Proficiency Test Practice Midterm

This practice comes to us from PSU, and has been used in their proficiency demo practice. The objective is for you to get familiar with the format of the test.

Start with the code in `~lliang/cs260/proficiencyTestPractice/midterm`. You will want to copy it into a directory of your own.

File `supplied.o` contains code that can build, display, duplicate, and destroy a *doubly linked list*.

For this test, you will need to write the following functions in `dlist.cpp`, add function prototypes for them to `dlist.h` and invoke the functions in `main.cpp.` You should label the output of your test, such as "the list after removal: " etc.

- `int count(node * head)`
  recursively compute and return the number of nodes in the doubly linked list.
- `void insert(node * & head, int newInt, int position)`
  recursively insert newInt at index "position" where index starts from 0
- `int remove(node * & head, int position)`
  recursively remove the integer at index "position" and return it.

Create a makefile for the project and build it. Please don't forget the supplied.o when generating the executable. Make sure your clean target doesn't remove supplied.o

Run your program in valgrind and make sure there is no memory leaks assuming the executable file is named **`main`**

```
valgrind --tool=memcheck --leak-check=full ./main
```

For test submission, copy the above function implementation into solution.txt, then append the output of the app to the file. ftp solution.txt to your local machine and upload it to the Desire2Learn Assignment dropbox.

```
./main >> solution.txt //assuming the executable is called main
```