


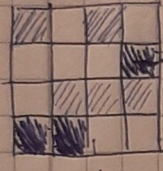
• Digitalni multimidiji 1: Kapacitet i histogram

28.4.2021.

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- Kapacitet slike \rightarrow ili težina slike (workload) \rightarrow veličina slike u memoriji \rightarrow nadovešće se na prošlo predavanje

 $\left. \begin{array}{l} 1 \text{ bit} \\ 2 \text{ bit} \\ 8 \text{ bit} \end{array} \right\}$ potrošnja bitova je opterećenje slike tj. kapacitet

\rightarrow  $\rightarrow 8 \text{ bit} = 1 \text{ B}$
 $\Rightarrow 4 \times 4 = 16 = 16 \text{ B (bajta)}$

\rightarrow npr.: $400 \times 600 [p] = 240\,000 [p] \rightarrow 1 p \Rightarrow 8 \text{ bit} = 1 \text{ B}$
 $= 240\,000 \text{ B}$
 $= 240\,000 \text{ B} : 1024$
 $= 234,4 \text{ kB}$ } 8-bit-na slika

$400 \times 600 [p] = 240\,000 [p] \rightarrow 1 p = 1 \text{ bit}$
 $= 240\,000 \text{ bit} : 8 [B]$
 $= 30\,000 \text{ B} : 1024$
 $= 29,3 \text{ kB}$ } 1-bit-na slika

$400 \times 600 [p] \Rightarrow$ trošanjama
 $= 3 \cdot (8\text{-bit-na})$
 $= 3 \cdot 234,4 \text{ kB}$
 $= 703,2 \text{ kB}$ } RGB
 $8+8+8 = 24 \text{ bit}$

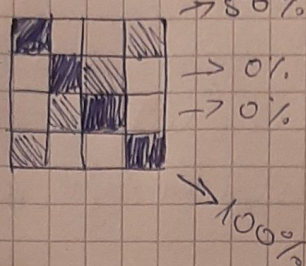
$400 \times 600 [p] \Rightarrow$ ostavljajući
 $= 4 \cdot (8\text{-bit-na})$
 $= 4 \cdot 234,4 \text{ kB}$
 $= 937,6 \text{ kB}$ } CMYK
 $8+8+8+8 = 32 \text{ bit}$

• Histogram → graf! koji prikazuje distribuciju sivoće piksela

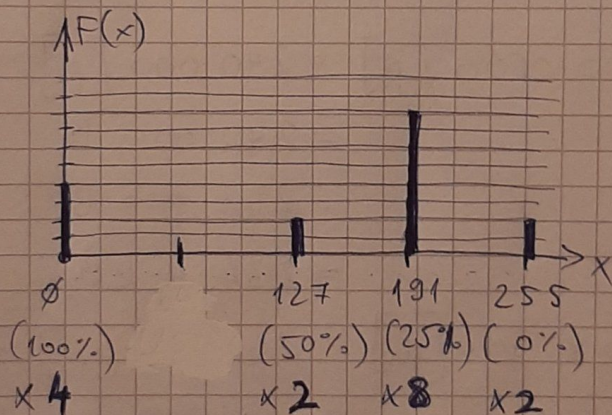
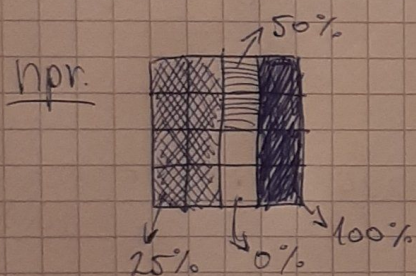
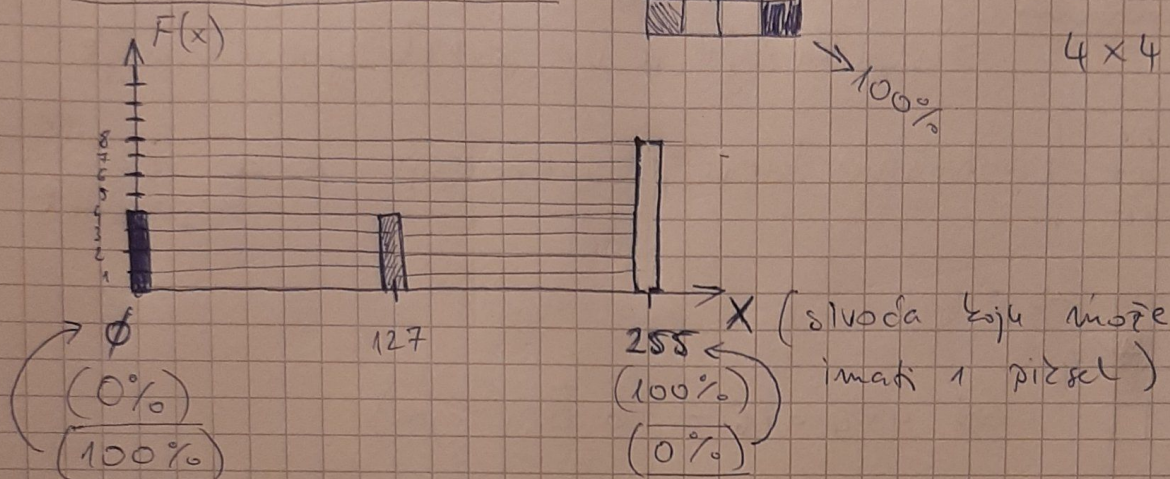
→ normalizirana funkcija distribucije sivih razina slike

⇒ FUNKCIJA DISTRIBUCIJE

SIVIH RAZINA SLIKE:



1-kanalna
8-bitna
 $4 \times 4 [p]$



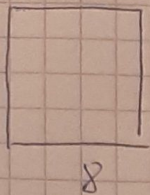
⇒
$$\sum_{x=0}^{255} f(x) = \text{broj piksela slike}$$

npr.: $4 \times 4 = 16$
 $4 + 2 + 8 + 2 = 16$ }

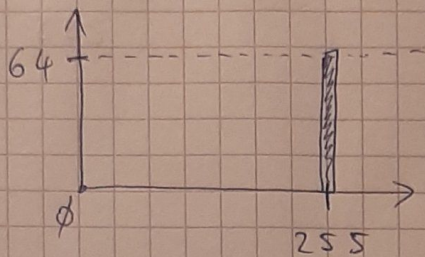
$4 \times 4 = 16$
 $4 + 4 + 8 = 16$ }

⇒ HISTOGRAM SLICE:

npr.:



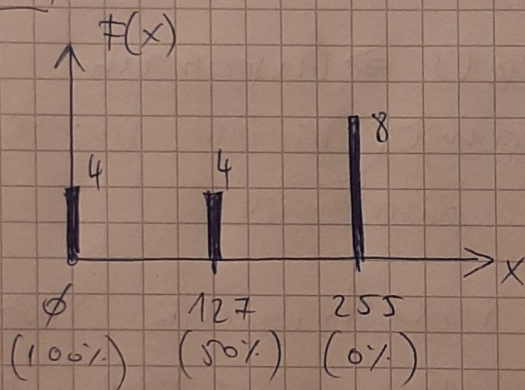
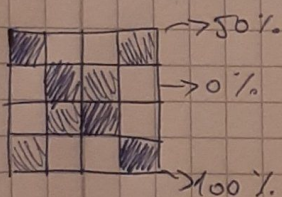
8 ⇒ 8x8 ⇒ sve je 0%?



prevelika
y os !!
varijablna y
os !!

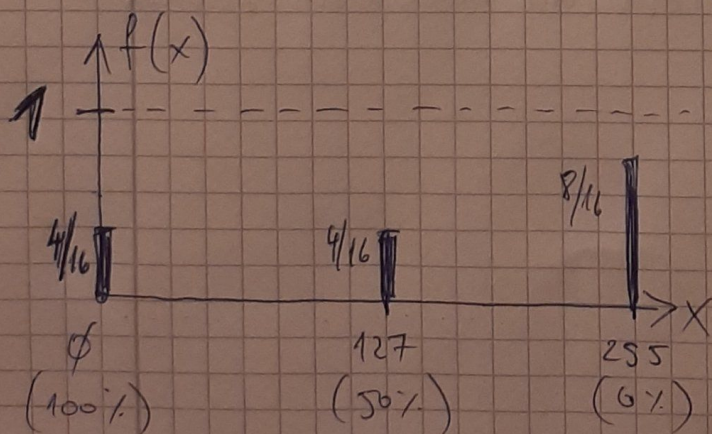
⇓
moramo
normalizirati !!

$$\Rightarrow f(x) = \frac{F(x)}{\sum_{x=0}^{255} F(x)}$$



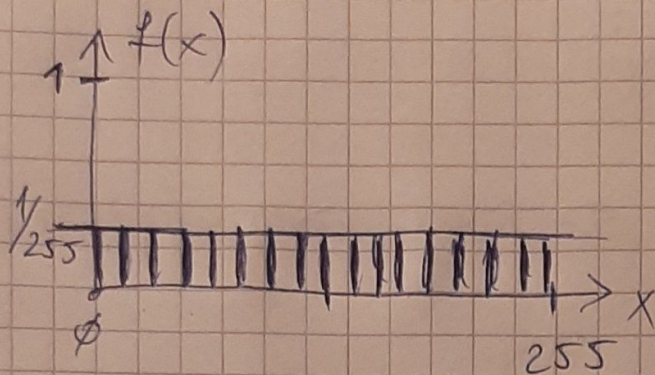
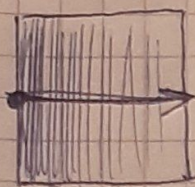
$$\Rightarrow f(x) = \frac{F(x)}{\sum F(x)}$$

$$\sum_{x=0}^{255} F(x) = 16 \Rightarrow \begin{aligned} 4 : 16 &= 0,25 \\ 4 : 16 &= 0,25 \\ 8 : 16 &= 0,5 \end{aligned} \left. \begin{aligned} & \\ & \end{aligned} \right\} \sum_{x=0}^{255} f(x) = 1$$

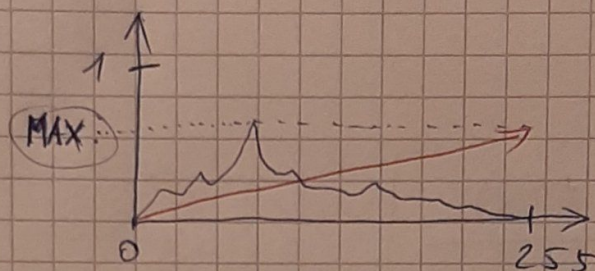
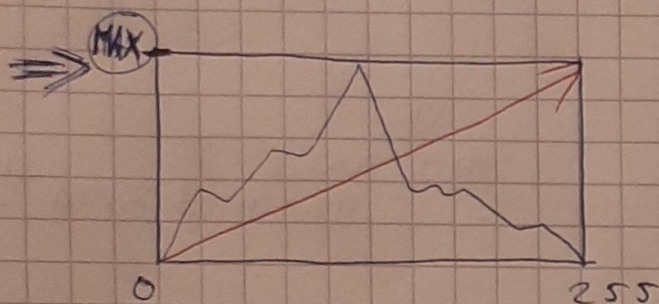


domena y o si
je ispod jedinice(1)

npv.:



- gradacija
- jednaki br. piksela svake sive razine



⇒ Control L ⇒ levels ⇒ histogram

↳ relativno gledanje razina sive distribucije

↳ ako radimo redistribuciju razina sive onda znači da smo odredene sive razine pomaknuli na druge tj. time možemo gubiti određene razine sive, ali ^{na} to možemo paziti

↳ time možemo npv. paziti na kvalitetu skeniranja