16 Skin Cancer

9 points

Introduction

Computer vision is a broad field that will increase in the coming years. Automated disease diagnosis will also be an important field. Today we will merge both, making an algorithm that diagnoses skin cancer. For this purpose, the algorithm has to evaluate the average of the values obtained and their standard deviation (stdev).

Remember that the standard deviation formula is:

$$s = \sqrt{\frac{1}{N-1}\sum_{i=1}^{N}(x_i - \bar{x})^2},$$

where *xi = {x1, x2, x3, ...}* are the observed values of the sample items, $\bar{x}$ is the mean value of these observations, and N is the number of observations in the sample.

Your algorithm will be feed with images from a microscope composed by an array of 5x5 grayscale pixels. (0: means a dark pixel and 255: a white one).

On this simple detector, we can consider a skin cancer if 40 ≤ average ≤ 80 and stdev ≥10. If stdev is lower it's a benign skin mole (benign is a medical term to indicate non-hazardous).

It is also considered a benign skin mole if 80 < average ≤ 230. Independent of stdev.

And microscope calibration is needed when: average < 40 or average > 230. Independent of stdev.

> HINT: perform all operations as floats.

Input

The input consists of one line of 25 integers separated by spaces.

Output

Print out one of the following outputs classification:

- Skin cancer

- Benign skin mole
- Recalibrate microscope

Example 1

Input

```
50 70 80 40 20 70 50 30 40 60 50 70 80 40 20 70 50 30 40 60 50 70 80 40 20
```

Output

```
Skin cancer
```

Example 2

Input

```
10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10
```

Output

```
Recalibrate microscope
```

Example 3

Input

```
90 90 80 90 90 100 100 100 100 110 110 110 110 110 100 100 100 100 100 120
120 120 120 120 120
```

Output

```
Benign skin mole
```