**Name:**

**Java Programming**

**Lab Exercise 1/7/2020**

**Color Mapping**

## Problem

A color reduction is a mapping from a set of discrete colors to a smaller one. The solution to this problem requires that you perform just such a mapping in a standard twenty-four bit RGB color space. The input consists of a target set of sixteen RGB color values, and a collection of arbitrary RGB colors to be mapped to their closest color in the target set. For our purposes, an RGB color is defined as an ordered triple (*R*,*G*,*B*) where each value of the triple is an integer from 0 to 255. The distance between two colors is defined as the Euclidean distance between two three-dimensional points. That is, given two colors (*R*1,*G*1,*B*1) and (*R*2,*G*2,*B*2), their distance *D* is given by the equation

.

The input file is a list of RGB colors, one color per line, specified as three integers from 0 to 255 delimited by a single space. The first sixteen colors form the target set of colors to which the remaining colors will be mapped.

## Output

For each color to be mapped, output the color and its nearest color from the target set.

## Example

|  |  |
| --- | --- |
| Input  0 0 0  255 255 255  0 0 1  1 1 1  128 0 0  0 128 0  128 128 0  0 0 128  126 168 9  35 86 34  133 41 193  128 0 128  0 128 128  128 128 128  255 0 0  0 1 0  0 0 0  255 255 255  253 254 255  77 79 134  81 218 0 | Output  (0,0,0) maps to (0,0,0)  (255,255,255) maps to (255,255,255)  (253,254,255) maps to (255,255,255)  (77,79,134) maps to (128,128,128)  (81,218,0) maps to (126,168,9) |