

Image Processing

By Group - 48:

Tushar Bhatt (B22CS056)

Vatsal Dadhaniya (B22CS059)

Vekariya Sagar (B22CS060)

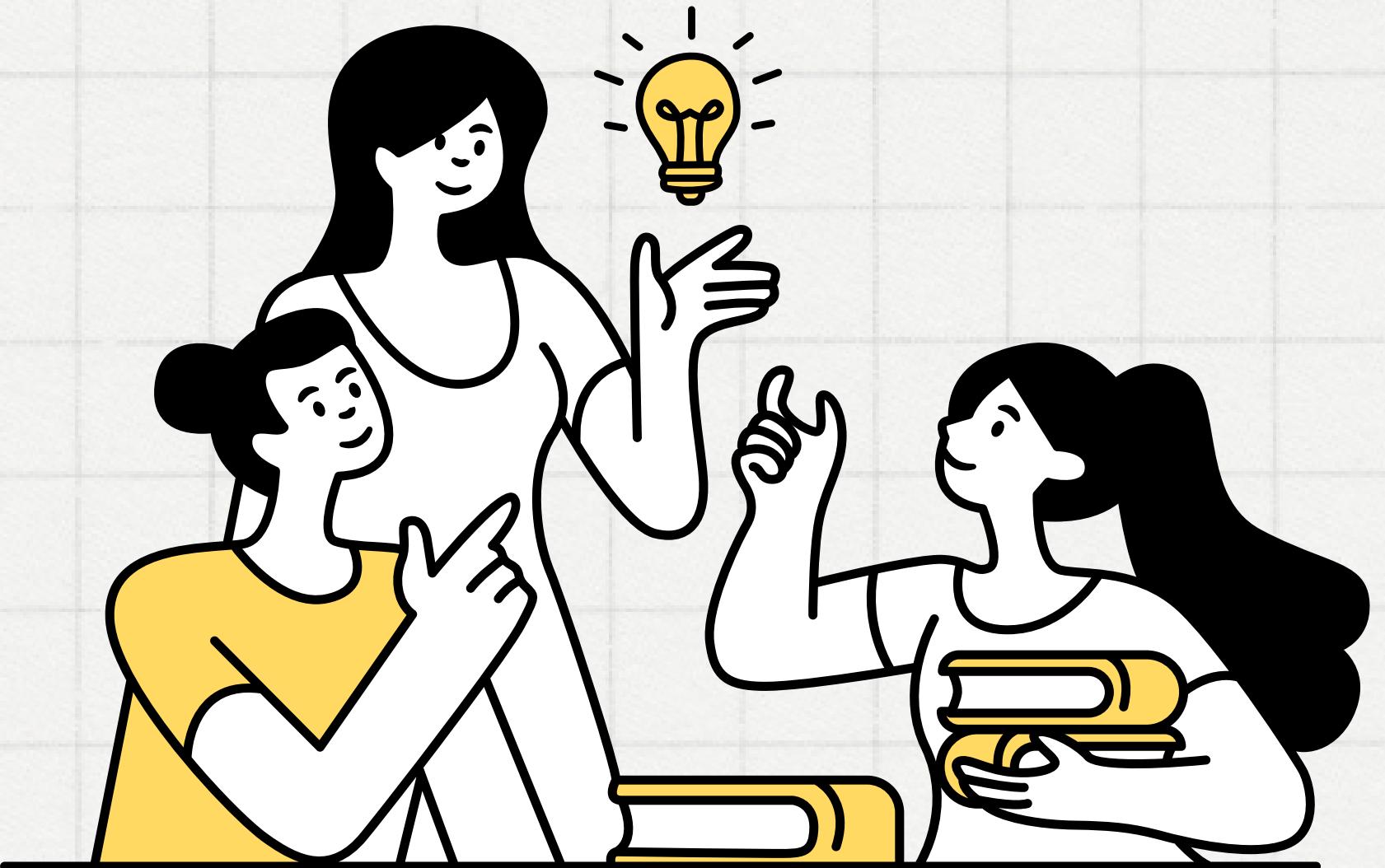
Vighnesh Mandavkar (B22CS061)

Yesha Shah (B22CS067)

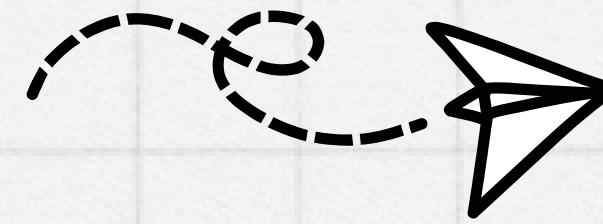
Instructor : Dr. Palash

Goal

We had to design a C project to read an image into a matrix. After reading the image, we had to break the image into equal sized patches, and identify the most important patches based on their content.



Tools Used



To accomplish this task, we had to use a variety of tools, go through a multitude of documentation, and pour countless hours of code! Here is a list of different things that we used:

-BMP Files

BMP is a type of image format which consists of mainly three parts, imageheader, colortable and imagedata.

We are using particularly this format because it is quite simpler as compared to other formats like jpg and png and is easy to deal with.

-No libraries!

In order to use libraries like OpenCV we had to learn too much about it and also needed to set it up in our pc.

Without using libraries we were also able to learn many things.

01

Gaussian Blur

We put a kernel matrix of 3×3 on value on each pixel and rewrite it's value in order to blur the image and get close to the more intensive values.

02

Sobel Operator

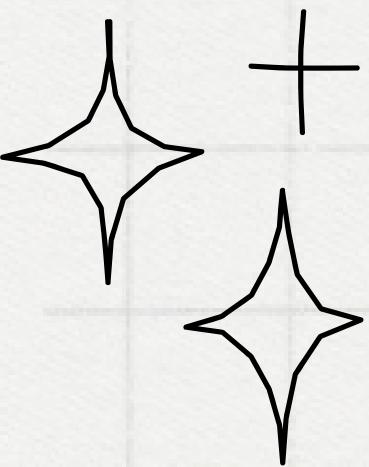
After applying gaussian blur, in order to detect edges we multiply another kernel matrix and based on the positive or zero score we decide whether there is a change in intensity or not.

03

Canny Operator

After sobel operator in order to remove noise and make edges sharp we apply canny operator and use a concept of hysteresis thresholding.

Day-Based Progress



01

We wrote code to
read and write
bmp images

03

Converted colored
images to grayscale,
made patches and built
gaussian blur function

02

Wrote code to create
corresponding matrix
for color and grey bmp
images

04

Applied Sobble
filter to the image

05

Wrote the canny operator
function using hysteresis
thresholding.

06

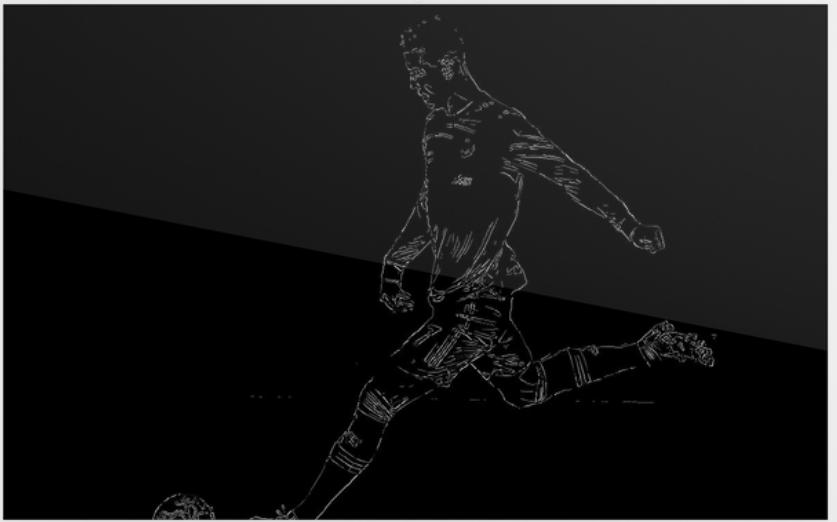
Assigned color to
the patches



Results

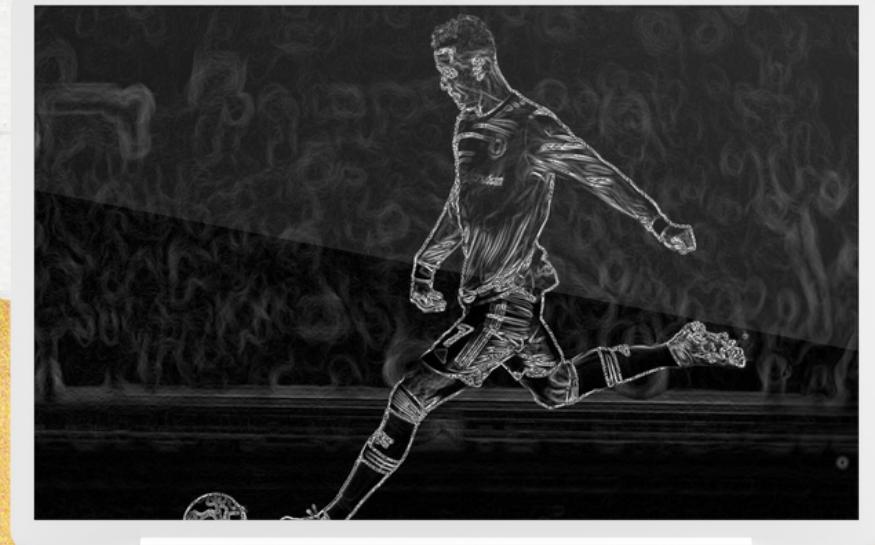


Processing 2

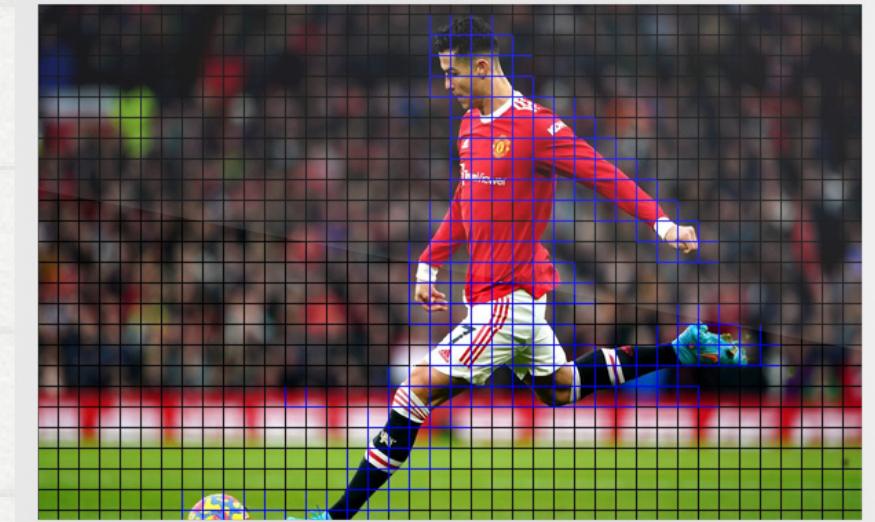


Source Image

Processing 1



Final Output



**Thank you
very much!**