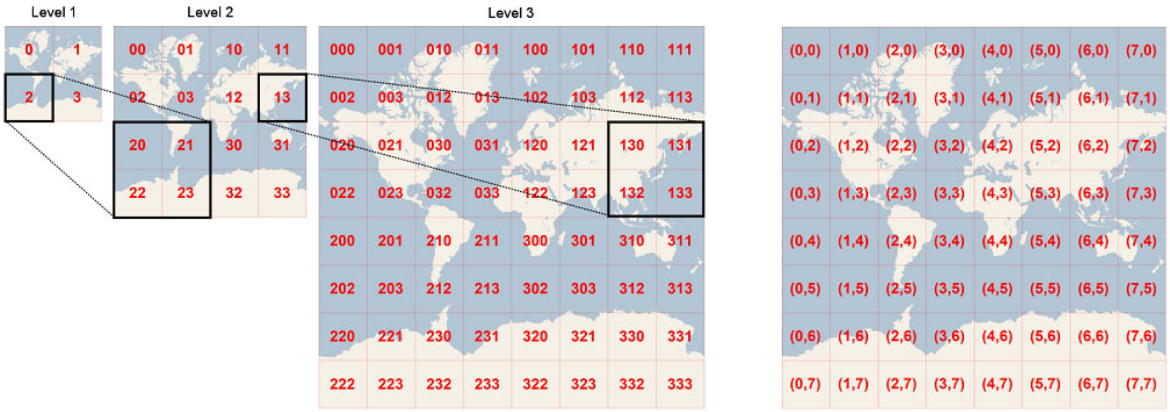
Problem I
Identifying Map Tiles
Time limit: 1 second

Map websites such as Bing Maps and Google Maps often store their maps as many different image files, called tiles. The lowest zoom level (level 0) consists of a single tile with a low-detail image of the whole map, zoom level 1 consists of four tiles each containing a slightly more detailed version of a quarter of the map, and in general zoom level n contains 4^n different tiles that each contain a part of the map.

One way of identifying a tile is by means of a *quadkey*. A quadkey is a string of digits uniquely identifying a tile at a certain zoom level. The first digit specifies in which of the four quadrants of the whole map the tile lies: `0` for the top-left quadrant, `1` for the top-right quadrant, `2` for the bottom-left quadrant and `3` for the bottom-right quadrant. The subsequent digits specify in which sub quadrant of the current quadrant the tile is. The quadkeys for zoom levels 1 to 3 are shown in Figure I.1(a).



(a) Quadkeys for zoom levels 1 to 3

(b) Coordinates for zoom level 3

Figure I.1: Visualisation of the two representations. The images are taken from the MSDN.

Another way of identifying a tile is to give the zoom level and x and y coordinates, where $(0, 0)$ is the left-top corner. The coordinates for the tiles of zoom level 3 are shown in Figure I.1(b). Given the quadkey of a tile, output the zoom level and x and y coordinates of that tile.

Input

The input consists of:

- one line with a string s ($1 \leq \text{length}(s) \leq 30$), the quadkey of the map tile.

The string s consists of only the digits '`0`', '`1`', '`2`' and '`3`'.

Output

Output three integers, the zoom level and the x and y coordinates of the tile.

Sample Input 1	Sample Output 1
3	1 1 1

Sample Input 2	Sample Output 2
130	3 6 2