(60-140) Lab Exercises #9

— Working with functions

November 20, 2017

1. ***(Parking Charges)*** A parking garage charges a $2.00 minimum fee to park for up to three hours and an additional $0.50 per hour for each hour *or part thereof* over three hours. The maximum charge for any given 24-hour period is $10.00. Assume that no car parks for longer than 24 hours at a time. Write a C program that will calculate and print the parking charges for each of three customers who parked their cars in this garage yesterday. You should enter the hours parked for each customer. Your program should print the results in a tabular format, and should calculate and print the total of yesterday's receipts. The program should use the function "**`calculateCharges`**" to determine the charge for each customer. Your program outputs should appear as in the following format:

```
Enter the hours parked for 3 cars: 2.5 5 23
  Car          Hours         Charge
    1            2.5           2.00
    2            5.0           3.00
    3           23.0          10.00
TOTAL           30.5          15.00
```

2. ***(Coin Tossing)*** Write a C program that simulates coin tossing. For each toss of the coin the program should print Heads or Tails. Let the program toss the coin 100 times, and count the number of times each side of the coin appears. Print the results. The program should call a separate function "**`flip`**" that takes no arguments and returns 0 for tails and 1 for heads. [Note: If the program realistically simulates the coin tossing, then each side of the coin should appear approximately half the time for a total of approximately 50 heads and 50 tails.] Sample output of the execution of required program as follows:

```
Tails Heads Heads Heads Heads Heads Tails Tails Tails Tails
Heads Tails Tails Heads Heads Heads Heads Heads Tails Heads
Tails Tails Heads Tails Heads Heads Tails Tails Tails Tails
Tails Tails Tails Heads Heads Tails Tails Tails Tails Heads
Heads Tails Tails Heads Tails Heads Heads Tails Tails Heads
Tails Heads Tails Heads Heads Tails Heads Heads Tails Heads
Tails Heads Heads Heads Tails Tails Tails Heads Heads Heads
Heads Tails Tails Heads Heads Heads Tails Heads Heads Heads
Heads Tails Tails Heads Heads Heads Heads Tails Tails Tails
Tails Tails Tails Tails Tails Tails Tails Tails Heads Tails

The total number of Heads was 48
The total number of Tails was 52
```

Evaluation: All online submissions must be completed before due time, which will be kept on record. In addition, every student is required to show/demonstrate his/her complete exercises to a GA/TA at the end of this lab, or at the beginning of the next lab after completing online submission. The demonstration includes showing the submitted C codes, compiling the C programs, and trying out the C programs with different input values. The maximum marks for this lab is 15, with 10 for the lab work (submission and demonstration) and 5 for lab attendance.