CS 162
Intro to CS II

Intro to C Programming

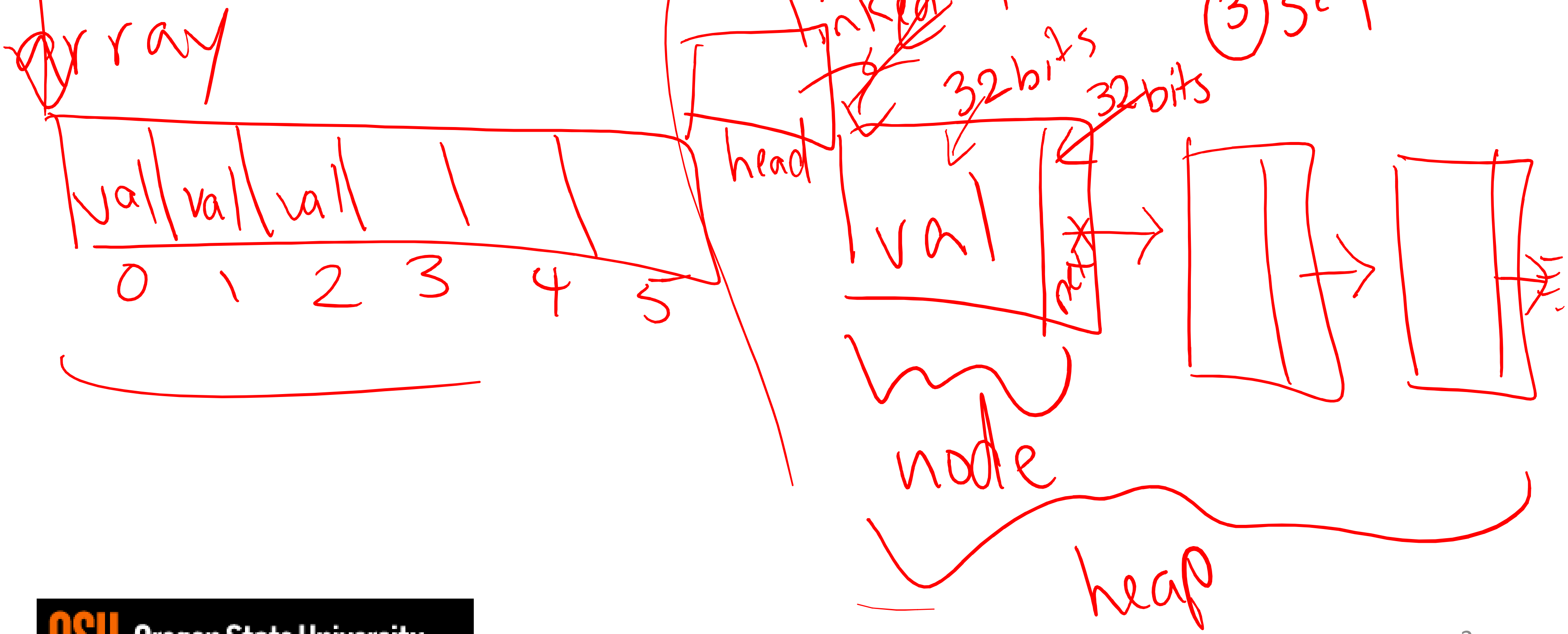
Linked Lists

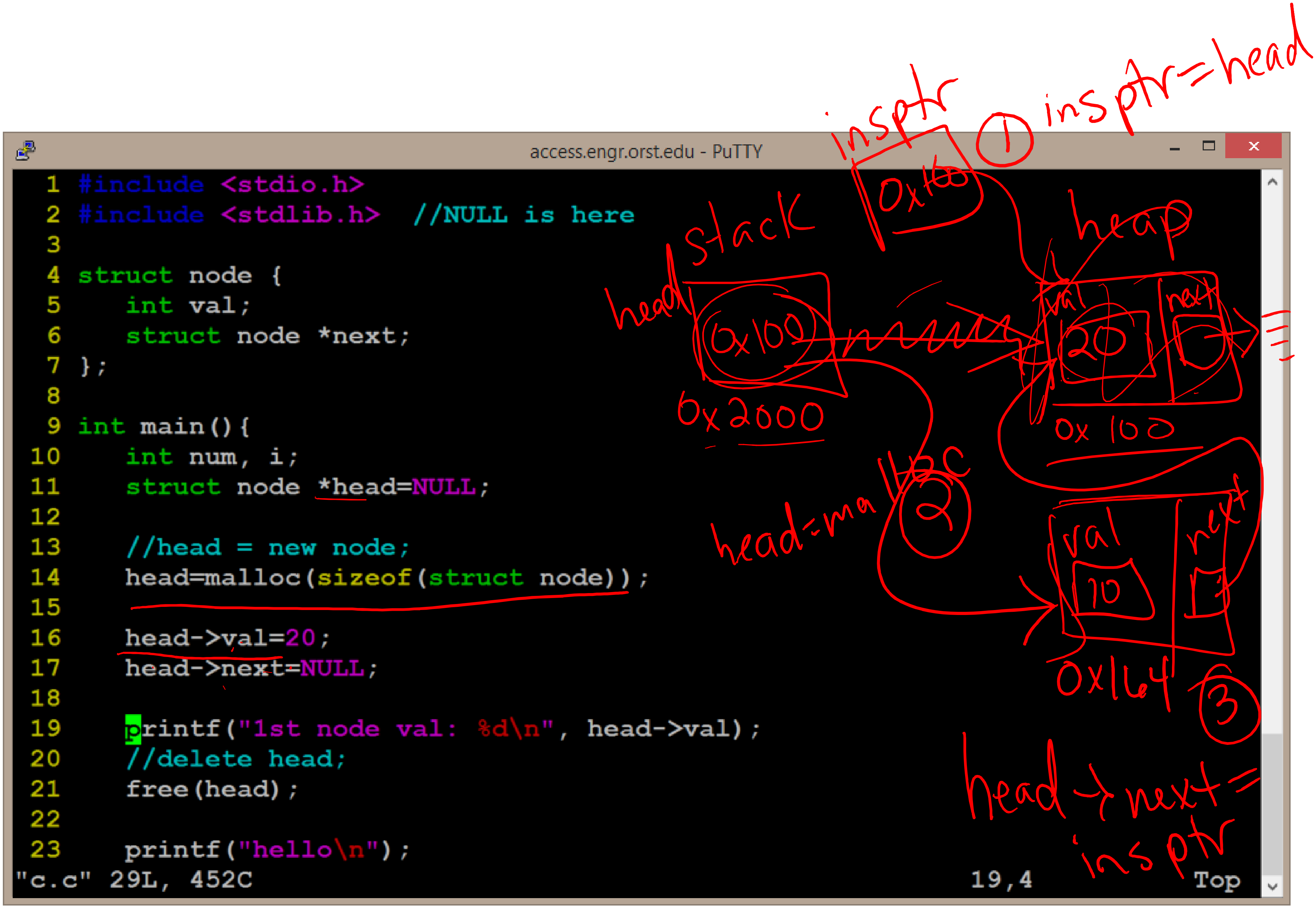
O(n)

O(constant time) inserting a new value to the beginning

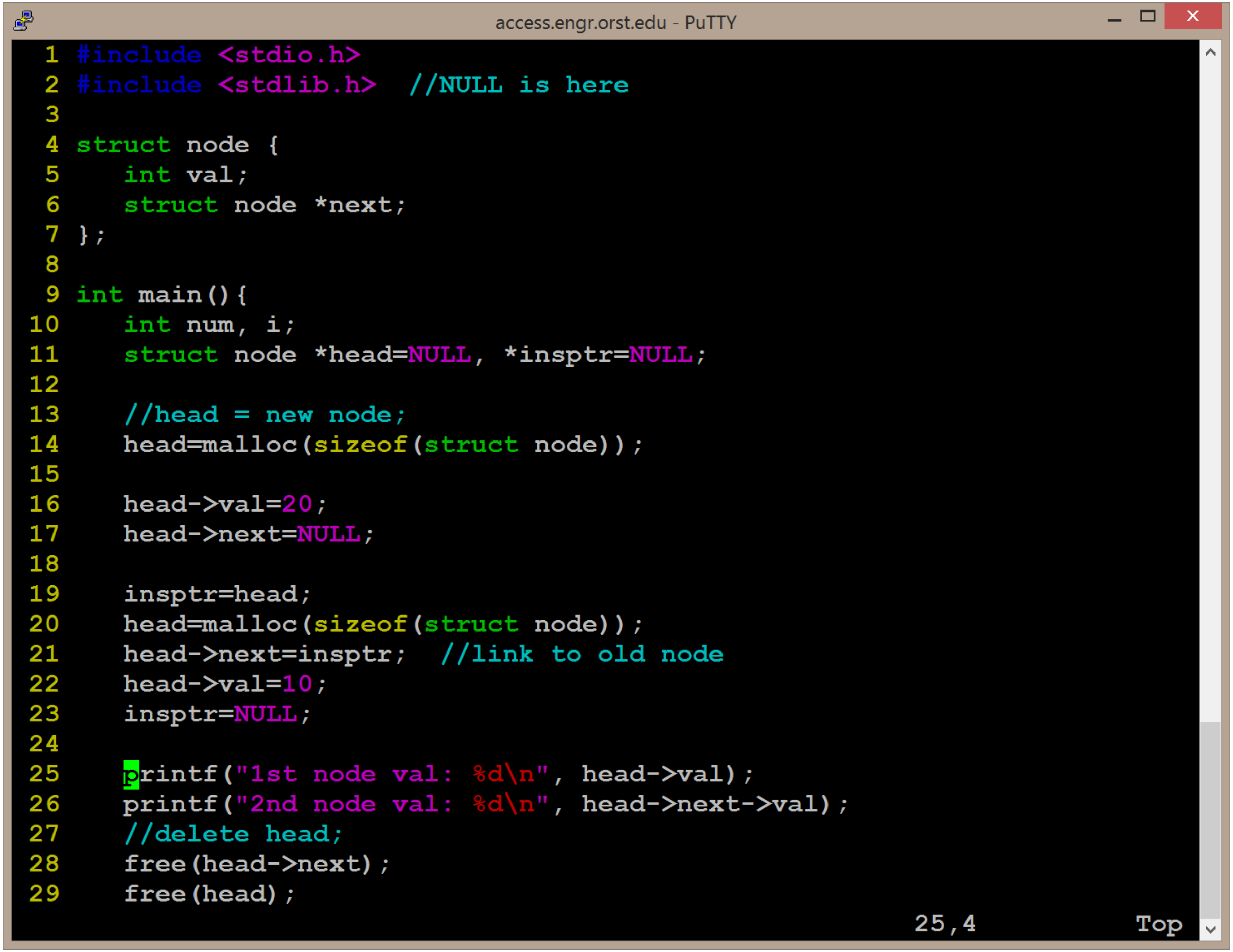
- What are they?
- How do they differ from arrays?

1. not contiguous
2. not indexed
3. sequential





```
#include <stdio.h>
#include <stdlib.h>  //NULL is here

struct node {
    int val;
    struct node *next;
};

int main(){
    int num, i;
    struct node *head=NULL;

    //head = new node;
    head=malloc(sizeof(struct node));

    head->val=20;
    head->next=NULL;

    printf("1st node val: %d\n", head->val);
    //delete head;
    free(head);

    printf("hello\n");
"c.c" 29L, 452C                                             19,4          Top
```



```c
#include <stdio.h>
#include <stdlib.h>  //NULL is here

struct node {
   int val;
   struct node *next;
};

int main(){
   int num, i;
   struct node *head=NULL, *insptr=NULL;

   //head = new node;
   head=malloc(sizeof(struct node));

   head->val=20;
   head->next=NULL;

   insptr=head;
   head=malloc(sizeof(struct node));
   head->next=insptr;  //link to old node
   head->val=10;
   insptr=NULL;

   printf("1st node val: %d\n", head->val);
   printf("2nd node val: %d\n", head->next->val);
   //delete head;
   free(head->next);
   free(head);
```

Fun Friday

- Get into groups of 4-5.
- Write the pseudocode for pushing a node with a new value onto the **front** of the list.
- Write the pseudocode for pushing a node with a new value onto the **back** of the list.