EECS 10: Homework 2

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Due Monday, October 15 at 12:00pm

1   Part 1: Mathematical Pattern [10 points]

Write a C program to compute the values of the following mathematical pattern:

```
0 * 9 + 1 = 1
1 * 9 + 2 = 11
12 * 9 + 3 = 111
123 * 9 + 4 = 1111
...
123456789 * 9 + 10 = 1111111111
```

For example, the first computation would look like:

```
printf("0 * 9 + 1 = \%d", 0 * 9 + 1);
```

Note that there will be 10 values computed. So for your implementation, use 10 printf() function calls.
The files that you should submit for this part of the assignment are:
pattern.c, and **pattern.script**.

2   Part 2: Adding Timestamps [30 Points]

Write a C program that computes the sum of two timestamps. Your program should prompt for the hours, minutes, and seconds for 2 timestamp values, then display the results. In addition, display each timestamp after it has been entered. When you run your program, it should look like this:

```
Please enter two timestamp values h1, m1, s1, h2, m2, and s2.
h1: 11
m1: 23
s1: 33
Timestamp 1 is 11 hours, 23 minutes, and 33 seconds.
h1: 43
m1: 56
s1: 29
Timestamp 2 is 43 hours, 56 minutes, and 29 seconds.
The sum is 55 hours, 20 minutes, and 2 seconds.
```

Summed values for minutes and seconds must carry over if greater than 59.
Hint: Convert and store each timestamp triple as seconds before the addition in order to properly handle carryover in your computation. After you obtain your sum, convert it back to a timestamp triple so that it can be displayed. You will need to use the * (multiplication), / (division), and % (modulo) operators.

The files that you should submit for this assignment are:
timestamp.c, **timestamp.txt**, and **timestamp.script**.
Your **timestamp.script** should contain program output for summing the following 2 timestamps:
1 hour, 52 minutes, and 47 seconds, and 2 hours, 49 minutes, and 55 seconds.
Your **timestamp.txt** should contain a brief description about the design of your program, i.e. the steps required
for the calculation.

3 Bonus [5 Points]

Extend Part 2 above to also handle days and weeks (in addition to hours, minutes, and seconds).
You can use the same files as in Part 2. To demonstrate your program extension in the script file, add 2 weeks and 3
days, and 1 week and 5 days to the above timestamps, respectively.

4 Submission

Submission for these files will be similar to last week's assignment. The only difference is that you need to create
a directory called **hw2/**. Put all the files for assignment 2 in that directory and run the **/ecelib/bin/turnin**
command to submit your homework.