Uva Wellassa University of Sri Lanka
Faculty of Science and Technology
Department of Computer Science and Technology
End Semester Examination September/October 2013
CST362-3 Digital Image Processing

Instructions:

- Answer all the questions.
- Time Allowed: **Two (02) hours.**
- Removable storage devices / drivers are **not allowed**.
- You are allowed to refer your own notes but **sharing notes** is **strictly prohibited**.
- Download resource.zip file from the CMS which includes all the resource images for examination.
- Upload only your **cpp file** (C++ source file) to CMS.

Part (B)

1. Apply following filters to the *sample.jpg* image and show results on opencv windows with proper names.
   a. Gaussian Blur - use a value between 20 to 30 for the kernel size with 0 sigmaX.
   b. Median Blur - use a value between 10 to 20 for the kernel size.

2. Enhance *sample.jpg* image by histogram equalization technique and show the resultant image on an opencv window.

3. Assume *face.jpg* is your profile image on a social networking site and you need to apply a filter to make your image looks like oil painted image.
   You are required to:
   Write a program to convert this image into oil painted image.

4. *map.jpg* image includes a map of Sri Lanka and the provinces are marked as different color codes. This is a generated image from a map generating software, but there is no way to calculate the area of a particular province from this software.
   You are required to:
   a. Write a program to calculate the area of the "**North Central**" province.
   b. Print the area (in km^2) of North Central province on the console (Assume 1 area unit equal to 0.2573 km^2).
   Hint – Use threshold function to filter North Central province.

(100 mark)

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