0

Sample Input 2

18 7

Sample Output 2

25
11
126
2
4

C

Different digits are represented by unique 5×5 matrix in computer program. Corresponding matrices are:

```
*****      *  *****  *****    *    *  *****  *****  *****  *****  *****
*   *      *      *      *    *    *  *          *  *   *  *   *  *   *
*   *      *  *****  *****  *****  *****  *****      *  *****  *****
*   *      *  *          *      *      *  *   *      *  *   *      *
*****      *  *****  *****         *  *****  *****      *  *****  *****
```

Write a program to print the representation of the corresponding input digit N.

Conditions

$0 \leq N \leq 9$

Input

A line with a digit as N

Output

Necessary lines with the unique representation of N

Sample Input 1

2

Sample Output 1

```
*****
    *
*****
*
*****
```

Sample Input 2

1

Sample Output 2

```
    *
    *
    *
    *
    *
```

D

You will be given an integer N. You are allowed to swap digits of the
integer to make other integers. For example, 1324 can be made as 4123
by swapping first and last digits. You have to print the maximum and minimum
values which can be made swapping the digits as much time as you want using
N.

Conditions

$-2^{34} \le N \le 2^{31} - 1$

Input

A line with an integer N

Output

Two lines should be printed.
First line should print the maximum possible value.
Second line should print the minimum possible value.
See sample for clarification.

Sample Input 1

12546

Sample Output 1

Maximum = 65421
Minimum = 12456

Sample Input 2

125054

Sample Output 2

Maximum = 554210
Minimum = 102455

E

Chess is a very popular game and the world is searching for a grand-master like you. In this problem, you will be provided a chess board with a number of chess pieces from the opponent and a single Knight piece from yourself. Each piece consists of some points according to the given in Table 1. You can achieve the point if you attack the corresponding pieces from opponent.

Chess Piece	Pawn	Bishop	Knight	Rook	Queen	King
Symbol of Opponent's Piece	P	B	K	R	Q	A
Points	1	3	5	3	8	10

Table 1: Caption

Write a C program which can find the maximum number of points you can achieve with a single move by your Knight piece.

To know about the chess pieces and their moves, go to the link: https://www.chess.com/terms/chess-pieces.

Input

Input will consist of 8 lines.
i^{th} line consists of 8 characters representing the chess pieces in i^{th} row. Symbols are be as described in Table 1. A '.' will be used to represent an empty cell in the chess board. Your Knight piece is represented by the digit 2.

Output

Maximum number of points you can achieve.

Sample Input 1

```
B.KAB...
P..P...K
P.R.P...
......Q.
...2..R.
........
.P...P..
........
```

Sample Output 1

```
3
```

   Description: Your piece is at (5,4). With your piece you can attack Rook at (3,3) and Pawn at (3, 5). So, the maximum point can be 3.

F

Different digits are represented by unique 5×5 matrix in computer program. Corresponding matrices are:

```
*****     *  *****  *****  *   *  *****  *****  *****  *****  *****
*   *     *      *      *  *   *  *          *  *   *  *   *  *   *
*   *     *  *****  *****  *****  *****  *****      *  *****  *****
*   *     *  *          *      *      *  *   *      *  *   *      *
*****     *  *****  *****      *  *****  *****      *  *****  *****
```

   Write a program to print the representation of the corresponding input integer **N**. Make sure that each digit is separated by a single space.

Conditions

$0 \le N \le 2^{31} - 1$

Input

A line with an integer as N

Output

Necessary lines with the unique representation of N

Sample Input 1

123

Sample Output 1

```
    *  *****  *****
    *      *      *
    *  *****  *****
    *  *          *
    *  *****  *****
```

Sample Input 2

991

Sample Output 2

```
*****  *****      *
*   *  *   *      *
*****  *****      *
    *      *      *
*****  *****      *
```

G

You will be given two positive integers M and N. You have to print all the prime numbers between the range $[M, N]$. You need to print the numbers in ascending order.

Conditions

$1 \leq M, N \leq 10^5$

Input

A single line with two positive integers M and N.

Output

Several lines each consisting with a prime number.

Sample Input 1

2 10

Sample Output 1

2
3
5
7

Sample Input 2

20 30

Sample Output 2

23
29