ADIP-2020
ASSIGNMENT-1

Read the colour image “cavepainting1.jpg”, convert it to gray level image and perform the operations in an interactive fashion as listed below. The objective of your implementation and experimentation would be to convert the image into sketches of etchings, white line diagrams against the dark background. Respective marks for your implementations are shown with the tasks assigned here.

(1) For reading and conversion to gray. – (2+3 =5)
(2) Implement the following module, which could be applied on the image in an interactive fashion in any order. Show output from each module individually. (5x7)
    (a) Scaled bilateral filter for denoising (Reference paper attached).
    (b) Image sharpening.
    (c) Edge extraction using any standard operator.
    (d) Binarization by choosing threshold adaptively.
    (e) Detection of Harris corner points.
    (f) Compute connected components and convert them to line segments.
    (g) Morphological operations dilation, erosion, closing and opening, using a structuring element defined.
(3) Provide the final output with the description of sequence of operation being carried out. If any additional operation implemented and executed, specify. (10)

Bonus marks, if all the modules implemented properly. (10)

You may implement your programs in C++-OpenCV/MATLAB/ Python with necessary user's interfaces and visualization of your results and input.
Please provide a documentation for compiling and running the programs in a README file.
The whole project should be submitted in a single tar or zip file.