

CS 221 C and System Programming

Assignment 9

Due date: December 1, 2015

Submit your zip file to Canvas before 11:59 p.m. on the due date.

This assignment is an extension of assignment 8. You are allowed to reuse the solutions to assignment 8 to implement the solutions for this assignment.

1 What is the n-ranked gross sales film in the given film category? (30 marks)

Implement a shell script named `Q1.sh` that takes two arguments: a rank and the file name of a film category. It prints the name of the film that is of the given rank in the given film category. For example:

```
> sh Q1.sh 1 alltime.txt
> Gone with the Wind
```

Run your program on the following test cases:

- `sh Q1.sh 1 alltime.txt`
- `sh Q1.sh 5 R.txt`
- `sh Q1.sh 10 G.txt`
- `sh Q1.sh 15 PG.txt`
- `sh Q1.sh 20 PG-13.txt`

2 What is the average gross sales of the films made by the given studio during a certain era for the given film category?(40 marks)

Implement a shell script named `Q2.sh` that takes two optional command line arguments (`-y year` `-s studio`) and one mandatory argument `-f filename`. If no optional command line argument is provided, the script outputs the average gross sales of the given film category. If one or both of the optional command line arguments are provided, the average gross is calculated for the given studio and/or within the given era. Run your program on the following test cases:

```
> sh Q2.sh -f R.txt
Outputs the average gross sales of all films in R category.

> sh Q2.sh -s MGM -f PG.txt
```

Outputs the average gross sales of films made by MGM in PG category.

```
> sh Q2.sh -y 1980 -f G.txt
```

Outputs the average gross sales of films made during 1980s in G category.

```
> sh Q2.sh -s WB -y 1960 -f PG-13.txt
```

Outputs the average gross sales of films made by WB during 1960s in PG-13 category.

```
> sh Q2.sh
```

Outputs an error message reporting no input file name is provided.

3 What are the average gross sales of the top-n ranked films in each of the four film categories? (30 marks)

Implement a shell script named `Q3.sh` that uses a loop to output the average gross sales of the top-n ranked (in terms of gross sales) films in each of the four film categories (R, PG-13, PG, G). The rank `n` is given as a command line argument. For example:

```
> sh Q3.sh 5
```

Average gross of the top 5 ranked films in G category is: 335.846

Average gross of the top 5 ranked films in R category is: 283.781

Average gross of the top 5 ranked films in PG category is: 429.21

Average gross of the top 5 ranked films in PG-13 category is: 555.686

Run your program on the following test cases:

- `sh Q3.sh 1`
- `sh Q3.sh 5`
- `sh Q3.sh 10`
- `sh Q3.sh 15`
- `sh Q3.sh 20`

Submission Information

Run your script `Q1.sh`, `Q2.sh` and `Q3.sh` to generate `typescript` file. Zip `Q1.sh`, `Q2.sh`, `Q3.sh` and `typescript` to `ass9.zip`. Submit `ass9.zip` to Canvas.