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Seminario 2 - More FFMPEG

1. Cut 10 seconds of the BBB video

```
MacBook-MacBook-Pro-de-Xavier:Lab2 xaviercelades$ ffmpeg -i bbb_video.mp4 -ss 00:04:30 -t 0
0:00:10 -c copy bbb_cut.mp4
ffmpeg version N-99865-ga125e08 Copyright (c) 2000-2020 the FFmpeg developers
  built with Apple LLVM version 10.0.1 (clang-1001.0.46.4)
```

Com podem veure, seleccionem un fragment del video de 10 segons, començant des del minut 4:30 fins al 4:40

```
MacBook-MacBook-Pro-de-Xavier:Lab2 xaviercelades$ ffmpeg -i bbb_cut.mp4
  Duration: 00:00:09.98, start: 0.016000, bitrate: 5372 kb/s
```

Mitjançant el terminal podem veure com efectivament el video té una duració de 10 segons.

2. Extract the YUV histogram from the previous BBB video you've done and create a new video with both images at the same time.

Amb l'ajuda del millor profe de tot 4t curs, i amb el comando history, per a poder fer el histograma amb el yuv

```
ffmpeg -i bbb_cut.mp4 -vf "split=2[a][b],[b]histogram,format=yuva444p[hh],[a][hh
]overlay" bbb_hist.mp4
```

3. Resize the BBB video into 4 differents video outputs (doesn't need to be at the same time):

Primerament, s'ha fet un resize al vídeo, als següents formats: **720p, 480p, 360x240, 160x120**

```
MacBook-MacBook-Pro-de-Xavier:Lab2 xaviercelades$ ffmpeg -i bbb_cut.mp4 -vf scale=1280:720
bbb_720.mp4
```

```
Input #0, mov,mp4,m4a,3gp,3g2,mj2, from 'bbb_720.mp4':
  Metadata:
    major_brand     : isom
    minor_version   : 512
    compatible_brands: isomiso2avc1mp41
    title           : Big Buck Bunny, Sunflower version
    artist          : Blender Foundation 2008, Janus Bager Kristensen 2013
    composer        : Sacha Goedegebure
    encoder         : Lavf58.64.100
    comment         : Creative Commons Attribution 3.0 - http://bbb3d.renderfarming.net
    genre           : Animation
  Duration: 00:00:10.03, start: 0.000000, bitrate: 2447 kb/s
    Stream #0:0(und): Video: h264 (High) (avc1 / 0x31637661), yuv420p, 1280x720 [SAR 1:1 DA
R 16:9], 2040 kb/s, 60 fps, 60 tbr, 15360 tbn, 120 tbc (default)
    Metadata:
      handler_name    : GPAC ISO Video Handler
```

```
MacBook-MacBook-Pro-de-Xavier:Lab2 xaviercelades$ ffmpeg -i bbb_cut.mp4 -vf scale=720:480 b
bb_480.mp4
ffmpeg version N-99865-ga125e08 Copyright (c) 2000-2020 the FFmpeg developers
  built with Apple LLVM version 10.0.1 (clang-1001.0.46.4)
```

```
Input #0, mov,mp4,m4a,3gp,3g2,mj2, from 'bbb_480.mp4':
  Metadata:
    major_brand     : isom
    minor_version   : 512
    compatible_brands: isomiso2avc1mp41
    title           : Big Buck Bunny, Sunflower version
    artist          : Blender Foundation 2008, Janus Bager Kristensen 2013
    composer        : Sacha Goedegebure
    encoder         : Lavf58.64.100
    comment         : Creative Commons Attribution 3.0 - http://bbb3d.renderfarming.net
    genre           : Animation
  Duration: 00:00:10.03, start: 0.000000, bitrate: 1341 kb/s
    Stream #0:0(und): Video: h264 (High) (avc1 / 0x31637661), yuv420p, 720x480 [SAR 32:27 D
AR 16:9], 934 kb/s, 60 fps, 60 tbr, 15360 tbn, 120 tbc (default)
    Metadata:
      handler_name    : GPAC ISO Video Handler
    Stream #0:1(und): Audio: aac (LC) (mp4a / 0x6134706D), 48000 Hz, 5.1, fltp, 394 kb/s (d
efault)
```

```
MacBook-MacBook-Pro-de-Xavier:Lab2 xaviercelades$ ffmpeg -i bbb_cut.mp4 -vf scale=360:240 b
bb_360x240.mp4
```

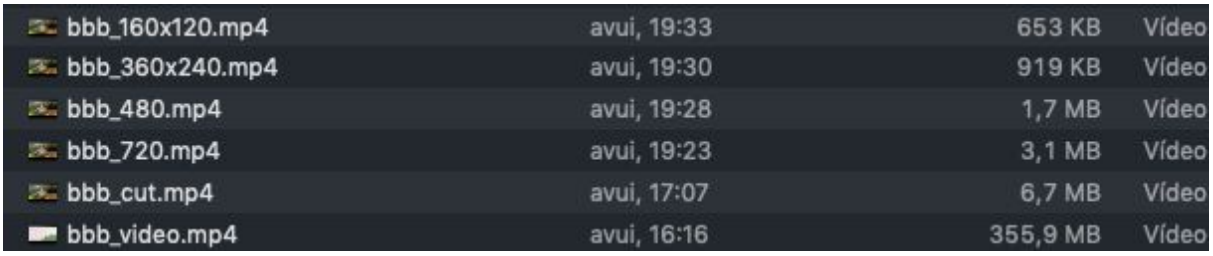
```
Input #0, mov,mp4,m4a,3gp,3g2,mj2, from 'bbb_360x240.mp4':
  Metadata:
    major_brand     : isom
    minor_version   : 512
    compatible_brands: isomiso2avc1mp41
    title           : Big Buck Bunny, Sunflower version
    artist          : Blender Foundation 2008, Janus Bager Kristensen 2013
    composer        : Sacha Goedegebure
    encoder         : Lavf58.64.100
    comment         : Creative Commons Attribution 3.0 - http://bbb3d.renderfarming.net
    genre           : Animation
  Duration: 00:00:10.03, start: 0.000000, bitrate: 733 kb/s
    Stream #0:0(und): Video: h264 (High) (avc1 / 0x31637661), yuv420p, 360x240 [SAR 32:27 D
AR 16:9], 326 kb/s, 60 fps, 60 tbr, 15360 tbn, 120 tbc (default)
    Metadata:
      handler_name    : GPAC ISO Video Handler
    Stream #0:1(und): Audio: aac (LC) (mp4a / 0x6134706D), 48000 Hz, 5.1, fltp, 394 kb/s (d
efault)
```

```
MacBook-MacBook-Pro-de-Xavier:Lab2 xaviercelades$ ffmpeg -i bbb_cut.mp4 -vf scale=160:120 b
bb_160x120.mp4
```

```
Input #0, mov,mp4,m4a,3gp,3g2,mj2, from 'bbb_160x120.mp4':
  Metadata:
    major_brand     : isom
    minor_version   : 512
    compatible_brands: isomiso2avc1mp41
    title           : Big Buck Bunny, Sunflower version
    artist          : Blender Foundation 2008, Janus Bager Kristensen 2013
    composer        : Sacha Goedegebure
    encoder         : Lavf58.64.100
    comment         : Creative Commons Attribution 3.0 - http://bbb3d.renderfarming.net
    genre           : Animation
  Duration: 00:00:10.03, start: 0.000000, bitrate: 520 kb/s
    Stream #0:0(und): Video: h264 (High) (avc1 / 0x31637661), yuv420p, 160x120 [SAR 4:3 DAR
 16:9], 114 kb/s, 60 fps, 60 tbr, 15360 tbn, 120 tbc (default)
    Metadata:
      handler_name    : GPAC ISO Video Handler
    Stream #0:1(und): Audio: aac (LC) (mp4a / 0x6134706D), 48000 Hz, 5.1, fltp, 394 kb/s (d
efault)
```

Mitjançant el comando **ffmpeg -i <nom_del_video>.mp4**, podem observar com el size ha canviat però el yuv s'ha mantingut igual.

Aquí podem veure com s'han creat els vídeos en la carpeta del Lab2.



4. Change the audio into mono output and in a different audio codec

Primerament, fem un comando per a convertir el audio a mono, utilitzant el canal esquerre

```
MacBook-MacBook-Pro-de-Xavier:Lab2 xaviercelades$ ffmpeg -i bbb_cut.mp4 -map_channel 0.1.0
-max_muxing_queue_size 9999 -c:v copy bbb_cut_mono.mp4
ffmpeg version N-99865-ga125e08 Copyright (c) 2000-2020 the FFmpeg developers
```

Una altre forma de fer aquest comando, la podem veure a continuació

```
MacBook-MacBook-Pro-de-Xavier:Lab2 xaviercelades$ ffmpeg -i bbb_cut.mp4 -ac 1 bb
b_cut_1mono.mp4
```

Seguidament, fem un comando per a codificar aquest audio mono en el codec aac

```
MacBook-MacBook-Pro-de-Xavier:Lab2 xaviercelades$ ffmpeg -i bbb_cut_mono.mp4 -acodec aac -v
codec copy -max_muxing_queue_size 9999 bbb_cut_mono_aac.mp4
ffmpeg version N-99865-ga125e08 Copyright (c) 2000-2020 the FFmpeg developers
```

5. Integrate the exercises you've done inside a Python script, or do a Python script able to launch any of the other exercises. Feel free to create whatever you want!