Using the Open CV and Python, develop a simple video processing software. The software should include the following items (Figure 1):

1. An interface should be designed for capturing video from web cam (Blue Window).
2. The captured video window should be divided to three regions as shown in the Figure 1.
3. Seven sliders should be added to the interface. Six sliders for CSV channels upper and lower values and one slider for threshold value.
4. Four buttons should be added to the interface. Three for calculating the number of selected pixels in the three regions. One button for applying the `THRESH_TRUNC` filter. Hint: use the slider position as **`th_val`**.

```
(_,th3=cv.threshold(img,th_val,255,cv.THRESH_TRUNC).
```

By pushing ***Calculate for Region #*** buttons the number of selected pixels in each region should be calculated and by pushing the ***Apply Threshold*** button, the filter should be applied based on the slider position.

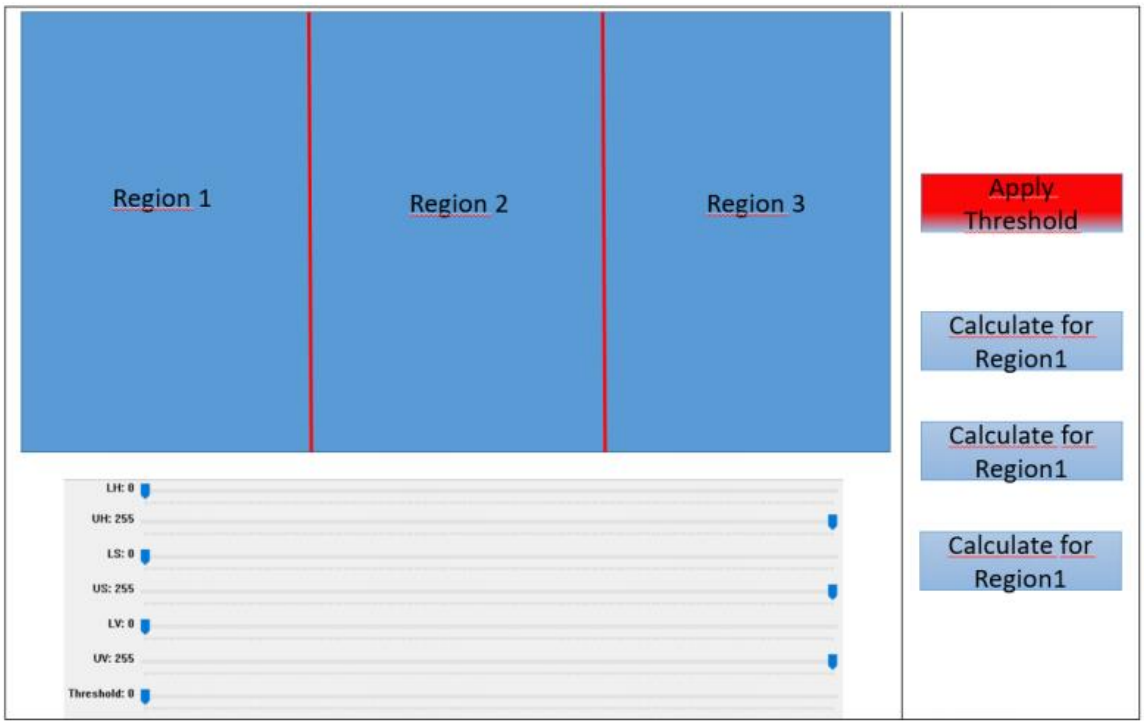

Figure 1: Project Interface

The following Object Oriented Programming concepts must be considered in the software:

A. Define an abstract super class named ***Frame_Grab***. In this class the camera frame should be grabbed and changed to the CSV format.
B. Define an abstract super class named ***Sliders_Data***. In this class the sliders position data should be stored as an Encapsulated list using ***Set_Slider_Data*** method.
C. The Sliders Position data should be accessible using ***Get_Slider_Data*** method.
D. Define ***Region1***, ***Region2*** and ***Region3*** subclasses that inherit the ***Frame_Grab*** and ***Sliders_Data*** Super classes. In these subclasses, define a method named ***Pixel_Claculation*** that calculates the selected pixels numbers in each region based on the values that comes from slider positions. The calculated pixel numbers should be overrided on a variable named ***PixelNO***.
E. The calculated ***PixelNO*** value should be displayed when clicking on ***Calculate for Region #*** buttons.
F. Define ***Filter*** subclass that inherits the ***Frame_Grab*** and ***Sliders_Data*** Super classes. In this subclass, define a method named ***Filter_Implement*** that gets the Threshold slider

position value and applies the `THRESH_TRUNC` filter on the grabbed frames from camera and show the filtered frames in a separated window. The method should be called when clicking on ***Apply Threshold*** button.

Good luck,