CS5900 Special Topics - Programming in C

Summer 2015

HW#4 (150 pts)

Name _____ *Date* _____

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[1] Programming **Projects#6** from yout textbook on *page 515*

[2] Programming **Projects#10** from yout textbook on *page 448*

[3] A small private college offers **online courses** and wants you to develop a C program that calculates total tution and fees for their students. User will input the number of hours; the program should calculate the total cost. For full-times students taking greater than 15 hours of courses, the fees per credit hour is $44.50. For part-time students taking 15 hours or less, the fees per credit hour is $65.50. In-state tution is $1450.00 and Out-of-stae tution is $2476.80.

Modularize the program!

```
fees = Calculate(hours, rate)
tution = Calc_Tution(T_rate, state)
displayTotalCost = tution + fees
```

[4] Classic **Phone book** program: Define a structure for the Phonebook with possible fields: Lastname, Firstname, area code, *last 4-digits* of the phone number

Implement the search by the Lastname, if found to display the phone number, otherwise to display a message "NOT Found!"

[5] Classic **Grade book** program

[6] DVD and Music CD collections program: Each of these have common fields like: Title, Studio/Production, length of play in minutes, barcode and price. However, music CD has Artists name and DVD movies have the leading Actor's name. Implement **sort** as well as **search** features for the audio/video collections.

[7] Develop **a C program** that computes the cost of a **long-distance** call and prepares the monthly billing statement.

The cost of the call is determined using the following rate schedule:

- Any call started between 8:00 am and 6:00 pm, Monday through Friday, is billed at 33 cents per minute
- Any call starting before 8:00 am or after 6:00 pm, Monday through Friday, is charged 21 cents a minute
- Any call on a Saturday or Sunday, all day, is charged 10 cents a minute

Use day of the call, time of the call and length of the call as input(s) and your program computes and displays the cost of that call.

Multiple call costs are added to create the monthly billing statement!

[8] A small private college offers **online courses** and wants you to develop a C program that calculates total tuition and fees for their students. User will input the number of hours; the program should calculate the total cost. For full-times students taking greater than 15 hours of courses, the fees per credit hour is $44.50. For part-time students taking 15 hours or less, the fees per credit hour is $67.50. In-state tuition is $1250.00 and Out-of-state tuition is $2476.80.

Modularize the program!

```
fees = Calculate(hours, rate)
tuition = Calc_Tuition(T_rate, state)
displayTotalCost = tuition + fees
```

[9] Every credit card has following specific fields: Card type (Visa/MC/Discover), number, issuing Bank's name, Account number, account holder's name, expiration date, security code. Each card has a limit on your account. If your purchase exceeds the limit, payment is "Declined", otherwise, "Approved!" for daily smaller transactions. Simulate this CC-use at Wal-Mart or Kroger stores when you buy Cookies.

Read, review and surf online to reinforce modular program development, files, arrays and data structures in C