15-112, Spring 2015

Quiz 3

Submission

You must submit one ZIP file on Autolab. This ZIP file must be named *userid*-quiz3.zip and must include all of the Python files that you have written for this assignment. Please write your name and userid as a comment at the beginning of each Python file.

Recommendations

- **Make sure to test your program**.
- Make sure that your program is executable. If you are unable to complete portions of the quiz, comment out the part of the code that does not work properly, and explain what you did, what worked, and what did not. It is your responsibility to explain as carefully as you can why you think you were unable to get the code working, what you think is wrong, and how you might go about fixing it. The quality of such an explanation will be important to us in deciding whether to give you partial credit.
- You can reuse any piece of code developed in class and assignments.

Goal

The *Villagio Mall Cinema* wants to show additional information about their movies to customers. They are asking for you help to have a small program that calculates the movie length based on its beginning and end times. To write such a program, we suggest to do it in 3 steps:

- exercise 1: write a function that converts a time (given as hh::mm AM) into minutes.
- exercise 2: write a function that calculates the length of a movie based on its beginning and ending time.
- exercise 3: write a function that will show the movie name and length.

1 Convert time in minutes [20 points]

Write a function `toMinutes(hour, minute, am)` that takes a time given as `hour` and `minute` (both as `number`), a truth value `am` (as a `boolean`) and returns the number of minutes since midnight.

- `hour` is the number of hours.
- `minute` is the number of minutes.
- `am` is `True` the time is AM. `False` if it is PM.

For instance:

- `toMinutes(0,05,True)` should return `5`
- `toMinutes(10,48,True)` should return `648`
- `toMinutes(12,59,False)` should return `779`
- `toMinutes(4,12,False)` should return `972`

2 Calculating the movie length [15 points]

Write a function `length(hour1, minute1, am1, hour2, minute2, am2)` that takes the beginning time (`hour1`, `minute1`, `am1`) and the ending time (`hour2`, `minute2`, `am2`) of a movie and returns its length in minutes (as a `number`). If the beginning time is after the ending time, the function should return `-1`.

- `hour1`, `minute1`, `am1` is the beginning time of the movie.
- `hour2`, `minute2`, `am2` is the ending time of the movie.

For instance:

- `length(0,05,True,2,12,True)` should return `127`
- `length(10,48,True,1,51,False)` should return `183`
- `length(12,48,False,2,47,False)` should return `119`
- `length(11,48,False,1,51,True)` should return `-1`

3 Showing the movie length [15 points]

Write a function `show(name, hour1, minute1, am1, hour2, minute2, am2)` that takes the movie name (as a `string`), the beginning time and the ending time of the movie and returns the text showing the movie name and length formatted as `"blahblah (17 minutes)"`. If the beginning time is after the ending time, the function should return a text such as `"blahblah (time error)"`.

- `name` is the movie name.
- `hour1`, `minute1`, `am1` is the beginning time of the movie.
- `hour2`, `minute2`, `am2` is the ending time of the movie.

For instance:

- `show("Man On A Ledge",0,05,True,2,12,True)` should return `"Man On A Ledge (127 minutes)"`
- `show("Batman",10,48,True,1,51,False)` should return `"Batman (183 minutes)"`
- `show("The Grey",12,48,False,2,47,False)` should return `"The Grey (119 minutes)"`
- `show("Contraband",11,48,False,1,51,True)` should return `"Contraband (time error)"`