



KIET Group of Institutions, Ghaziabad

Department of Computer Applications

(An ISO – 9001: 2015 Certified & 'A' Grade accredited Institution by NAAC)

DATA STRUCTURE AND ANALYSIS OF ALGORITHM

KCA 253 : Session 2020-21

EXPERIMENT – 3

PROGRAM

```
#include<stdio.h>
#include<conio.h>
#include<stdlib.h>
struct node
{
int info;
struct node *next;
};
int main()
{
int data,choice,item;
node *head=NULL,*newnode,*temp,*loc;
while(1)
{ printf("\n1.INSERTION AT BEGINNING.\n2.INSERTION AT
END.\n3.TRAVERSE.\n4.SEARCHING. \n5.DELETE FROM BEGINNING.\n6.DELETE
FROM END.\n7.DELETE BY ITEM NAME .\n9.EXIT");
printf("\n enter choice");
scanf("%d",&choice);
switch(choice)
{
case 1:{
printf("enter the data ");
scanf("%d",&data);
newnode=(node*)malloc(sizeof(struct node));
newnode->info=data;newnode->next=NULL;
if(head==NULL)
head=newnode;
else{
newnode->next=head;
head=newnode;}break;
case 2:{
printf("enter the data");
scanf("%d",&data);
newnode=(node*)malloc(sizeof(struct node));
newnode->info=data;newnode->next=NULL;
if(head==NULL)
head=newnode;
else
{ temp=head;
while(temp->next!=NULL)
```



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```
{temp=temp->next;
temp->next=newnode;
}}break;
case 3:{
temp=head;
if(head==NULL)
printf("list is empty");
else{
while(temp!=NULL)
{printf("%d->",temp->info);
temp=temp->next;}}break;
}
}break;
case 4:{int count = 1;
loc=head;
printf("Enter item to Search :");
scanf("%d",&item);
while(loc!=NULL){
if(loc->info==item)
break;
count++;
loc=loc->next;
}
if(loc==NULL)
printf("item not found");
else
printf("item found at location %d",count);
}break;
case 5:{
loc=head;
if(head==NULL)
printf("list is empty");
else{
head=head->next;
free(loc); }
}break;
case 6:{if(head==NULL)
printf("list is empty");
else if(head->next==NULL)
{loc=head;
head=NULL;
free(loc);
}
else
{loc=head;
```



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```
while((loc->next)->next!=NULL)
loc=loc->next;
temp=loc->next;
loc->next=NULL;
free(temp);
}
}break;
case 7:{printf("\nENTER ITEM TO DELETE :");
scanf("%d",&item);
loc=head;
temp=NULL;
while(loc!=NULL)
{
if(loc->info==item)
break;
temp=loc;
loc=loc->next;
loc->next=(loc->next)->next;
free(loc);}
if(head==loc)
{head=head->next;
free(loc);
}
else if(loc==NULL)
printf("element not found");
else {temp->next=loc->next;
free(loc);
}
}break;
case 9:{exit(1);}break;
}}
return 0;
}
```

OUTPUT :

- 1.INSERTION AT BEGINNING.
- 2.INSERTION AT END.
- 3.TRAVERSE.
- 4.SEARCHING.
- 5.DELETE FROM BEGINNING.
- 6.DELETE FROM END.
- 7.DELETE BY ITEM NAME .



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9.EXIT

enter choice1

enter the data 2

1.INSERTION AT BEGINNING.

2.INSERTION AT END.

3.TRAVERSE.

4.SEARCHING.

5.DELETE FROM BEGINNING.

6.DELETE FROM END.

7.DELETE BY ITEM NAME .

9.EXIT

enter choice1

enter the data 2

1.INSERTION AT BEGINNING.

2.INSERTION AT END.

3.TRAVERSE.

4.SEARCHING.

5.DELETE FROM BEGINNING.

6.DELETE FROM END.

7.DELETE BY ITEM NAME .

9.EXIT

enter choice1

enter the data 3

1.INSERTION AT BEGINNING.

2.INSERTION AT END.

3.TRAVERSE.

4.SEARCHING.

5.DELETE FROM BEGINNING.

6.DELETE FROM END.

7.DELETE BY ITEM NAME .

9.EXIT

enter choice3

3->2->2->

1.INSERTION AT BEGINNING.

2.INSERTION AT END.

3.TRAVERSE.

4.SEARCHING.

5.DELETE FROM BEGINNING.

6.DELETE FROM END.

7.DELETE BY ITEM NAME .

9.EXIT

enter choice2



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enter the data4

3

- 1.INSERTION AT BEGINNING.
- 2.INSERTION AT END.
- 3.TRAVERSE.
- 4.SEARCHING.
- 5.DELETE FROM BEGINNING.
- 6.DELETE FROM END.
- 7.DELETE BY ITEM NAME .
- 9.EXIT

enter choice3->2->2->4->

- 1.INSERTION AT BEGINNING.
- 2.INSERTION AT END.
- 3.TRAVERSE.
- 4.SEARCHING.
- 5.DELETE FROM BEGINNING.
- 6.DELETE FROM END.
- 7.DELETE BY ITEM NAME .
- 9.EXIT

enter choice5

- 1.INSERTION AT BEGINNING.
- 2.INSERTION AT END.
- 3.TRAVERSE.
- 4.SEARCHING.
- 5.DELETE FROM BEGINNING.
- 6.DELETE FROM END.
- 7.DELETE BY ITEM NAME .
- 9.EXIT

enter choice3

2->2->4->

- 1.INSERTION AT BEGINNING.
- 2.INSERTION AT END.
- 3.TRAVERSE.
- 4.SEARCHING.
- 5.DELETE FROM BEGINNING.
- 6.DELETE FROM END.
- 7.DELETE BY ITEM NAME .
- 9.EXIT

enter choice4

Enter item to Search :4

item found at location 3

- 1.INSERTION AT BEGINNING.
- 2.INSERTION AT END.



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3.TRAVERSE.
4.SEARCHING.
5.DELETE FROM BEGINNING.
6.DELETE FROM END.
7.DELETE BY ITEM NAME .
9.EXIT
enter choice6

1.INSERTION AT BEGINNING.
2.INSERTION AT END.
3.TRAVERSE.
4.SEARCHING.
5.DELETE FROM BEGINNING.
6.DELETE FROM END.
7.DELETE BY ITEM NAME .
9.EXIT
enter choice3

2->2->

1.INSERTION AT BEGINNING.
2.INSERTION AT END.
3.TRAVERSE.
4.SEARCHING.
5.DELETE FROM BEGINNING.
6.DELETE FROM END.
7.DELETE BY ITEM NAME .
9.EXIT
enter choice