21900391 서영정 Final

1.

25fps, time interval : 1000/25

QSEF

= 40ms

2. image = 1 channel = gray

x = 100, y = 200

```
int main() {
    Mat image;
    int value;
    value = image.at<uchar>(200,100);
}
```

answer.

3. 3x3 median filtering

9	10	11
17	16/18	19
14	13	12

⇒

13	13	13
13	13	13
13	13	13

9. 10. 11. 12. (13) 14. 17. 18. 19.

4. histogram for an image 20x20 = 400

value of 3 probability

= 160/400

= 2/5 = 4/10

= 0.4

5. by using color slicing.

- find the pixels in the range of desired color in Hue-channel and set all the other pixels to 0 in the saturation-channel.

6. more edge (T↓)

3rd parameter = threshold 1

threshold1 has to be lower value

⇒ change the value more small..

⇒ decrease the value

7. 5th = threshold. less lines?

↓ 검출↓ ⇓

5th change value to more big number. th 높이

= increase 5th value

8. use local thresholding (adaptive)

first change

using adaptiveThreshold() function, perform local thresholding

9.

0	0	0	0	0
0	255	255	255	255
255	255	255	255	255
255	255	255	255	255
255	255	255	255	255

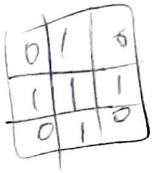
12-1=11 ×10

11

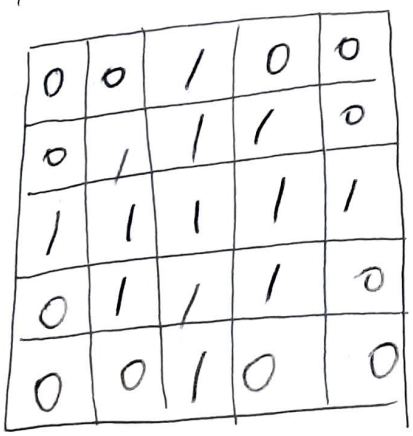
1	2	3	4	5
2	6	14	17	19
3	15	29	31	34
4	18	33	42	46
5	20	36	46	51

10 erosin & dialation

Erosion



dialation

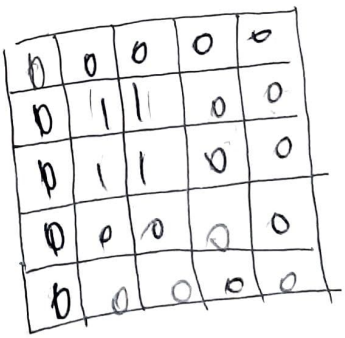


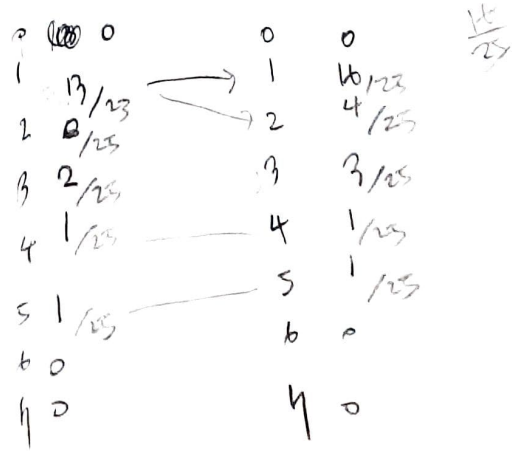
12. If the objects(vector of reetangle)

that less than MinSize is ignored

and if the objects are larger than maxSize are ignored.

13. 0 ~ 4 bin= 8





14.

We need 4 corresponding pair but in this case, ~~the between two point~~

in the input image, (left.)

the between the two points that is not a line so

we cannot perform perspective transform

~~find proper points and~~

but ~~by~~ by using user interface,

find 4 points and ~~make line~~ ~~cutting? image~~ ~~make~~ a extract rectangle

(set rot in rectangle)

we can perform transformation

by using getperspectiveTransform() function.

15. I'll suggest eye protector.

By blinking eyes more than a certain number of time is important for eye protection.

~~Because~~

So when using computer, blinking eye often is important.

~~to make people blinking eyes more~~

this system will alert when person blink eyes less than proper times.

1. ~~detect~~ by deep learning model detect the face and recognize the person is child, man, or women. whether

because proper time of eye blinking is little bit different by

2. detect eye by using cascade classifier.

3. Calculate the time of eye blinking

if the ratio of $\frac{\text{eye height}}{\text{eye width}}$ is big = open eye

if " is small = close eye

4. If the result of the number of time (eye blinking) is less than proper time give alert to that person so he or she will notice that they are blinking eyes less.