

## Lab Assignment 06

### CMPE 252 C Programming, Spring 2022

In this lab, you are given a binary file *films.bin* which contains records of films. Each film record will be stored using `filmData` struct.

```
typedef struct
{
    unsigned int id; // film id
    char name[20]; // film name
    char format[5]; // format of film = 3d or 2d
    char showDate[20]; //show date of film
    char showTime[20]; // show time
    int price; // ticket price
    int capacity; // remaining capacity of the saloon
} filmData;
```

*films.bin* file consists of 100 records. 95 of them are blank records. The other 5 records (not blank) are placed in specific positions of the binary file based on their ids. For example, if id of a film is 5, its record is the fifth record in the file. The size of each record is equal to the size of `filmData` struct. The records are sorted according to their id number.

Complete the skeleton code *lab6\_skeleton.c* by implementing the following 4 functions.

#### Part 1 (25 points)

```
int updateCapacity(FILE *filePtr, unsigned int id, int newCapacity)
```

Takes `FILE` pointer to the binary file. Updates capacity of the film whose id is provided in `id` parameter. If there is a film record with the given id, its capacity field is updated and the function returns 1; otherwise, it returns 0.

For sample run, see `test_case_2.txt` in Moodle.

#### Part 2 (25 points)

```
int addFilm(FILE *filePtr, unsigned int id, char name[20], char
format[5], char showDate[20], char showTime[20], int price, int
capacity)
```

Takes `FILE` pointer to the binary file. Adds a film record for which all the information is provided via the parameters of the function. If there is already a film record with the given id, the function returns 0; otherwise, it adds a new film record and returns 1.

For sample run, see `test_case_4.txt` in Moodle.

**Part 3 (25 points)**

```
int deleteFilm(FILE *filePtr, unsigned int id)
```

Takes `FILE` pointer to the binary file. Deletes the record of the film whose id is provided in the parameter `id` by setting its fields to `{0, "", "", "", "", 0, 0}`. If there is a film record with the given id, it is deleted and the function returns 1; otherwise, it returns 0.

For sample run, see `test_case_6.txt` in Moodle.

**Part 4 (25 points)**

```
int showLowPriced2DFilms(FILE *filePtr, int maxPrice)
```

Takes `FILE` pointer to the binary file. Prints 2d film records whose price field is less than or equal to the parameter `maxPrice` and returns the number of printed film records.

For sample run, see `test_case_8.txt` in Moodle.

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Note that parts are independent from each other so solution of each part does not require solution of other parts.

Notice that, in the skeleton code, we have provided implementation of the following functions which are supposed to remain as they are:

```
int main()
```

Opens the binary file *films.bin* for read and update (`r+b`). Shows all records. Asks for choice of the operation to be done, calls the corresponding function, and either shows all records or prints a message based on the value returned from the function call.

```
void showRecords(FILE *filePtr)
```

Takes `FILE` pointer to the binary file and prints all film records in it.