Date 29/1/24
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1 sorting, reverse and concatination of string

Reverse

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

struct node* reverse( struct node* head){

    struct node* prev = NULL;
    struct node* current = head;
    struct node* next = NULL;

    while ( current !=NULL ) {

        next= current -> next;
        current -> next= prev;
        prev = current;
        current = next;
    }
    return prev;

}
```

Concatenation

```
struct node* concat ( struct node * list1,
                 struct node * list2 ) {

    if ( list1 == NULL) {
        return list2;
    }
    if ( list2 == NULL) {
        return list1;
    }
    struct node * temp = list1 ;

    while ( temp -> next != NULL) {

            temp = temp -> next ;
    }

        temp -> next = list2 ;
        return list1 ;
}
```

Sorting :

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


  void insertion soot ( )
  {
      struct node * current = head ;
      while ( current != NULL) {
          struct node * next = current -> next ;
          sorted Insert ( current ) ;
          current = next ;
      }
      head = sorted ;
  }
```

```
void sortedInsert ( struct node* newNode )

if ( sorted = = NULL || sorted -> data ->
                            = newnode -> data )
 {
     newnode -> next = sorted;
       sorted = newnode ;
 }
  else {
        struct node * current = sorted ;
        while ( current -> next ! = NULL &&
        current -> next -> data < newnode -> data )
     {
        current = current -> next ;
     }
     newnode -> next = current -> next ;
     current -> next = newNode ;
    }

}

void display ( struct node * head ) {
        struct node * d = head ;
      while ( d ! = NULL ) {
              printf ( "%d -> ", d -> data );
              d = d -> next ;
       }
       print ( "NULL \n" ) ;
  }
```

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Q

```
1. Enqueue
2 Dequeue
3. Display
4. exit
Enter your choice : 1
Enter value : 7

1 Enqueue
2 Dequeue
3 Display
4. exit
Enter your choice : 3
Queue : 6 -> 7 -> NULL.

1. Enqueue
2. Dequeue
3. Display
4. exit
Enter your choice : 2

1. Enqueue
2. Dequeue
3. Display
4. exit
Enter your choice : 3
Queue : 7 -> NULL
```

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