In one of the slide there was doubt about using "Log" as Image enhancement tool. It may be wrongly explained or misunderstood so I am giving this link which may clear any remaining doubt:
http://www.dca.fee.unicamp.br/dipcourse/html-dip/c4/s6/front-page.html

It is basically a Logarithmic function transformation from Input Gray scale values (T(r)) (in the image shown in the given link x-axis) to new output gray scale values(T'(r)) (in the image y-axis) so it is really brighten the dark part of images.

If you want to read little bit more about today's lecture then you can go through lecture 1 given at:
http://undergraduate.csse.uwa.edu.au/units/233.412/