

Homework Assignment #6

Course: COP 3223C – Intro to Programming with C

Semester: Fall 2016

Credit Value: 7% of Final Grade

Due Date: November 23, 2016

Building and Working with Simple Linked Lists

Write a program in C that does the following:

- a) Builds a simple linked list consisting of 10 nodes each of which contains a random integer between 50 and 100 inclusive. The list is to be built in `main()` and must be a local variable in `main()`.
- b) Includes a user-defined function named `printout(arg)` that takes in the head pointer of the already-built linked list as an argument and prints out the contents of the linked list to the screen, starting from the head of the list to the tail. See the output below.

```
Node #0 contains 53
Node #1 contains 78
Node #2 contains 95
.
.
.
Node #20 contains 100
```

- c) Includes a user-defined function called `sum()` that adds up the contents of the data members of each node in the list, and prints out the total as follows:
The sum total of all nodes in this list is <whatever the sum total is>
- d) Includes a user-defined function called `reverse()` that takes in the head pointer of the already-built linked list as an argument and will **physically** reverse the order of the nodes in the list (i.e., the new head will be the old tail and the new tail will be the old head of the list). Use the function `printout()` to output its contents now in reverse order. This does NOT mean that it will be read backwards, but rather, the reversed list will be read from head to tail!