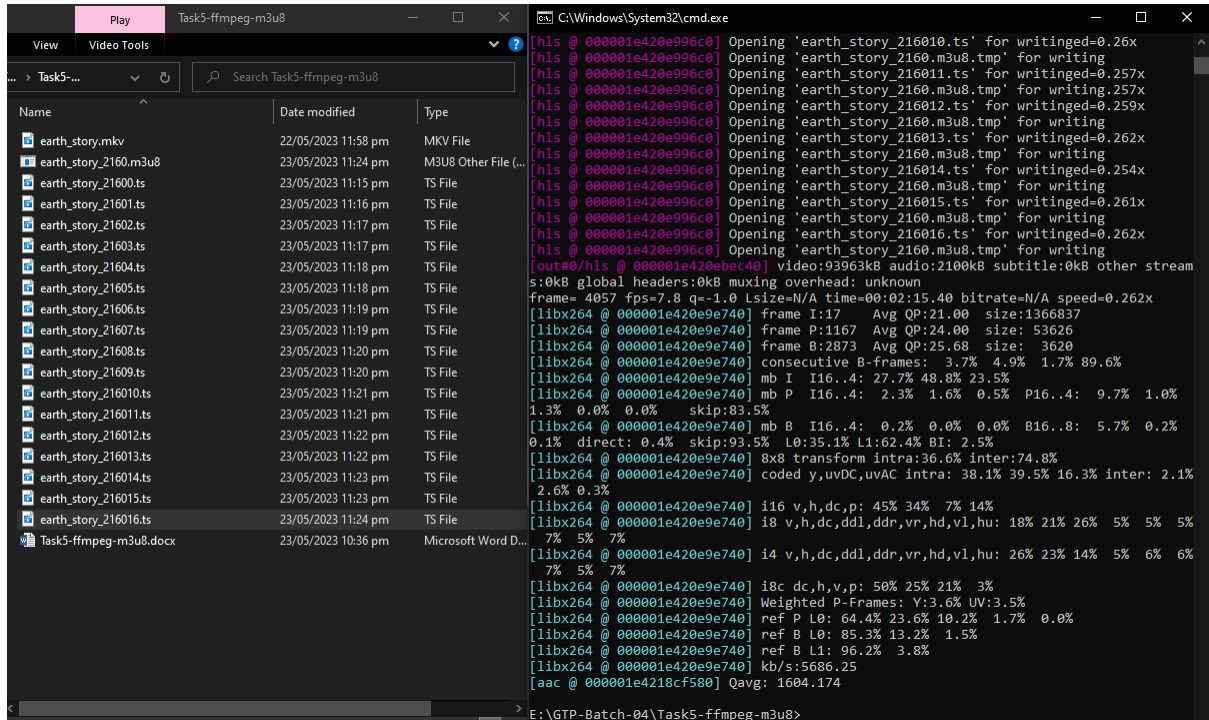


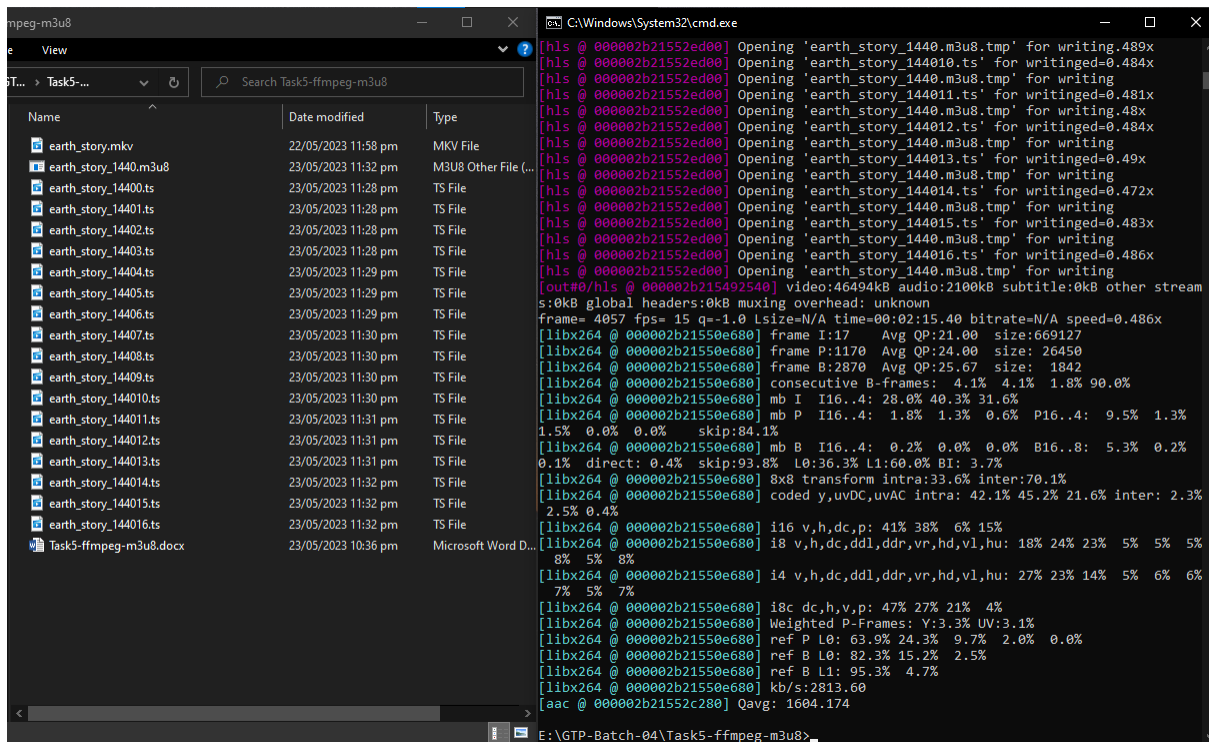
Task5

FFMPEG

ffmpeg -i earth_story.mkv -c:v libx264 -vf scale=3840:2160 -rc constqp -qp 24 earth_story_2160.m3u8



ffmpeg -i earth_story.mkv -c:v libx264 -vf scale=2560:1440 -rc constqp -qp 24 earth_story_1440.m3u8



Task5

ffmpeg -i earth_story.mkv -c:v libx264 -vf scale=1920:1080 -rc constqp -qp 24 earth_story_1080.m3u8

The screenshot shows a Windows file explorer window on the left and a command prompt window on the right. The file explorer displays a list of files generated by the ffmpeg command, including earth_story.mkv, earth_story_1080.m3u8, and various TS files. The command prompt shows the output of the ffmpeg command, including the opening of the input file, the opening of the output files, and the encoding statistics.

```
hls @ 00000201635bed00 Opening 'earth_story_1080.m3u8.tmp' for writing
hls @ 00000201635bed00 Opening 'earth_story_108010.ts' for writing=0.703x
hls @ 00000201635bed00 Opening 'earth_story_1080.m3u8.tmp' for writing.703x
hls @ 00000201635bed00 Opening 'earth_story_108011.ts' for writing=0.698x
hls @ 00000201635bed00 Opening 'earth_story_1080.m3u8.tmp' for writing.698x
hls @ 00000201635bed00 Opening 'earth_story_108012.ts' for writing=0.705x
hls @ 00000201635bed00 Opening 'earth_story_1080.m3u8.tmp' for writing
hls @ 00000201635bed00 Opening 'earth_story_108013.ts' for writing=0.714x
hls @ 00000201635bed00 Opening 'earth_story_1080.m3u8.tmp' for writing
hls @ 00000201635bed00 Opening 'earth_story_108014.ts' for writing=0.694x
hls @ 00000201635bed00 Opening 'earth_story_1080.m3u8.tmp' for writing.693x
hls @ 00000201635bed00 Opening 'earth_story_108015.ts' for writing=0.713x
hls @ 00000201635bed00 Opening 'earth_story_1080.m3u8.tmp' for writing
hls @ 00000201635bed00 Opening 'earth_story_108016.ts' for writing=0.716x
hls @ 00000201635bed00 Opening 'earth_story_1080.m3u8.tmp' for writing
[out#0/hls @ 0000020163522540] video:28032kB audio:2100kB subtitle:0kB other stream
s:0kB global headers:0kB muxing overhead: unknown
frame= 4057 fps= 21 q=-1.0 lsize=N/A time=00:02:15.40 bitrate=N/A speed=0.717x
[libx264 @ 000002016359e680] frame I:17 Avg QP:21.00 size:394420
[libx264 @ 000002016359e680] frame P:1193 Avg QP:24.00 size:15680
[libx264 @ 000002016359e680] frame B:2847 Avg QP:25.67 size: 1157
[libx264 @ 000002016359e680] consecutive B-Frames: 4.8% 4.2% 2.4% 88.6%
[libx264 @ 000002016359e680] mb I I16..4: 26.9% 36.9% 36.2%
[libx264 @ 000002016359e680] mb P I16..4: 1.5% 1.2% 0.7% P16..4: 9.6% 1.5%
1.5% 0.0% 0.0% skip:84.0%
[libx264 @ 000002016359e680] mb B I16..4: 0.2% 0.0% 0.0% B16..8: 5.1% 0.2%
0.1% direct: 0.4% skip:94.0% l0:36.3% l1:59.1% BI: 4.6%
[libx264 @ 000002016359e680] 8x8 transform intra:32.2% inter:66.0%
[libx264 @ 000002016359e680] coded y,uvDC,uvAC intra: 45.2% 49.2% 25.0% inter: 2.5%
2.6% 0.4%
[libx264 @ 000002016359e680] i16 v,h,dc,p: 39% 40% 6% 15%
[libx264 @ 000002016359e680] i8 v,h,dc,ddl,ddr,vr,hd,vl,hu: 19% 25% 23% 4% 5% 5%
8% 5% 8%
[libx264 @ 000002016359e680] i4 v,h,dc,ddl,ddr,vr,hd,vl,hu: 28% 23% 14% 5% 6% 6%
7% 5% 7%
[libx264 @ 000002016359e680] i8c dc,h,v,p: 45% 29% 22% 4%
[libx264 @ 000002016359e680] Weighted P-Frames: Y:3.9% UV:3.6%
[libx264 @ 000002016359e680] ref P l0: 62.8% 24.2% 10.5% 2.4% 0.0%
[libx264 @ 000002016359e680] ref B l0: 81.5% 15.4% 3.1%
[libx264 @ 000002016359e680] ref B l1: 95.2% 4.8%
[libx264 @ 000002016359e680] kb/s:1696.38
[aac @ 00000201635bc280] Qavg: 1604.174
```

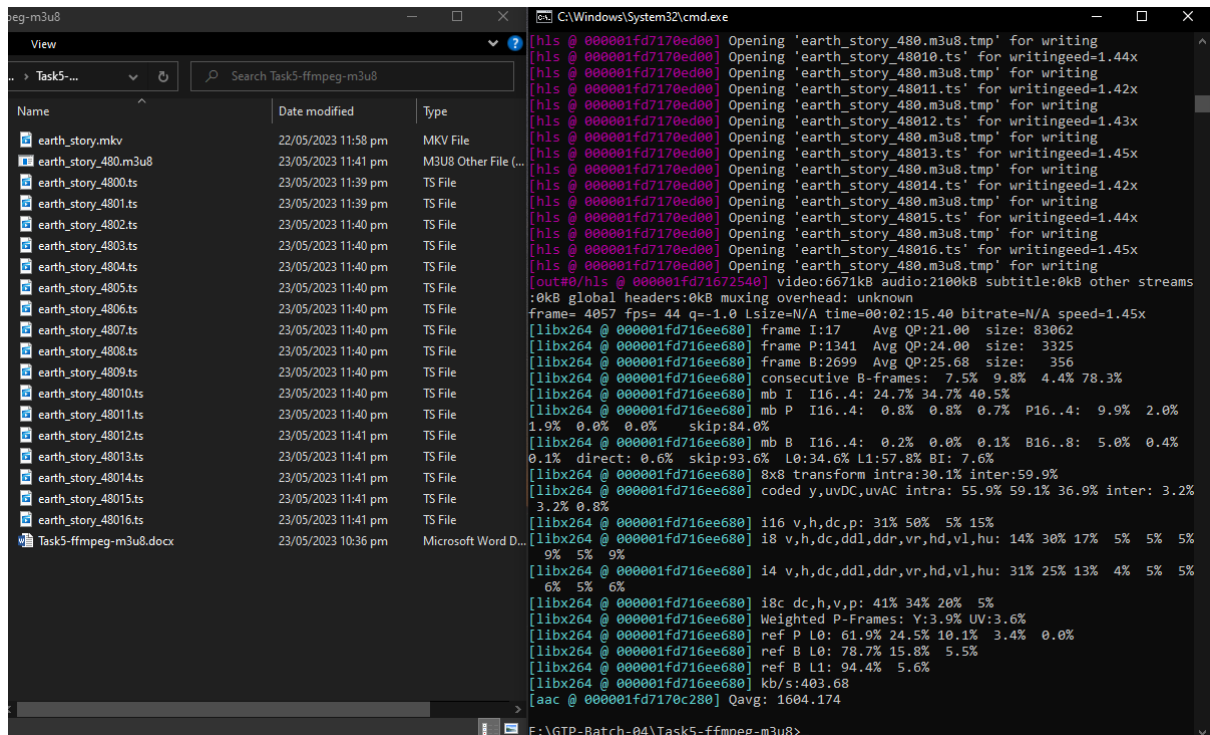
ffmpeg -i earth_story.mkv -c:v libx264 -vf scale=1280:720 -rc constqp -qp 24 earth_story_720.m3u8

The screenshot shows a Windows file explorer window on the left and a command prompt window on the right. The file explorer displays a list of files generated by the ffmpeg command, including earth_story.mkv, earth_story_720.m3u8, and various TS files. The command prompt shows the output of the ffmpeg command, including the opening of the input file, the opening of the output files, and the encoding statistics.

```
hls @ 00000236c863ed00 Opening 'earth_story_720.m3u8.tmp' for writing
hls @ 00000236c863ed00 Opening 'earth_story_72010.ts' for writing=1.11x
hls @ 00000236c863ed00 Opening 'earth_story_720.m3u8.tmp' for writing
hls @ 00000236c863ed00 Opening 'earth_story_72011.ts' for writing=1.11x
hls @ 00000236c863ed00 Opening 'earth_story_720.m3u8.tmp' for writing
hls @ 00000236c863ed00 Opening 'earth_story_72012.ts' for writing=1.11x
hls @ 00000236c863ed00 Opening 'earth_story_720.m3u8.tmp' for writing
hls @ 00000236c863ed00 Opening 'earth_story_72013.ts' for writing=1.13x
hls @ 00000236c863ed00 Opening 'earth_story_720.m3u8.tmp' for writing
hls @ 00000236c863ed00 Opening 'earth_story_72014.ts' for writing= 1.1x
hls @ 00000236c863ed00 Opening 'earth_story_720.m3u8.tmp' for writing=1.12x
hls @ 00000236c863ed00 Opening 'earth_story_720.m3u8.tmp' for writing
hls @ 00000236c863ed00 Opening 'earth_story_72015.ts' for writing=1.12x
hls @ 00000236c863ed00 Opening 'earth_story_720.m3u8.tmp' for writing
hls @ 00000236c863ed00 Opening 'earth_story_72016.ts' for writing=1.12x
hls @ 00000236c863ed00 Opening 'earth_story_720.m3u8.tmp' for writing
[out#0/hls @ 00000236c85a2540] video:13598kB audio:2100kB subtitle:0kB other stream
s:0kB global headers:0kB muxing overhead: unknown
frame= 4057 fps= 34 q=-1.0 lsize=N/A time=00:02:15.40 bitrate=N/A speed=1.13x
[libx264 @ 00000236c861e680] frame I:17 Avg QP:21.00 size:180376
[libx264 @ 00000236c861e680] frame P:1243 Avg QP:24.00 size: 7274
[libx264 @ 00000236c861e680] frame B:2797 Avg QP:25.68 size: 649
[libx264 @ 00000236c861e680] consecutive B-Frames: 5.4% 6.8% 3.5% 84.3%
[libx264 @ 00000236c861e680] mb I I16..4: 26.2% 35.1% 38.7%
[libx264 @ 00000236c861e680] mb P I16..4: 1.1% 1.0% 0.7% P16..4: 9.9% 1.7%
1.7% 0.0% 0.0% skip:83.9%
[libx264 @ 00000236c861e680] mb B I16..4: 0.2% 0.0% 0.1% B16..8: 5.1% 0.3%
0.1% direct: 0.5% skip:93.7% l0:36.4% l1:57.6% BI: 6.0%
[libx264 @ 00000236c861e680] 8x8 transform intra:31.5% inter:63.9%
[libx264 @ 00000236c861e680] coded y,uvDC,uvAC intra: 50.4% 53.5% 30.7% inter: 2.8%
2.9% 0.6%
[libx264 @ 00000236c861e680] i16 v,h,dc,p: 33% 46% 5% 16%
[libx264 @ 00000236c861e680] i8 v,h,dc,ddl,ddr,vr,hd,vl,hu: 17% 27% 20% 4% 5% 5%
0% 5% 9%
[libx264 @ 00000236c861e680] i4 v,h,dc,ddl,ddr,vr,hd,vl,hu: 30% 23% 13% 5% 6% 6%
7% 5% 6%
[libx264 @ 00000236c861e680] i8c dc,h,v,p: 42% 32% 21% 5%
[libx264 @ 00000236c861e680] Weighted P-Frames: Y:3.8% UV:3.5%
[libx264 @ 00000236c861e680] ref P l0: 62.2% 24.6% 10.2% 3.0% 0.0%
[libx264 @ 00000236c861e680] ref B l0: 78.2% 17.3% 4.5%
[libx264 @ 00000236c861e680] ref B l1: 94.3% 5.7%
[libx264 @ 00000236c861e680] kb/s:822.84
[aac @ 00000236c863c280] Qavg: 1604.174
```

Task5

`ffmpeg -i earth_story.mkv -c:v libx264 -vf scale=854:480 -rc constqp -qp 24 earth_story_480.m3u8`



Command Expalanation:

`ffmpeg -i input -c:v libx264 -vf scale=854:480 -rc constqp -qp 24 output`

-i Input: Specifies input file.

-c:v libx264: Select the mostly used video codec libx264.

-vf scale: Scaling or resizing the video

-rc constqp -qp: The rate control method and quantization parameters for video encoding.

output: Specifies the output filename