

16.216: ECE Application Programming

Fall 2015

Lecture 34: Key Questions December 2, 2015

1. Explain the use of general data structures and pointer-based data structures in particular.
2. Describe the general design of a linked list.

3. Describe the structure used for each node in the list.

4. Explain the operation of the following function, which adds a node to the beginning of the list and returns a pointer to that node.

```
LLnode *addNode(LLnode *list, int v) {  
    LLnode *newNode;  
    // Allocate space for new node; exit if error  
    newNode = (LLnode *)malloc(sizeof(LLnode));  
    if (newNode == NULL) {  
        fprintf(stderr,  
                "Error: could not allocate new node\n");  
        exit(0);  
    }  
    newNode->value = v;    // Copy value to new node  
    newNode->next = list;  // next points to old list  
    return newNode;  
}
```

5. Write each of the following functions:
- Finding item in list (Function should return pointer to node if found and return NULL otherwise)

```
LLnode *findNode(LLnode *list, int v) {
```

```
}
```