

Week 7

Linked List

struct node

```
{
    int data,
    struct node *next;
};
```

struct node *insert_beg(struct node *start)

```
{
    struct node *new_node;
    new_node = (struct node *) malloc (sizeof (struct node));
    new_node->data = num;
    new_node->next = start;
    start = new_node;
    return start;
}
```

struct node *insert_end(struct node *start)

```
{
    struct node *ptr, *new_node;
    new_node = (struct node *) malloc (sizeof (struct node));
    new_node->data = num;
    new_node->next = NULL;
    ptr = start;
    while (ptr->next != NULL)
        ptr = ptr->next;
    ptr->next = new_node;
}
```

```
ptr → next = new_node;
```

```
return start;
```

```
}
```

```
struct node *insert_at_pos(struct node *start)
```

```
{
```

```
struct node *ptr, *temp;
```

```
ptr → data = new_node;
```

```
temp = start;
```

```
if (pos == 1)
```

```
{
```

```
ptr → next = temp
```

```
start = ptr
```

```
return
```

```
}
```

```
for (i = 1; i < pos - 1; i++)
```

```
{
```

```
temp = temp → next;
```

```
ptr → next = temp → next;
```

```
temp → next = ptr;
```

```
}
```

```
struct node *delete_beg(struct node *start)
```

```
{
```

```
struct node *ptr;
```

```
ptr = start;
```

```
start = start → next
```

```
free(ptr);
```

```
return start;
```

```
}
```



```

struct node * delete_end (struct node * start)
{
    struct node * ptr, * preptr;
    ptr = start;
    while (ptr->next != NULL)
    {
        preptr = ptr;
        ptr = ptr->next;
    }
    preptr->next = NULL;
    free(ptr);
    return start;
}

```

```

struct node * delete_node (struct node * start)
{
    struct node * ptr, * preptr;
    int val;
    scanf ("%d", &val);
    ptr = start;
    if (ptr->data == val)
    {
        start = delete_beg (start);
        return start;
    }
    else {
        while (ptr->data != val)
        {
            preptr = ptr;
            ptr = ptr->next;
        }
    }
}

```

```
pre ptr->next = ptr->next;
```

```
free (ptr);
```

```
return start;
```

```
}
```

```
}
```

```
struct node *display(struct node *start)
```

```
{
```

```
    struct node *ptr;
```

```
    ptr = start;
```

```
    while (ptr != NULL)
```

```
{
```

```
        printf("%d", ptr->data);
```

```
        ptr = ptr->next;
```

```
}
```

```
    return start;
```

```
}
```