Doubly Linked List Operations

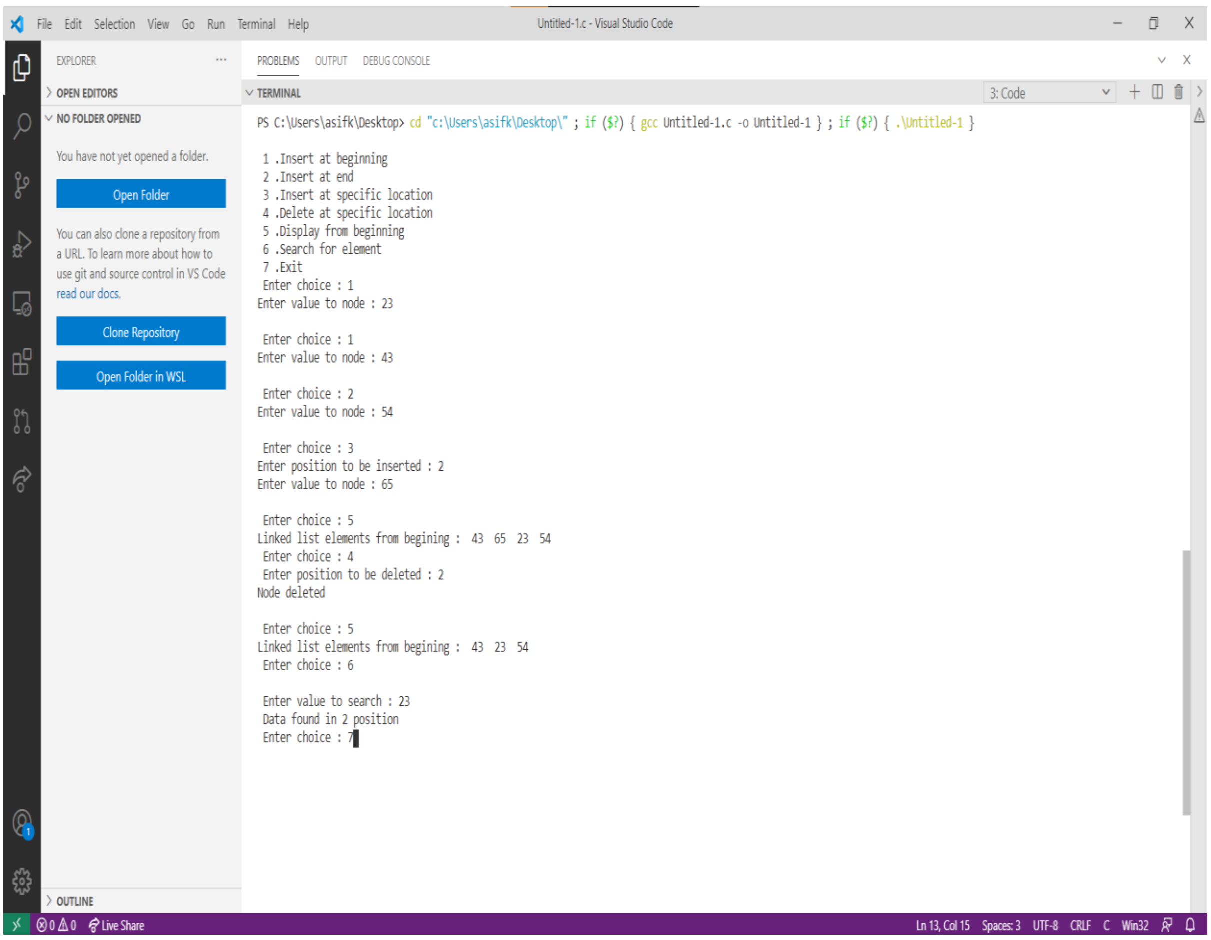
```c
#include <stdio.h>
#include <stdlib.h>
struct node
{
struct node *prev;
int n;
struct node *next;
}*h,*temp,*temp1,*temp2,*temp4;
void beg_insert();
void end_insert();
void spe_insert();
void display();
void search();
void ddelete();
int count = 0;
void main()
{
int ch;
h = NULL;
temp = temp1 = NULL;
printf("\n 1 .Insert at beginning");
printf("\n 2 .Insert at end");
printf("\n 3 .Insert at specific location");
printf("\n 4 .Delete at specific location");
printf("\n 5 .Display from beginning");
printf("\n 6 .Search for element");
printf("\n 7 .Exit");
while (1)
{
printf("\n Enter choice : ");
scanf("%d", &ch);
switch (ch)
{
case 1: beg_insert();
break;
case 2:end_insert();
break;
case 3:spe_insert();
break;
case 4:ddelete();
break;
case 5: display();
break;
case 6:search();
break;
case 7:exit(0);
default:printf("\n Wrong choice menu");
}
}
}
void create()
{
int data;
temp =(struct node *)malloc(1*sizeof(struct node));
temp->prev = NULL;
temp->next = NULL;
printf("Enter value to node : ");
scanf("%d", &data);
 temp->n = data;
count++;
}
void beg_insert()
{
if (h == NULL)
{
create();
h = temp;
temp1 = h;
}
else
{
create();
temp->next = h;
h->prev = temp;
h = temp;
}
}
void end_insert()
{
if (h == NULL)
{
create();
h = temp;
temp1 = h;
}
else
{
create();
temp1->next = temp;
temp->prev = temp1;
 temp1 = temp;
```

```c
}
}
void spe_insert()
{
int pos, i = 2;
printf("Enter position to be inserted : ");
scanf("%d", &pos);
temp2 = h;
if ((pos < 1) || (pos >= count + 1))
{
printf(" Position out of range to insert \n");
return;
}
if ((h == NULL) && (pos != 1))
{
printf(" Empty list cannot insert other than 1st position \n");
return;
}
if ((h == NULL) && (pos == 1))
 {
create();
h = temp;
temp1 = h;
 return;
}
else
{
while (i < pos)
{
temp2 = temp2->next;
i++;
}
create();
temp->prev = temp2;
temp->next = temp2->next;
temp2->next->prev = temp;
temp2->next = temp;
}
}
void ddelete()
{
int i = 1, pos;
printf(" Enter position to be deleted : ");
scanf("%d", &pos);
 temp2 = h;
if ((pos < 1) || (pos >= count + 1))
{
printf("Position out of range to delete\n");
```

```
return;
}
if (h == NULL)
{
printf(" Empty list no elements to delete \n");
return;
}
else
{
while (i < pos)
{
temp2 = temp2->next;
i++;
}
if (i == 1)
{
if (temp2->next == NULL)
{
printf("Node deleted from list");
free(temp2);
temp2 = h = NULL;
return;
}
}
if (temp2->next == NULL)
{
temp2->prev->next = NULL;
free(temp2);
printf("Node deleted from list");
return;
}
temp2->next->prev = temp2->prev;
if (i != 1)
temp2->prev->next = temp2->next;
 if (i == 1)
h = temp2->next;
printf("Node deleted \n");
free(temp2);
}
count--;
}
void display()
{
temp2 = h;
if (temp2 == NULL)
{
printf("List empty to display \n");
return;
```

```
}
printf("Linked list elements from begining : ");
while (temp2->next != NULL)
{
printf(" %d ", temp2->n);
 temp2 = temp2->next;
}
printf(" %d ", temp2->n);
}
void search()
{
int data, count = 0;
temp2 = h;
if (temp2 == NULL)
{
printf("\n Error : List empty to search for data"); return;
}
printf("\n Enter value to search : ");
scanf("%d", &data);
while (temp2 != NULL)
{
if (temp2->n == data)
{
printf(" Data found in %d position",count + 1); return;
}
else
temp2 = temp2->next;
count++;
}
printf("\n Error : %d not found in list", data);
}
```

OUTPUT


File Edit Selection View Go Run Terminal Help
Untitled-1.c - Visual Studio Code
EXPLORER
OPEN EDITORS
NO FOLDER OPENED
You have not yet opened a folder.
Open Folder
You can also clone a repository from a URL. To learn more about how to use git and source control in VS Code read our docs.
Clone Repository
Open Folder in WSL
OUTLINE
PROBLEMS OUTPUT DEBUG CONSOLE
TERMINAL
3: Code
Live Share
Ln 13, Col 15 Spaces: 3 UTF-8 CRLF C Win32

```
PS C:\Users\asifk\Desktop> cd "c:\Users\asifk\Desktop\" ; if ($?) { gcc Untitled-1.c -o Untitled-1 } ; if ($?) { .\Untitled-1 }

 1 .Insert at beginning
 2 .Insert at end
 3 .Insert at specific location
 4 .Delete at specific location
 5 .Display from beginning
 6 .Search for element
 7 .Exit
 Enter choice : 1
Enter value to node : 23

 Enter choice : 1
Enter value to node : 43

 Enter choice : 2
Enter value to node : 54

 Enter choice : 3
Enter position to be inserted : 2
Enter value to node : 65

 Enter choice : 5
Linked list elements from begining :  43  65  23  54
 Enter choice : 4
 Enter position to be deleted : 2
Node deleted

 Enter choice : 5
Linked list elements from begining :  43  23  54
 Enter choice : 6

 Enter value to search : 23
 Data found in 2 position
 Enter choice : 7
```