

## Lect 3 Exercise : MPEG-1

- Q(a) purpose chroma subsampling  
in MPEG-1 video compression
- (b) flowchart P-frame encoding  
label key steps  
explain entropy encoding

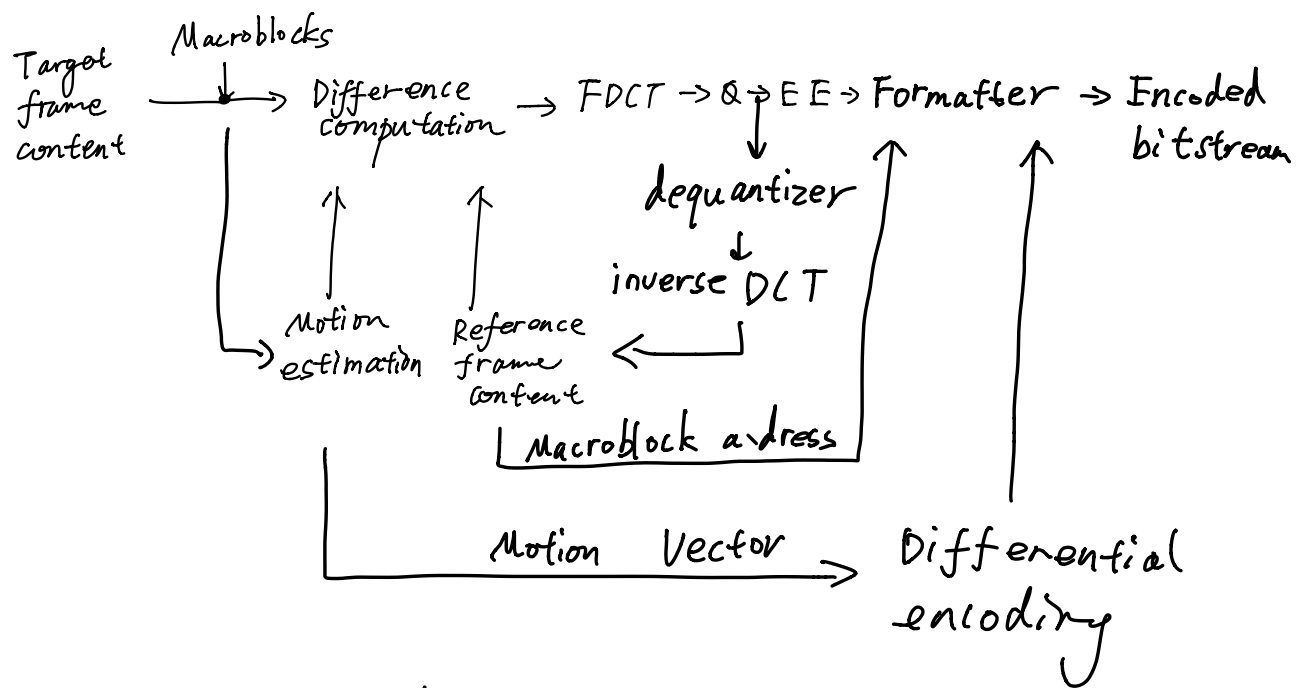
### Solution

(a) reduce the chroma subsampling  
can help compress the video  
due to human eyes is not sensitive  
to chroma change than luminance  
change

① Human visual system is less sensitive  
to chrominance (color) component than  
luminance (brightness) component

② Hence, chroma subsampling samples the  
chrominance pixels to reduce the number  
of pixels that need to be stored, thereby  
improving the compression efficiency

## c) P frame flowchart



## Entropy Encoding

compress ~~high frequency~~ content

human is not ~~sensitive~~ to high frequency content

The role of entropy encoding is use variable length coding such as more probable symbols are assigned shorter codewords, and less probable symbols are assigned longer codewords. This will ensure the average number

of bits per symbols will be smaller.  
Entropy encoding is used in coding  
the DC and AC coefficients.