

TOPIC

SORT A SINGLY LINKED LIST

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```
#INCLUDE <STDIO.H>
STRUCT NODE
{
    INT DATA;
    STRUCT NODE *NEXT;
};

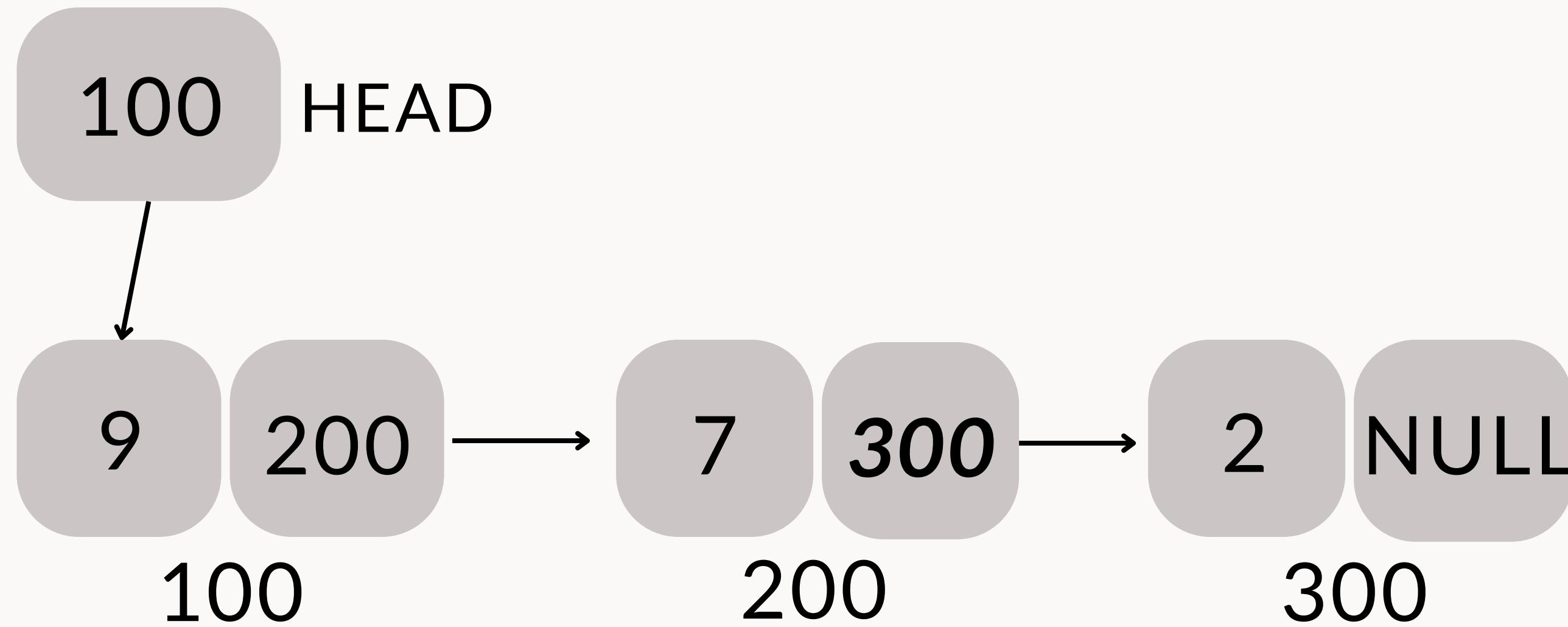
STRUCT NODE *HEAD, *TAIL = NULL;
VOID ADDNODE(INT DATA)
{
    STRUCT NODE *NEWNODE = (STRUCT NODE*)MALLOC(SIZEOF(STRUCT NODE));
    NEWNODE->DATA = DATA;
    NEWNODE->NEXT = NULL;
    IF(HEAD == NULL)
    {
        HEAD = NEWNODE;
        TAIL = NEWNODE;
    }
    ELSE
    {
        TAIL->NEXT = NEWNODE;
        TAIL = NEWNODE;
    }
}
```

```
VOID SORTLIST()
{
    STRUCT NODE *CURRENT = HEAD, *INDEX = NULL;
    INT TEMP;
    WHILE(CURRENT != NULL)
    {
        INDEX = CURRENT->NEXT;
        WHILE(INDEX != NULL)
        {
            IF(CURRENT->DATA > INDEX->DATA)
            {
                TEMP = CURRENT->DATA;
                CURRENT->DATA = INDEX->DATA;
                INDEX->DATA = TEMP;
                }
            INDEX = INDEX->NEXT;
            }
        CURRENT = CURRENT->NEXT;
        }
    }
```

```
VOID DISPLAY()
{
    STRUCT NODE *CURRENT = HEAD;
    WHILE(CURRENT != NULL)
    {
        PRINTF("%D ", CURRENT->DATA);
        CURRENT = CURRENT->NEXT;
    }
    PRINTF("\N");
}

INT MAIN()
{
    ADDNODE(9);
    ADDNODE(7);
    ADDNODE(2);
    ADDNODE(5);
    ADDNODE(4);
    PRINTF("ORIGINAL LIST: \N");
    DISPLAY();
    SORTLIST();
    PRINTF("SORTED LIST: \N");
    DISPLAY();
    RETURN 0;
}
```

REPRESENTATION



let's sort it

- current=head
- index=NULL

- current!=NULL

- index=7

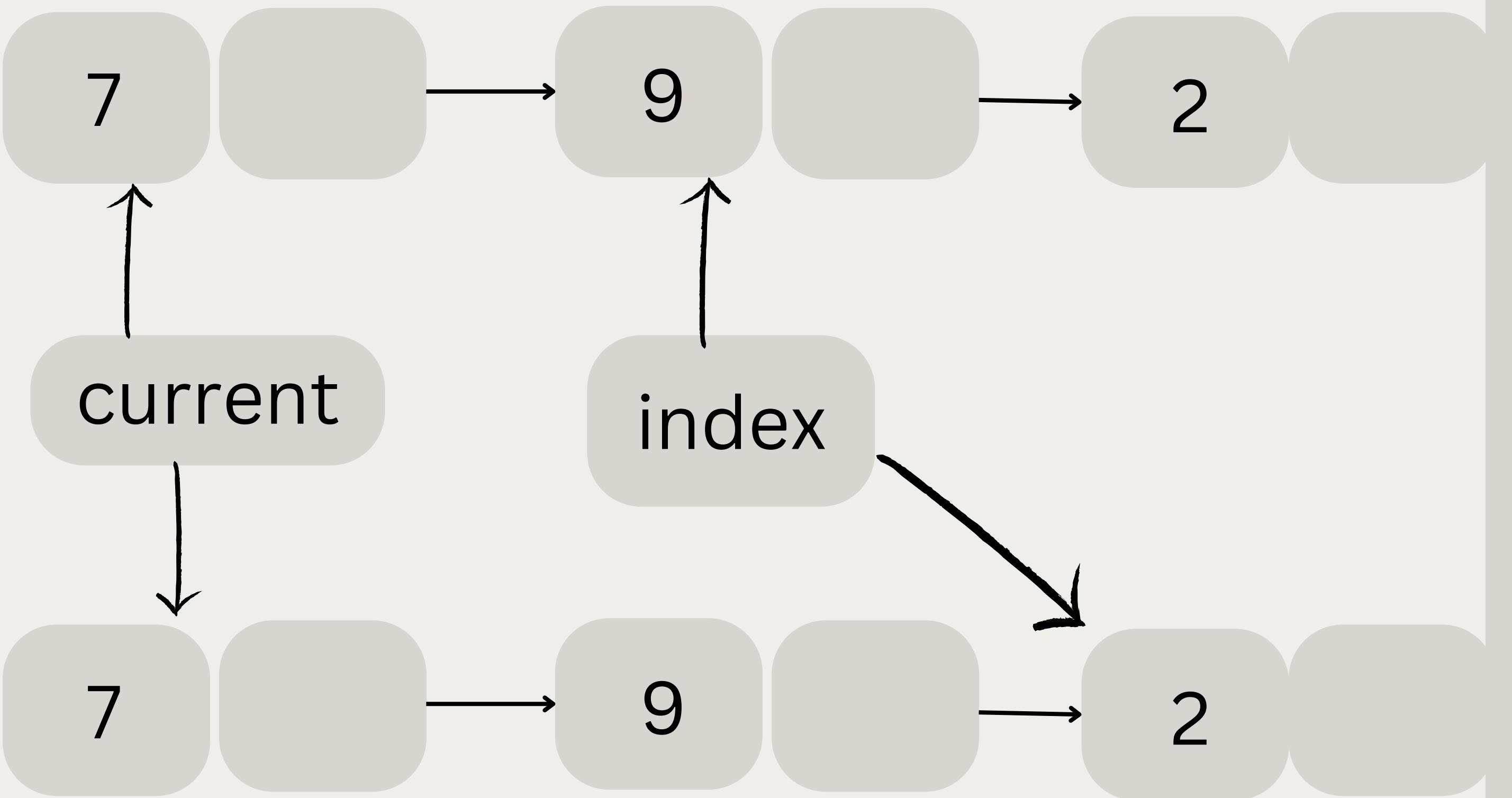
- temp=9

current

```
graph LR; N1[9] -- "current" --> N2[7]; index --> N2
```

```
graph LR; N1[9] -- "current" --> N2[7]; index --> N2
```

index



temp=7

current=2

index=7



index=NULL

current=9

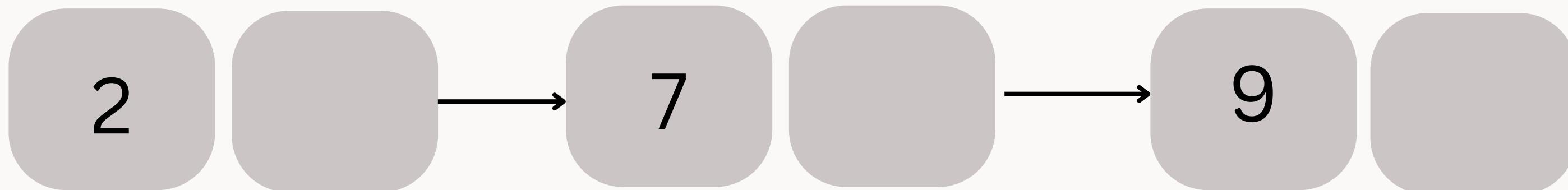
index=7

temp=9

current=7

index=9

SORTED LINKED LIST



THANK YOU

