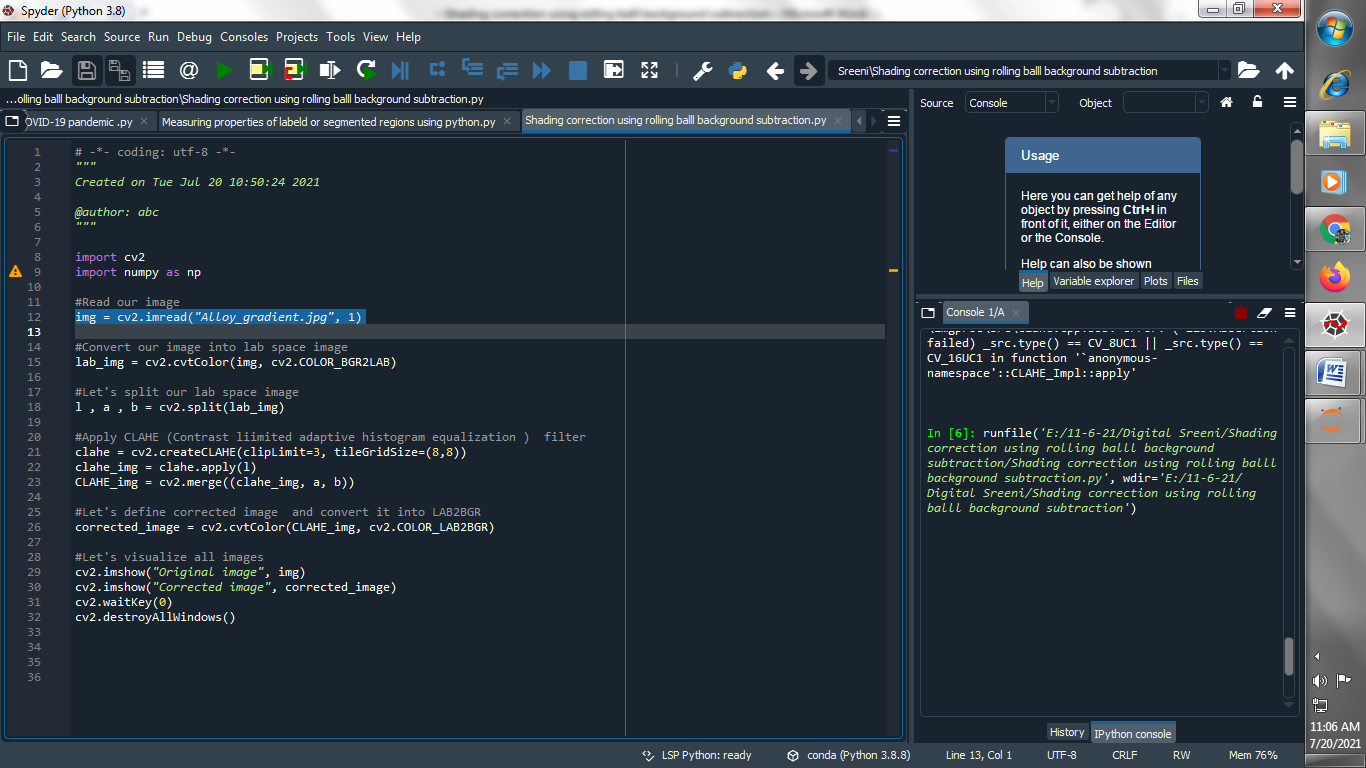
**Shading correction using rolling ball background subtraction :**

→ The rolling-ball algorithm estimates the background intensity of a grayscale image in case of uneven exposure. It is frequently used in biomedical image processing.

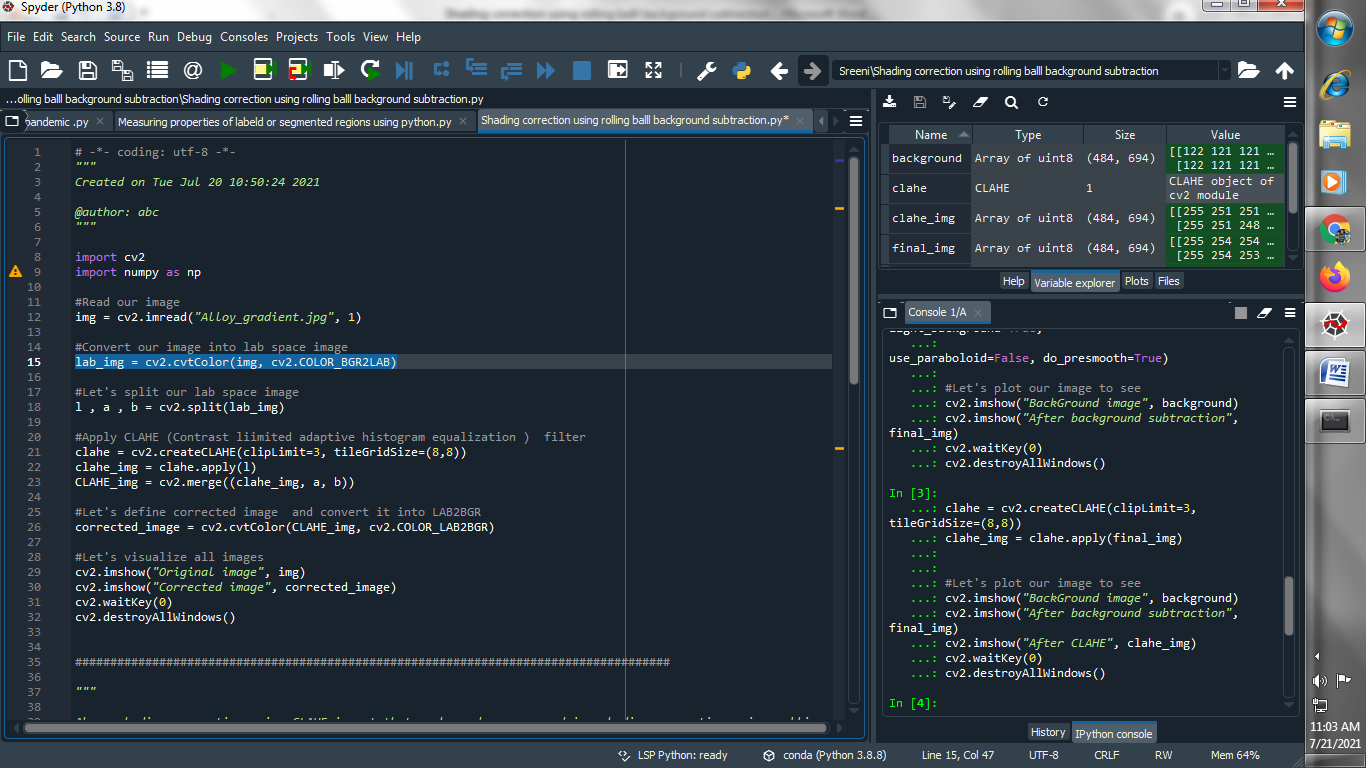
→ The algorithm works as a filter and is quite intuitive.

→ Microscope images acquired under non-uniform illumination condition make it challenging , sometimes impossible , to extract information via thresholding and segmentation . These images can be corrected using rolling ball background subtraction.

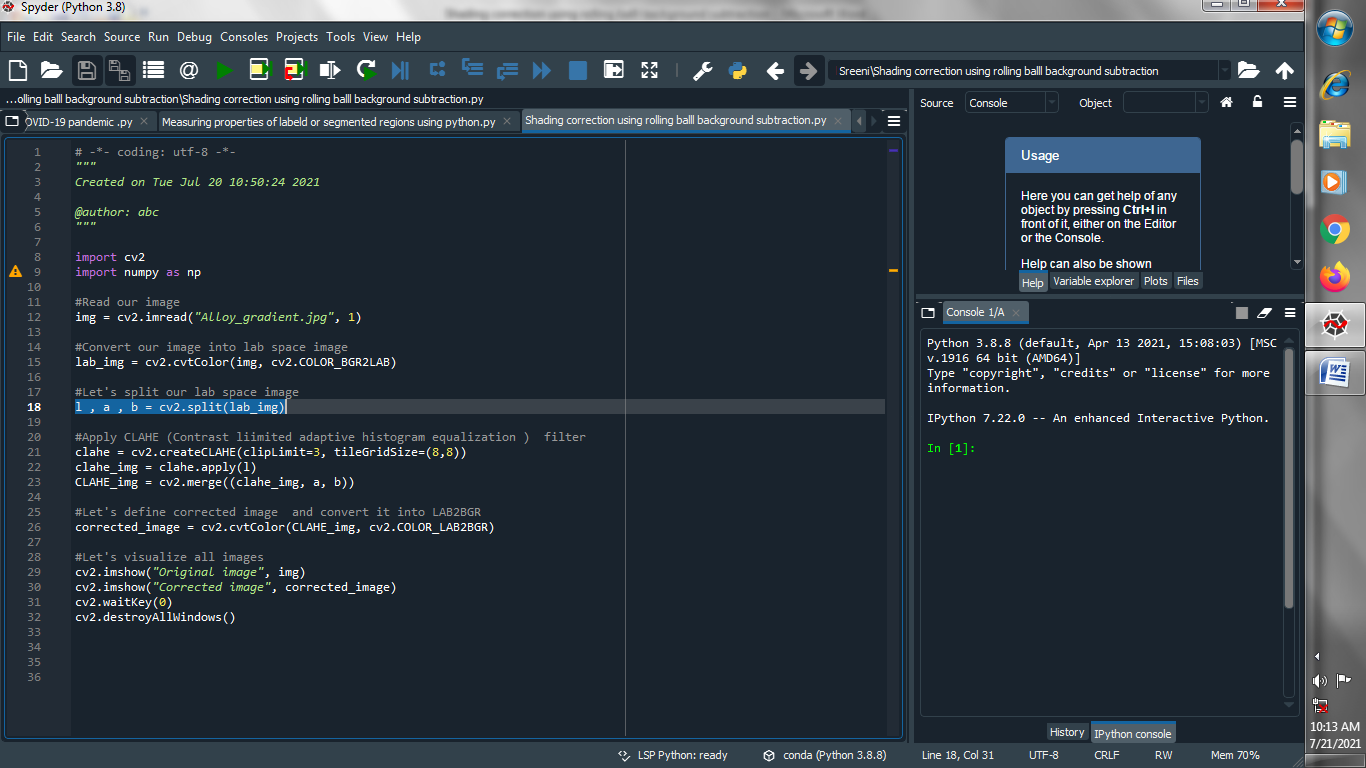
**(1) Read our image :**

****

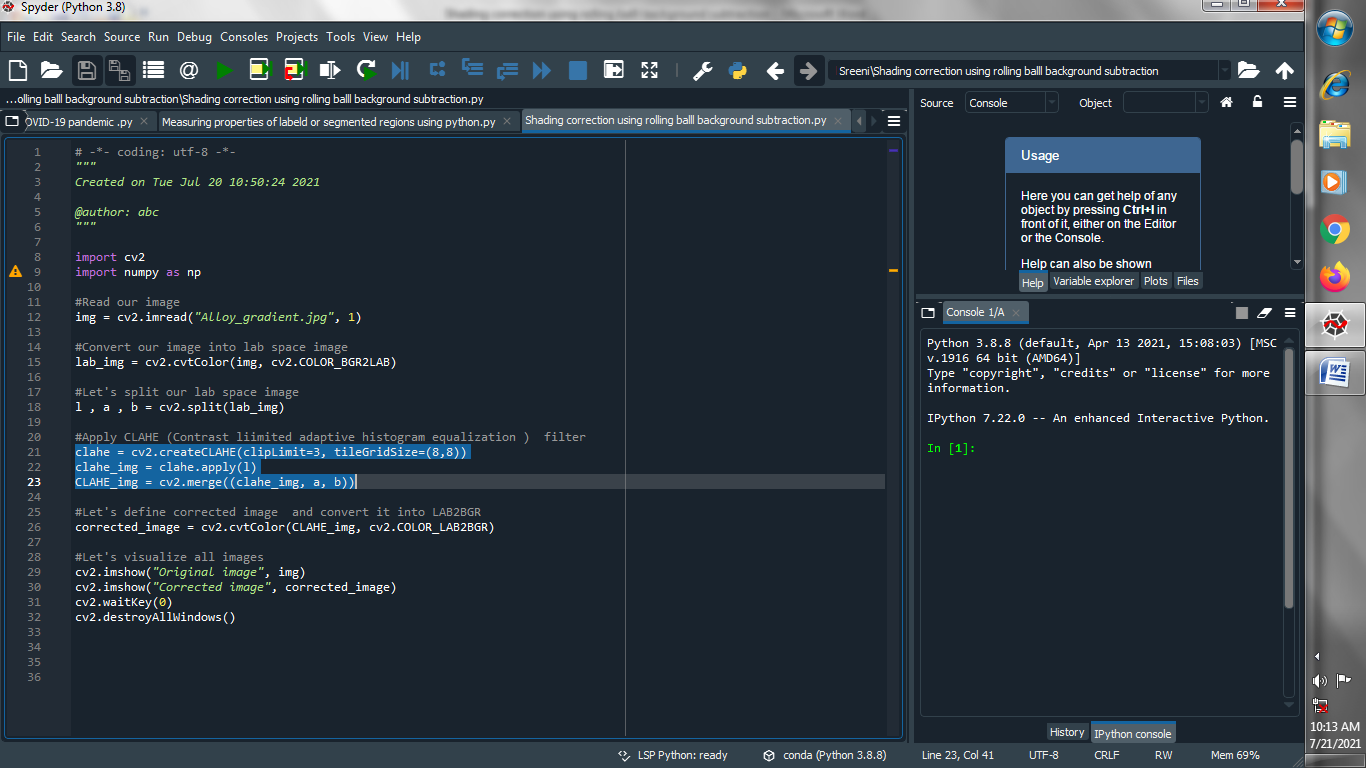
**(2) Convert our image into lab space :**

****

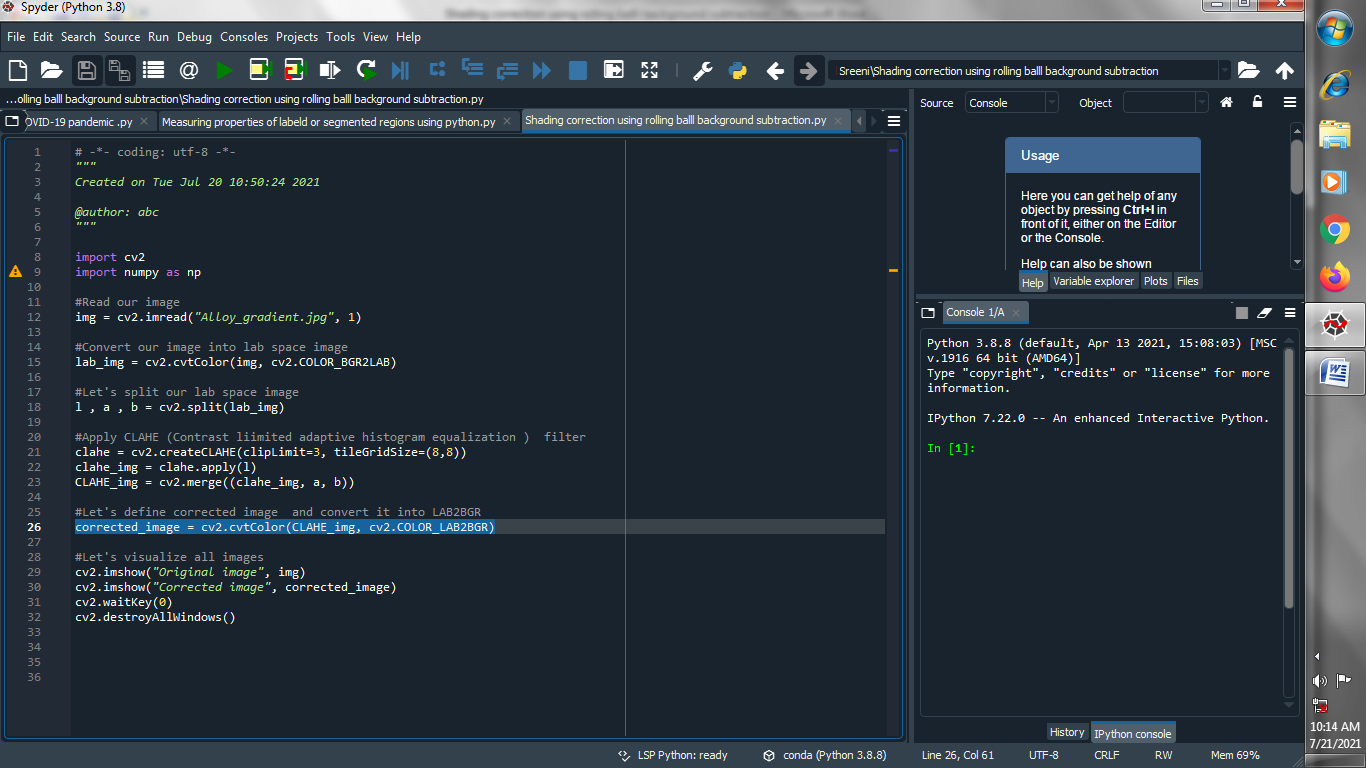
**(3) Let's split our lab space image :**

****

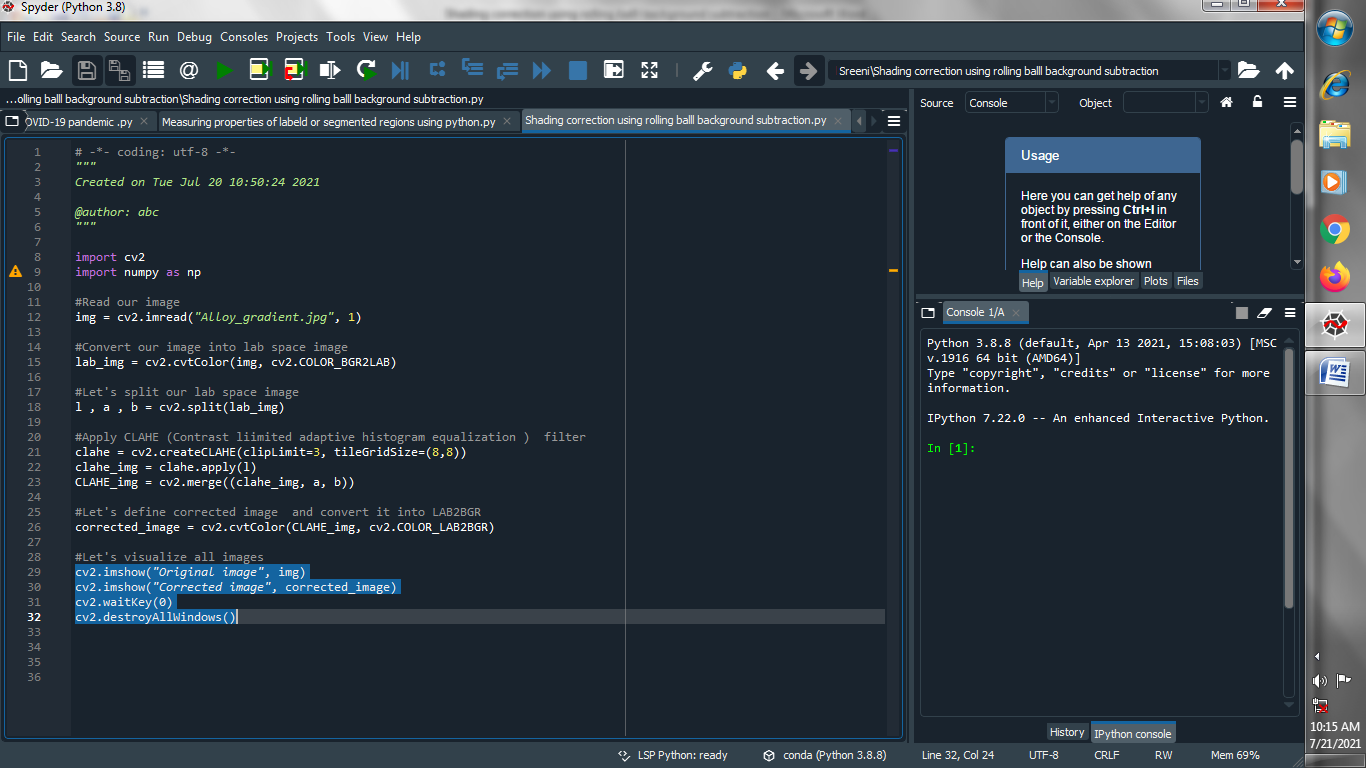
**(4) Apply CLAHE (Contrast limited adaptive histogram equalization ) filter :**

****

**(5) Let's define corrected image and convert it into LAB2BGR :**

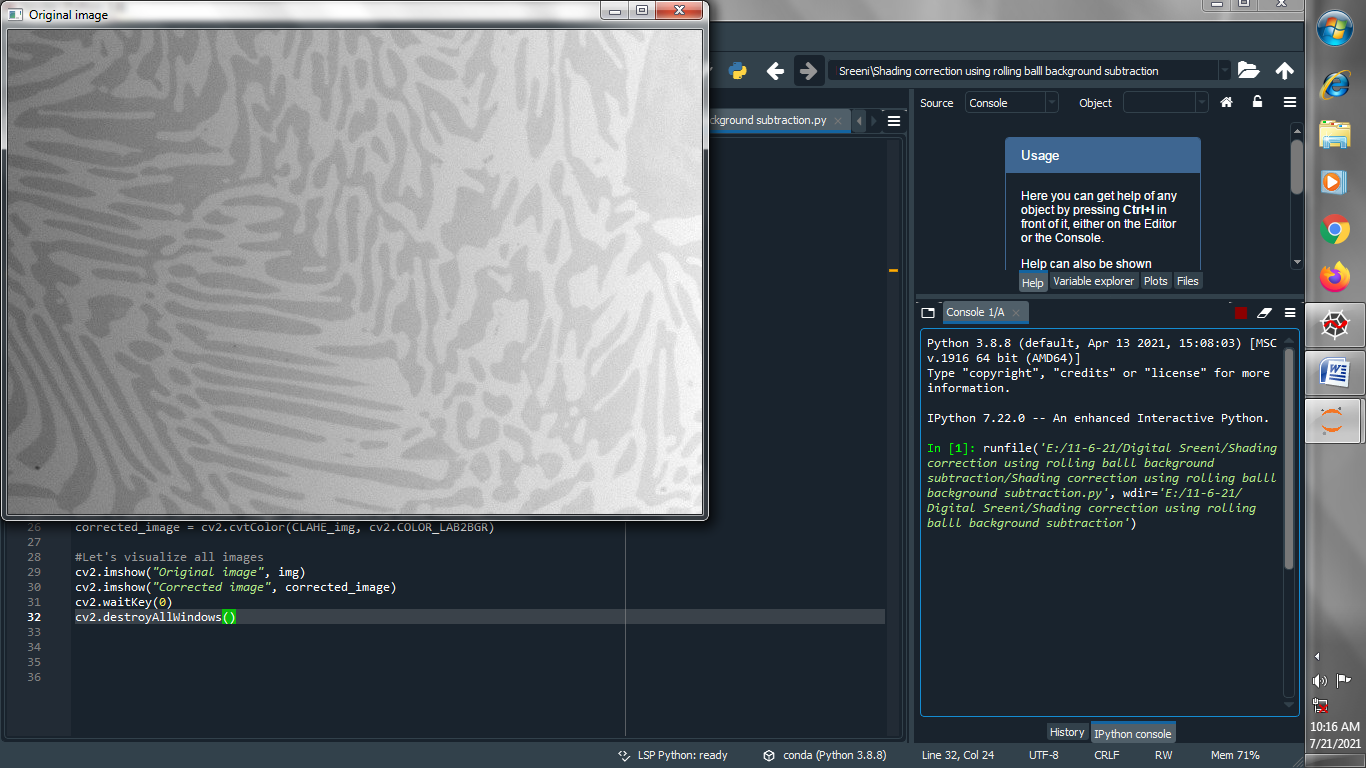
****

**(6) Let's visualize all images :**

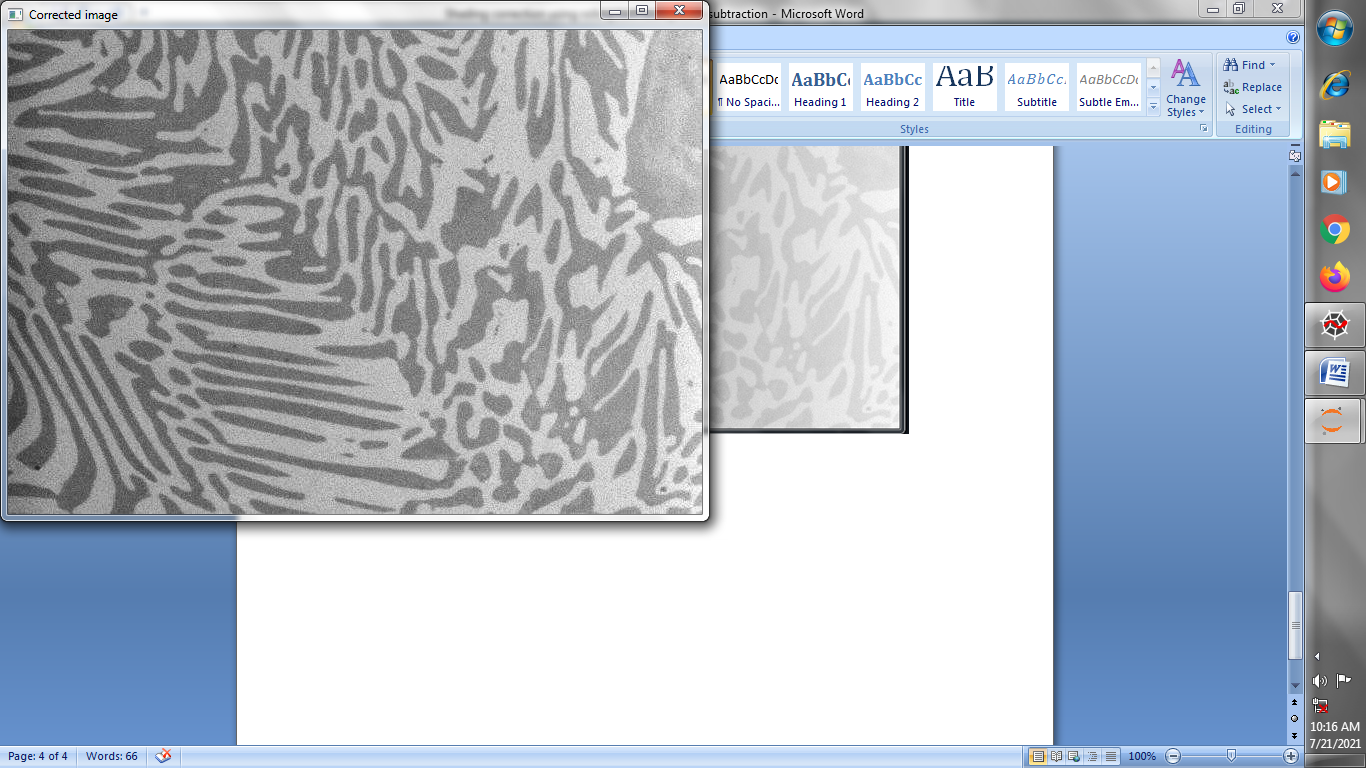
****

**Output :**

**Original image :**

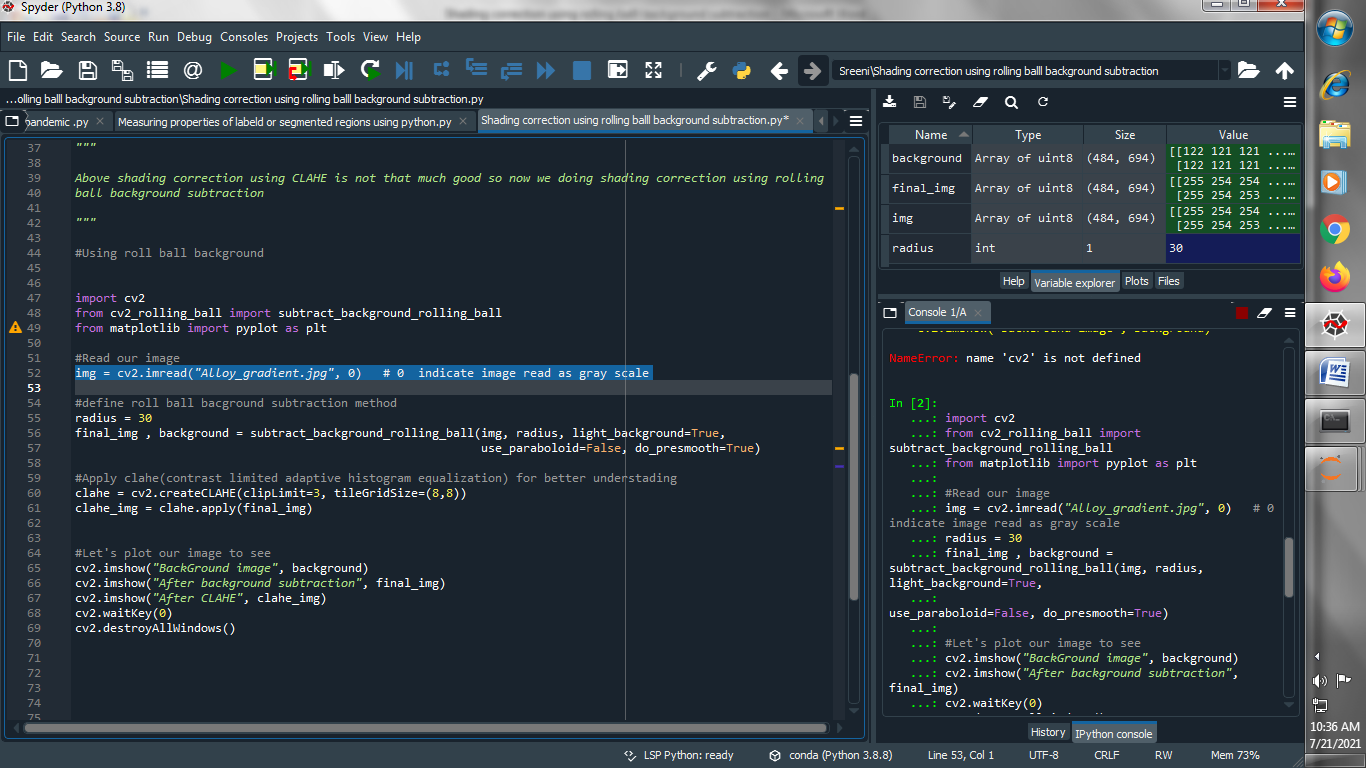
****

**Corrected image :**

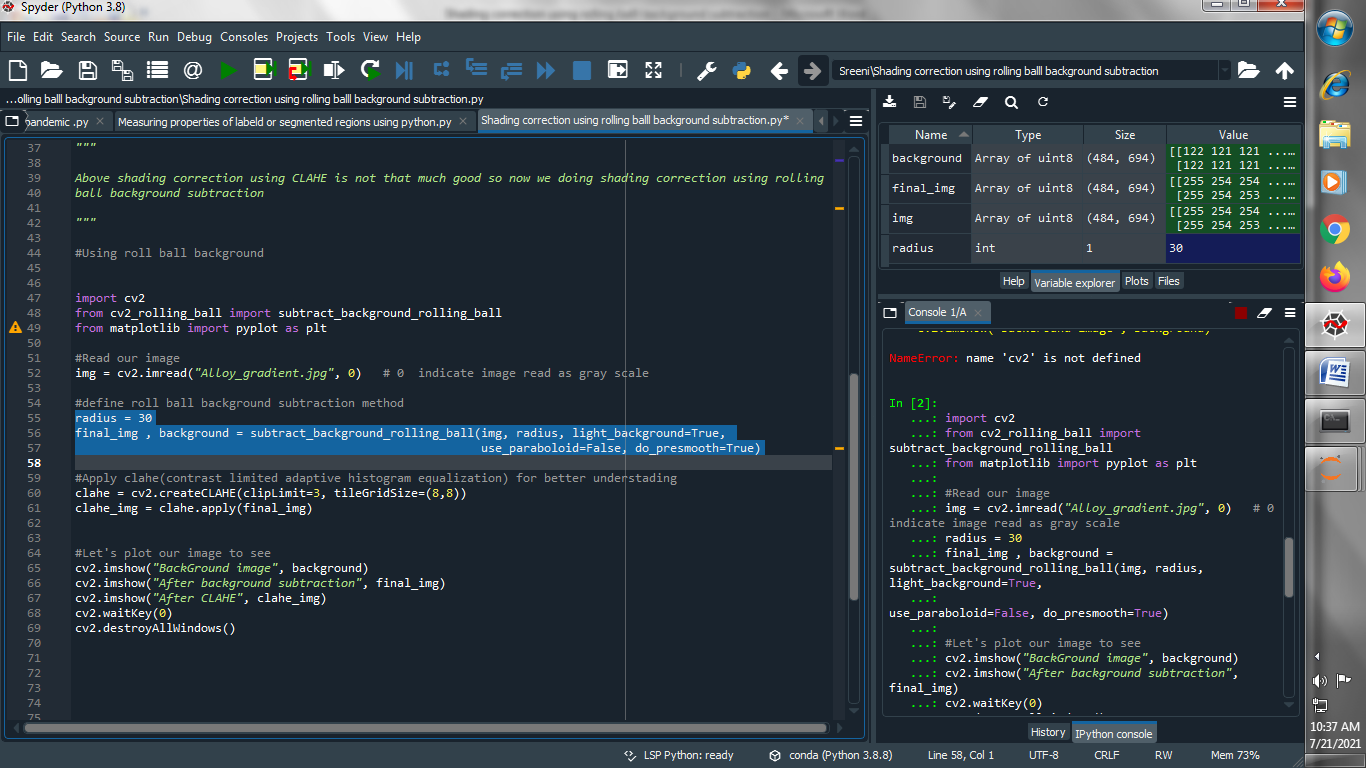
****

**→ Above shading correction using CLAHE is not that much good so now we doing shading correction using rolling ball background subtraction :**

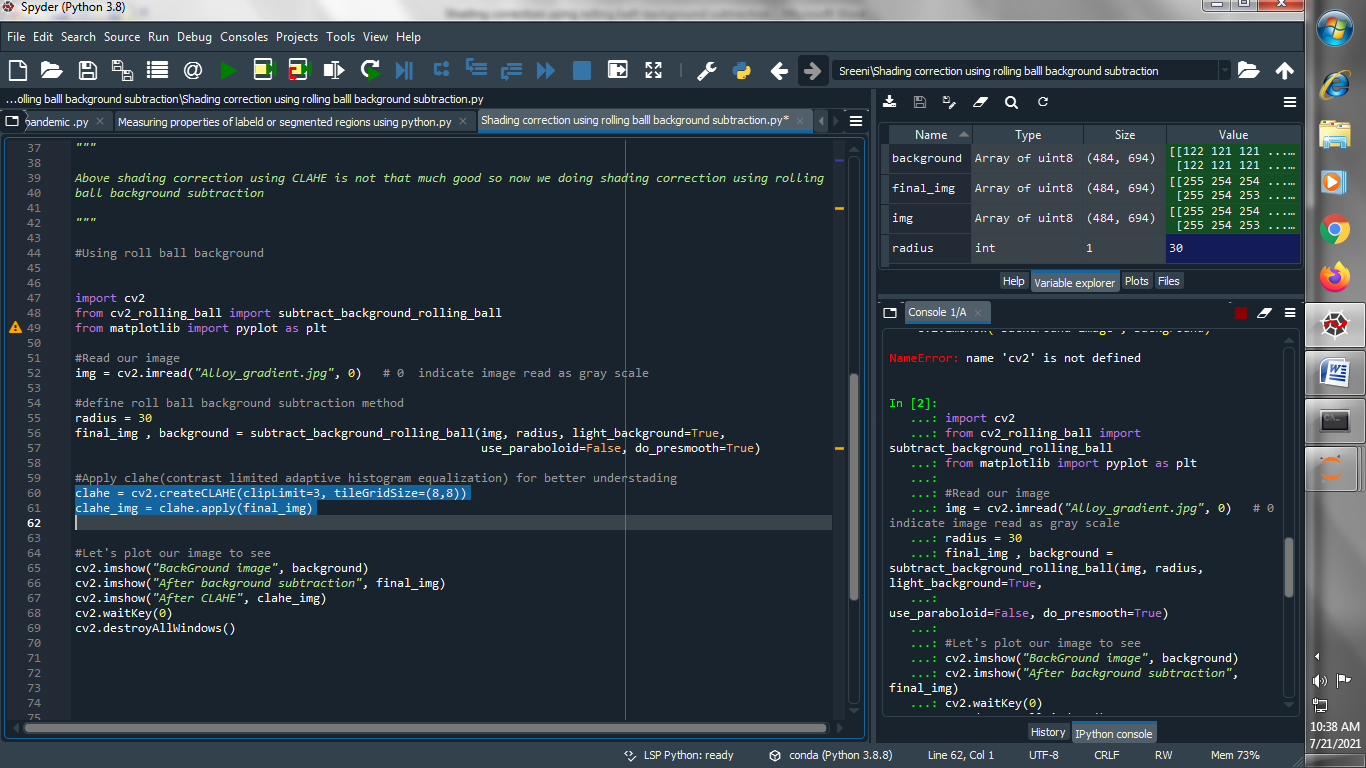
**(1) Read our image :**

****

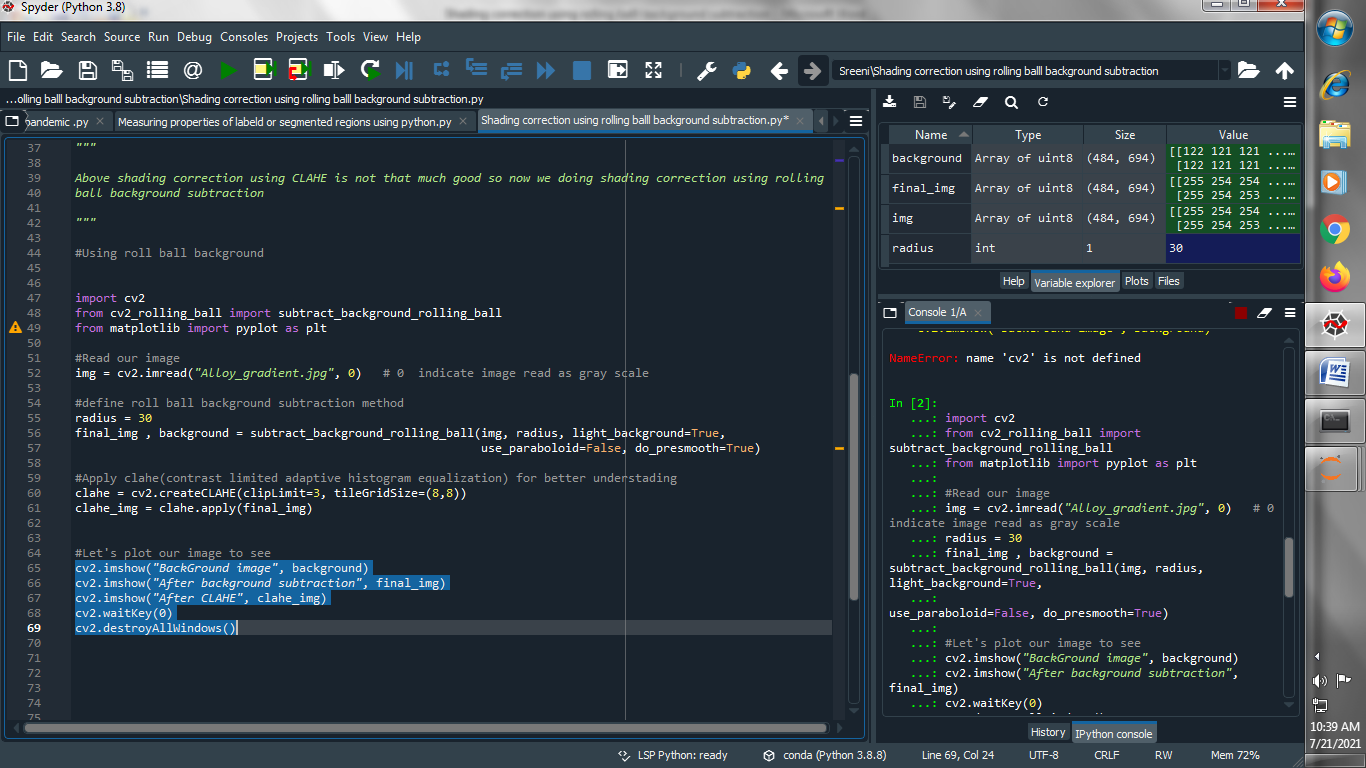
**(2) define roll ball background subtraction method :**

****

**(3) Apply clahe(contrast limited adaptive histogram equalization) for better understanding :**

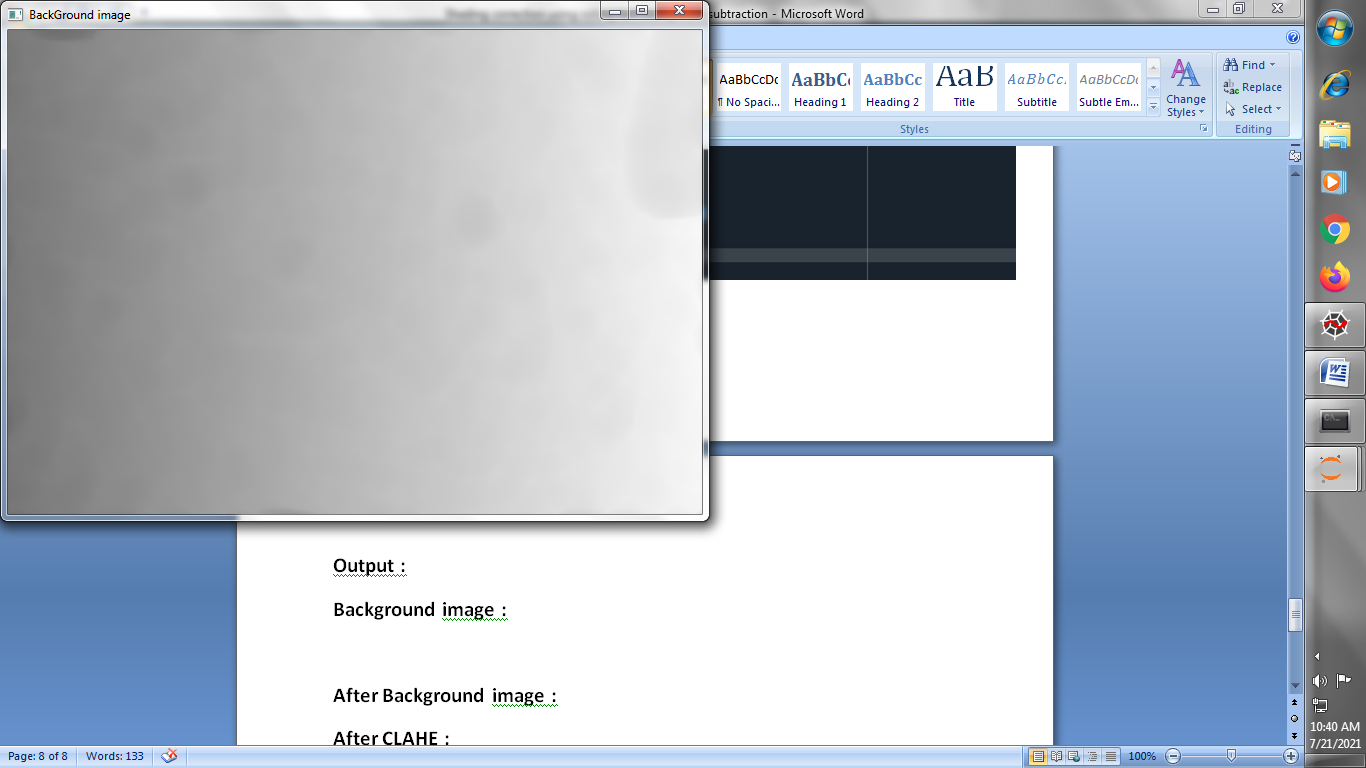
****

**(4) Let's plot our image to see :**

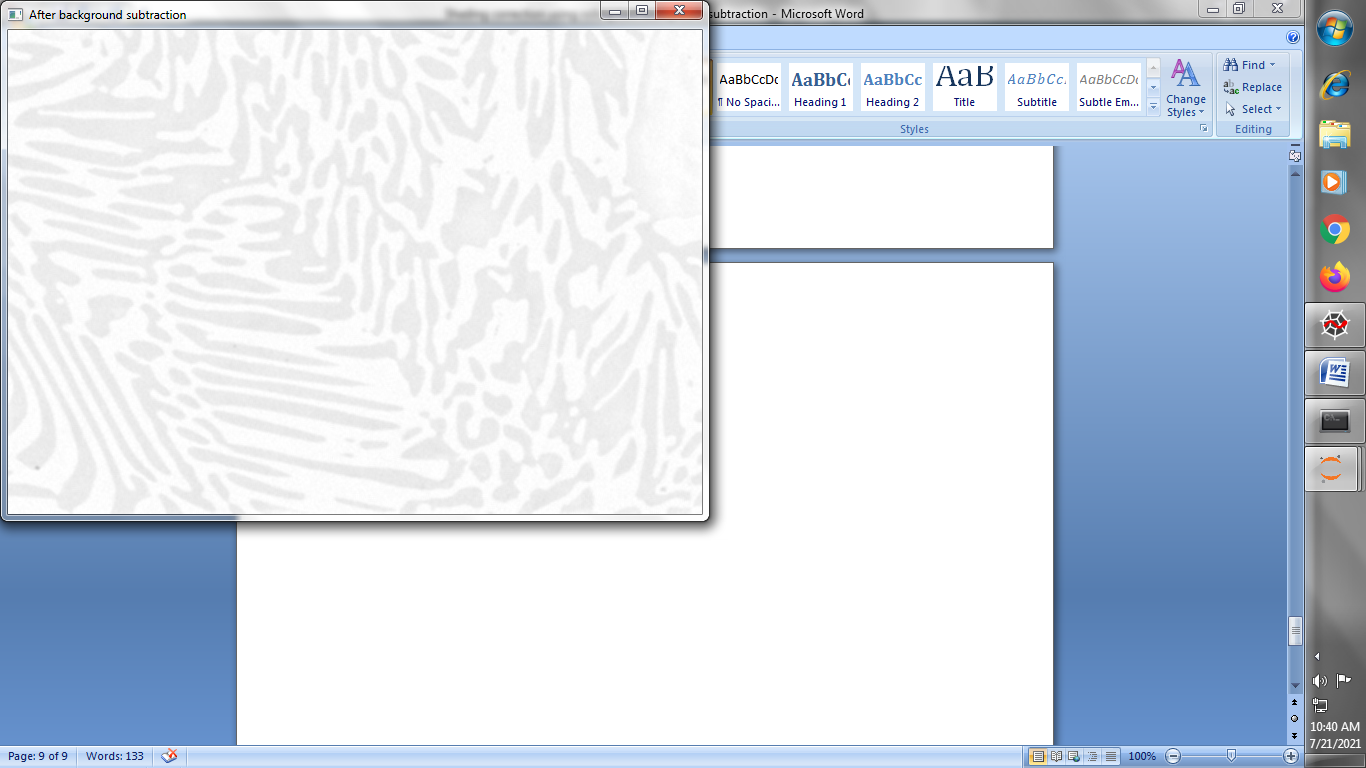
****

**Output :**

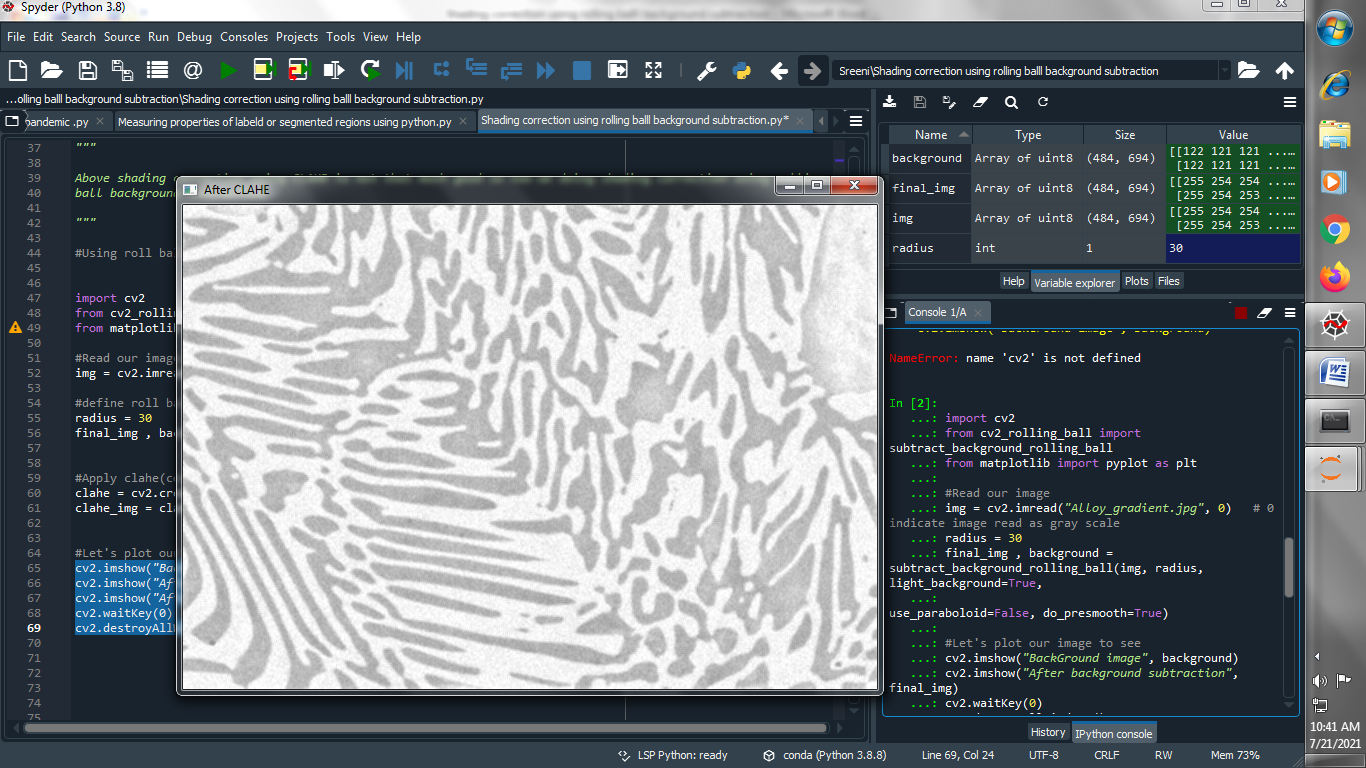
**Background image :**

****

**After Background subtractions :**

****

**After CLAHE :**

****