1/02/24

Week-7

1) Doubly linked list

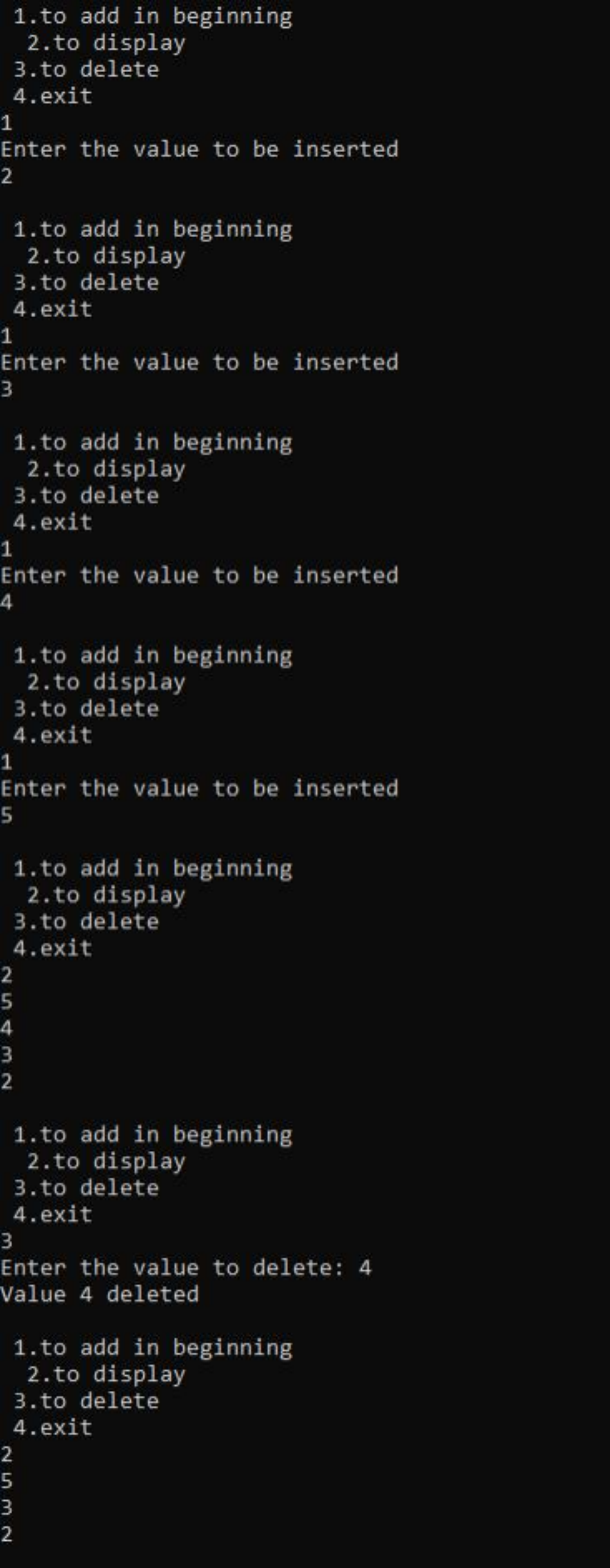
```
#include<stdio.h>
#include <stdlib.h>
Struct node
{
  int data;
  struct node *prev;
  struct node *next;
};
struct node *S1=NULL;

struct node *insert_begin(struct node *start)
{
   struct node *temp;
   temp=(struct node*)malloc(sizeof(struct
                        node));
   printf("Enter the value to be inserted \n");
   scanf("%d", &temp->data);
   temp->next=NULL;
   temp->prev=NULL;
   if(start==NULL)
   {
      start=temp;
   }
   else
   {
     temp->next=start;
     start->prev=temp;
     Start=temp;
```

```
        }
        return start;
    }
```

```
struct node* delevalue (struct node *start,
            int val)
{
   struct node *ptr=start;
   int value=val;
   while (ptr!=NULL)
   {
      if(ptr->data ==value)
      {
        if (ptr->prev !=NULL)
        {
           ptr->prev->next =ptr->next;
        }
        if(ptr->next !=NULL)
         {
           ptr->next->prev =ptr->prev;
         }
        if (ptr ==start)
        {
           start =ptr->next;
        }
        free(ptr);
        printf("value %d deleted \n", value);
        return start;
        }
      ptr= ptr->next;
   }
printf("value %d not found \n", value);
return start;
```

```
void display(struct node * start)
{
    Struct node *ptr= start;
    if(start== NULL)
    {
        printf("\n list is empty \n");
    }
    else
    {
        while(ptr != NULL)
        {
            printf("%d \n", ptr->data);
            ptr= ptr->next;
        }
    }
}
int main()
{
    int choice;
    while(1)
    {
        printf("\n 1. to add in beginning \n
                2. to add at end \n
                3. to display \n 4. to delete \n
                5. exit \n");
        scanf("%d", &choice);
        switch(choice)
        {
            case 1:
                s1= insert_begin(s1);
                break;
            case 2:
```

```
      S1=insert-end(S1);
      break;
    case 3:
      display(S1);
      break;
    case 4:
      printf("Enter the value to delete: ");
      int val;
      scanf("%d",&val);
      S1= delevalue(S1,val);
      break;
    case 5:
      exit(0);
    default:
      printf("wrong choice");
    }
  }
}.
```



```
 1.to add in beginning
  2.to display
 3.to delete
 4.exit
1
Enter the value to be inserted
2

 1.to add in beginning
  2.to display
 3.to delete
 4.exit
1
Enter the value to be inserted
3

 1.to add in beginning
  2.to display
 3.to delete
 4.exit
1
Enter the value to be inserted
4

 1.to add in beginning
  2.to display
 3.to delete
 4.exit
1
Enter the value to be inserted
5

 1.to add in beginning
  2.to display
 3.to delete
 4.exit
2
5
4
3
2

 1.to add in beginning
  2.to display
 3.to delete
 4.exit
3
Enter the value to delete: 4
Value 4 deleted

 1.to add in beginning
  2.to display
 3.to delete
 4.exit
2
5
3
2
```