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**Assignment :** Conversion of SD resolution (640 x 480px) videos to HD resolution (1280 x 720px) videos

The solution approach is as follows

**Frame extraction**

**Current resolution is SD(640X480)**

**Resizing to SD(640X480) resolution**

**Resizing to HD (1280x720) resolution**

**Frame Denoising**

**Frames merger**

False

True

\* The conversion of the input video to SD is done as TENSORGO has asked for SD to HD conversion.

The steps followed to enhance the video are:

* Frames are first extracted and stored in a “media/temp/” folder.
* The resolution is checked for Standard Definition (640x480)
* If the current resolution is not SD it will be resized to SD first and then to HD.
* If the current resolution is already SD, then it will be directly resized to HD.
* Now when stretched to HD(1280X720), ultimately a noise has been added to the frames now.
* At the next step, A denoiser function has been written and used to denoise each stretched frame.
* Once all the frames are denoised they are now ready to get merged in a sequence to form a new video of High Definition.

The code basically takes an path to video and output video’s title as an input and stores the output video in “media/output/” folder.  
  
The code and the entire assignment can be found in the the following link

Github : <https://github.com/ANKITVARMA11/Video-Enhancer.git>

I encountered a problem using a proper diffusion model as the official Hugging Face website was unreachable ultimately leading to no access to any official documentation. Some state of the art models like **quick diffusion** are considered but I was limited with my resources. Hence, I used a normal denoising technique to complete the task.

Thank you so much for your consideration.

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