This task contains two different files one for serial.cpp and other for parallel.cu .

Both files uses opencv software. parallel uses Cuda programming language.

SHARPENING FILTER:

Few inbuilt functions:

imread, imshow, waitkey etc from opencv.

Kerel used is 3 X 3: {-1,-1,-1,-1,9,-1,-1,-1,-1};

We use convolution method, for this filtering.

In parallel using block size of 16 in 3 dim. Using this reduces one for loop hence saves a lot of time. My code has 3 for loops. serial code is implement using inbuilt function.

software requirements : Cuda and opencv

hardware requirements : nvidia gpu

Size of input file:

690 pixels width

298 pixels height

Time taken by cpu : 3.18 ms

Time taken by gpu: 0.92 ms

execute:

for cpu code: g++ serial.cpp -o serial

./serial

for gpu code : executed in visual studio code 2019.