LAB 3 – EDIT DECISION LISTS

CS 143

You may work individually or in groups of two

BACKGROUND:

- When I first learned Object Oriented Programming it was while I was working for a company that made video and film editing equipment. One of my first ideas for practicing my new programming skills was to create a program to manage time code and Edit Decision Lists (EDLs).
- Video in the United States is shot in 30 frames per second and a frame of video is denoted by its time code, usually written as 23:59:59:29 [hours:minutes:seconds:frames] The first example is the largest possible time code.
- A TV show is shot over many scenes, takes, and possibly with different cameras. The editor must decide where to cut from and where to cut to. His or her editing decisions are compiled onto what is called an Edit Decision List or EDL.
- An EDL might look something like the following

#	Scene	Take	Camera	Start	End	Description
001	1	4	1	01:24:25:13	01:26:20:10	Two shot of Ross and Rachel
002	1	3	3	01:28:29:25	01:32:31:25	Close up Ross
003	1	5	2	01:35:29:26	01:38:47:14	Chandler at foosball table
004	1	8	4	01:40:25:12	01:41:15:10	Joey with Ducks
005	2	9	1	03:15:20:05	03:16:10:08	Monica with coffee
006	2	20	4	03:18:11:09	03:18:12:20	Phoebe playing guitar

…

- The technical editors would then assemble the show by going back to the original video tapes and assemble the show based on the creative editor's EDL

INSTRUCTIONS:

- You are to design a TimeCode class and an EDL editing program that uses your TimeCode class.
- Your TimeCode class should be a well encapsulated class with different integer fields that hold: Hours, Minutes, Seconds and Frames
- Class Invariants include: Hours cannot be more than 23, Minutes cannot be more than 59, Seconds cannot be more than 59, and frames cannot be more than 23. No field should have a negative number.
- Your class should include **at least** the following methods:
    - A constructor: TimeCode(int hours, int minutes, int seconds, int frames)
    - void addTo(int hours, int minutes, int seconds, int frames) which increases the values of the fields by the entered amount.
    - TimeCode addition(TimeCode otherTimeCode) which will add another TimeCode object to 'this' TimeCode object and return a TimeCode object with the two TimeCodes added together.
    - TimeCode subtractFrom(TimeCode otherTimeCode) which will subtract the 'otherTimeCode' from 'this' TimeCode object and return a TimeCode object with the value of the subtraction.
    - Accessors for each field
    - A toString method that returns a string such as [23:15:47:29] for example (if the timecode in question had a value of 23 hours, 15 minutes 47 seconds and 29 frames.

- **Note:** your program, may or may not use all of these methods.

- Your program will be menu driven and start with a menu that asks the user if they would like to add to an existing EDL (to be read from an existing file), create an EDL, or output an EDL.
    - If the user selects to add to an existing EDL the program should prompt the user to enter in an existing EDL file which should be in a format similar to the example above. And then start prompting the user for additional entries.
    - If they select create an EDL it should start prompting the user to enter in:
        - Scene
        - Take
        - Camera
        - Start TimeCode

        - End TimeCode
        - Description

      And repeat until the user indicates they are done.
    - If the user selects output, the program should prompt the user for a file name and then create the file.
    - You may create other classes and objects if you feel that it is necessary. For example you might want to create a EDL_Entry class.
- Your code will be graded on good Top-Down-Programming, comments and style, how well your program performs, how well it is 'bullet proofed', how well your classes are Encapsulate and, the usability and appearance of your menus and other aspects of user experience.

An Example of what the user might experience, while using your program.

```
Main Menu
 0 - Exit
 1 – Start a new EDL
 2 – Add to an existing EDL
 3 – Output the current working EDL
> 1
Current Event 001  (Enter -1 as Scene to end and return to main menu)
Enter Scene    : 1
Enter Take     : 4
Enter Camera   : 1
Start Time Code: 01:24:25:13
End Time Code  : 01:26:20:25
Description    : Two Shot of Ross and Rachel
Current Event 002  (Enter -1 as Scene to end and return to main menu)
Enter Scene    : 1
Enter Take     : 3
Enter Camera   : 3
Start Time Code: 01:28:29:25
End Time Code  : 01:32:31:25
Description    : Close up of Ross
Current Event 003  (Enter -1 as Scene to end and return to main menu)
Enter Scene    : -1
Main Menu
 0 - Exit
 1 – Start a new EDL
 3   – Add to an existing EDL
 3 – Output the current working EDL
> 3
Please enter a file name: FriendsEpisode0304.txt
FriendsEpisdoe0304.txt has been saved!

 Main Menu
 0 - Exit
 1 – Start a new EDL
 2 – Add to an existing EDL
 3 – Output the current working EDL
> 0
Goodbye!
```