

CIS213 Foundations of Computer Science

Programming Assignment 1

Due 8AM, Monday, Feb 2nd

This program is intended to exercise your skills in using linked lists. It is not intended to be hard, but if you have any trouble, talk to me or to the TA.

Your program is a “list manager,” and it manages 10 lists, numbered 1-10. To make your life easier, each lists consists only of numbers. (If you want to make it strings or charactes, that’s fine by me.) Your program must repeatedly prompt the user for a single letter input:

- If the letter is an “n,” the program must prompt the user for a list number and an entry number, and then insert that entry number into the corresponding list of numbers.

The number must be inserted in its correct place in the list, so that the list of numbers remains correctly sorted. In other words, it has to be inserted after the largest number that is less than it.

- If the letter is a “p,” the program must print all the lists of numbers, as they currently stand. It must print each list on one line, with the list elements separated by spaces.
- If the letter is a “q,” the program quits.
- Any other input should print an error message and continue.

The internal representation of the sequence of numbers must be a linked list (not an array).

Here’s an example:

```
Welcome to my list manager.
```

```
What command? p
```

```
[1]
[2]
[3]
[4]
[5]
[6]
[7]
[8]
[9]
[10]
```

```
What command? n
```

```
What list? 1
```

```
What number? 3
```

```
What command? p
```

```
[1] 3
[2]
[3]
[4]
[5]
[6]
[7]
[8]
[9]
[10]
```

```
What command? n
```

```
What list? 1
```

```
What number? 4
What command? p
[1] 3 4
[2]
[3]
[4]
[5]
[6]
[7]
[8]
[9]
[10]
```

```
What command? n
What list? 3
What number? 2
[1] 3 4
[2]
[3] 2
[4]
[5]
[6]
[7]
[8]
[9]
[10]
```

```
What command? n
What list? 1
What number? 2
```

```
What command? p
[1] 2 3 4
[2]
[3] 2
[4]
[5]
[6]
[7]
[8]
[9]
[10]
```

```
What command? r
```

```
No such option
```

```
What command? q
Good bye!
```

Be sure your program works on any sequence of numbers and any length list, including the empty list. Make sure numbers can be added to the beginning and end of the list. Make sure invalid inputs are handled gracefully. Finally, make sure your code has proper style.

Your program should be placed in your cis213/prog1 directory. Please put all of your files for this program

in that directory to ensure the submission is correct.

Submit your program using:

```
host% turnin cis213 prog1
```