Exercise 2 - UNIX

Summer 2015-2016

Shenkar college for engineering and design

Dr. Nezer Zaidenberg

Bonus date: September 8th Due date: September 15th

Threads, processes, all summer long.

Instructions

1. Please learn Stephan Dranger guide for ffmpeg before trying to do this ex. (www.dranger.com/ffmpeg)

2. Please review the modernized dranger source (If you have some older versions of the guide it will not do. Use what is currently on the site)

3. You may submit this exercise in PAIRS (but not in triplets or larger group.
   You are limited to TWO (and only TWO) students per group regardless of complexion, hair color, height, weight, race, gender, ethnic origin, political and sexual preferences.
   Please send the compiling project in 1 ZIP or gzip file containing only. The zip   file name should be your your ID number i.e. 0123456789.zip or 9876543210.tgz or (incase of pair) 1234567890_0987654321.tgz

   I make this request so that I can find your work if I do search on my mailbox and avoid a stream of appeals later when the exercises are graded!

4. To tar and gzip under linux run tar –czvf 1234567890.tgz ex2 where

    i)   Tar stands for tape archive is the command you run
    ii)   -c is for create (-x is for extract)
    iii)   -z is for zip (-j provides better compression)
    iv)   -v is for verbose.
    v)   -f 123456789.tgz specify the output fil
    vi)   ex2 is the directory that you compress
    vii)   tar –zxvf 1234567890.tgz extracts

5. Please make sure your project compiles with make all

6. Make sure make clean deletes your binary and any cruft.

7. Please add any additional instructions and comments to README.TXT file

8. All deadlines dates refer to 23:59:59 Israel standard time on the date.

9. Submission by the bonus date will result in 10% grade BONUS

10. Submission by the due date is allowed.

11. Submission after the due date will be penalized by 25% for late submission   (automatic) + 10% per day after the second day. (ie. Late submission by 1 minute   will be penalized by 25%. Late submission by 4 days will result by 55% penalty)

12. You will receive an "acknowledged mail" for your exercise automatic. If for some   reason you did not receive mail please send another email

13. You need to implement this exercise on your own. You are

allowed idea exchange   ideas with your fellow students but not to exchange code. You are allowed to use web resources though. If you use any code you found on the Internet SPECIFY that in the README.TXT file. If two students submit identical work a disciplinary action will be taken. (Even if both copied the exact same source from the net)

13. It is your responsibility to ensure your work compiles and run on the first submission. 2nd submission (and 3rd and 4th etc.) will be penalized by 10% penalty per "re-submission." Exercises that do not compile will receive 0%.

14. Please follow KNF, 1TBS or BSD code style. Exceptionally good code will receive 10% bonus. Other coding standards (Allman, GNU etc.) are allowed as long as they are consistent but will not result in bonus. Kludge will receive 10% penalty. Students using Hungarian notation ~~will be shot. Twice.~~ Will not be eligible for code quality bonus.

15. The code should be self-documented. You may comment critical parts of the code. Excessive commenting does not consist of good code and will be penalized.

Learning objectives
1. Grok factory design pattern

2. Grok threads

3. Grok some ffmpeg, SDL

Exercio 2 channel video player.

Obligatory player

1. Start with the dranger player. Take as argument screen size to open the windows to.

2. Catch W command to move to B&W. This is done using two memset commands!

3. Catch RGB to move to R, G and B colouring. Create another active object to handle it.

4. The player should now take 2 video files as arguments and support concurrent playback of 2 videos on 2*2 matrix.

5. One video should be displayed in the back and one in the top left corner. ON TOP OF THE OTHER.

6. Capture 1,2 keys as commands to switch audio channels between videos

7. Capture O for one and M for multiple to switch to single video or multiple video with matrix. If you switch to single video – the video that currently playback sounds should be displayed.

8. All commands should be used using SDL events

Bonuses (10% per bonus)

1+2. Support F command Fast video (*2 FPS) and S for slow video (*0.5 fps) (10% each)

3. When clicking X the player should take PPM snapshot of the highest possible quality of the current image.