Hanoi Towers

Description

There are n disks and three pegs (numbered by $1, 2, 3$). Initially all the disks are on the peg number 1, sorted from the smallest (number 1) to the largest (number n). Now you have to provide the shortest script of disks' movement, each of them is in the form

```
Move disk i from A to B.
```

where i, A and B are corresponding number of disks and pegs, so that after the movements, all disks are moved into the peg number 3.

This is Hanoi Towers, not Huran Towers.

Input

An integer n.

Output

Please output a shortest list of movement in the above format.

Technical Specifications

- It is guaranteed that $1 \le n \le 15$.

Sample Input 1

```
1
```

Sample Output 1

```
Move disk 1 from 1 to 3.
```

Sample Input 2

```
2
```

Sample Output 2

```
Move disk 1 from 1 to 2.
Move disk 2 from 1 to 3.
Move disk 1 from 1 to 2.
```