DSA PROGRAMMING LAB-4
Link List
- Name :HITU RAJ
- Roll no. :2005025
- Branch :CSE

```c
/* Q1.WAP to create SLLand display the value of each node
 using user defined funcion create and display*/

#include <stdio.h>
#include <stdlib.h>

struct node
{
    int data_025;
    struct node *next_025;
} * first_025, *temp_025, *last_025;
void create(int a[10], int n)
{
    first_025 = (struct node *)malloc(sizeof(struct node));
    first_025->data_025 = a[0];
```

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```c
        first_025->next_025 = NULL;

    last_025 = first_025;
    for (int i = 1; i < n; i++)
    {
        temp_025 = (struct node *)malloc(sizeof(struct node));
        temp_025->data_025 = a[i];
        temp_025->next_025 = NULL;
        last_025->next_025 = temp_025;
        last_025=temp_025;
    }
}
void display(struct node *F)
{
    while (F!=NULL)
    {
        printf("%d ", F->data_025);
        F = F->next_025;
    }
}


int main()
{

    int a[] = {1, 2, 3, 4, 5, 6, 7};
    create(a, 7);
    display(first_025);

    return 0;
}
```

<u>OUTPUT-Q1</u>

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```c
/* Q2.WAP to create SLL using recursion and display the
value of each node
 using user defined funcion create and display*/
#include <stdio.h>
#include <stdlib.h>

struct node
{
    int data_025;
    struct node *next_025;
} * first_025, *temp_025, *last_025;

void crearec(int a[], int n, int i)
{

    if (i == n)
    {
        printf("nodes are created\n");
    }

    else
    {
        struct node *temp_025;
        temp_025 = (struct node *)malloc(sizeof(struct node));
```

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```c
            temp_025->data_025 = a[i];
            temp_025->next_025 = NULL;
            last_025->next_025 = temp_025;
            last_025 = temp_025;
            crearec(a, n, i + 1);
        }
}
void display(struct node *f)
{

    //struct node *temp_025 = f;
    while (f != NULL)

    {

        printf("%d ", f->data_025);
        f = f->next_025;

    }
}

int main()
{

    int a[] = {1, 2, 3, 4, 5, 6, 7};
    first_025 = (struct node *)malloc(sizeof(struct node
));
    first_025->data_025 = a[0];
    first_025->next_025 = NULL;
    last_025 = first_025;
    crearec(a, 7, 1);
    printf("data in created nodes are: ");
    display(first_025);

    return 0;
}
```

OUTPUT-Q2

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```c
/*Q3.inserting new node at beginning

inserting new node at end
inserting new node at any place*/

#include <stdio.h>
#include <stdlib.h>

struct node
{
    int data_025;
    struct node *next_025;
} * first_025, *last_025, *temp_025;
void create(int a[10], int n)
{
    first_025 = (struct node *)malloc(sizeof(struct node));
    first_025->data_025 = a[0];
    first_025->next_025 = NULL;
    last_025 = first_025;
    for (int i = 1; i < n; i++)
    {
        temp_025 = (struct node *)malloc(sizeof(struct node));
        temp_025->data_025 = a[i];
        temp_025->next_025 = NULL;
        last_025->next_025 = temp_025;
        last_025 = temp_025;
    }
}
void display(struct node *temp_025)
```

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```c
{
    while (temp_025 != NULL)
    {
        printf("%d ", temp_025->data_025);
        temp_025 = temp_025->next_025;
    }
}

void insertbeg(struct node *temp_025)
{
    struct node *newnode;

    printf("entre the data to the node ");
    newnode = (struct node *)malloc(sizeof(struct node));
    scanf("%d", &newnode->data_025);

    newnode->next_025 = temp_025;

    first_025 = newnode;
}
void insertlast(struct node *temp_025)
{
    int a;
    printf("entre the data to the node");
    scanf("%d", &a);
    struct node *newnode;
    newnode = (struct node *)malloc(sizeof(struct node));
    newnode->data_025 = a;
    newnode->next_025 = NULL;
    temp_025->next_025 = newnode;
    last_025 = newnode;
}
void insertany(struct node *temp_025, int n)
{
    int a;
    printf("entre the data to the node");
    scanf("%d", &a);
    struct node *newnode;
    newnode = (struct node *)malloc(sizeof(struct node));
    newnode->data_025 = a;
    newnode->next_025 = NULL;
    for (int i = 1; i < n; i++)
```

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```c
    {
        temp_025 = temp_025->next_025;
    }

    newnode->next_025 = temp_025->next_025;
    temp_025->next_025 = newnode;
}
int main()
{
    int n,p;
    int a[] = {1, 2, 3, 4, 5, 6, 7};
    create(a, 7);
    display(first_025);
    printf("\n press 1 to insert in begin\n press 2 to insert in l
ast \npress 3 to insert b/w any node\n");
    scanf("%d", &n);
    switch (n)
    {
    case 1:
        insertbeg(first_025);
        display(first_025);
        break;
    case 2:
        insertlast(last_025);
        display(first_025);
        break;
    case 3:

        printf("After which node you want to enter");
        scanf("%d", &p);
        insertany(first_025,p);
        display(first_025);
        break;

    default:
        break;
    }

    return 0;
}
```

==OUTPUT-Q3==

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```
Windows PowerShell
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Try the new cross-platform PowerShell https://aka.ms/pscore6

PS D:\my codes\DSA_clg\lab4 24.8.21_link_list> cd "d:\my codes\DSA_clg\lab4 24.8.21_link_list\" ; if ($?) { gcc q3_inserting
_node_in_begin.c -o q3_inserting_node_in_begin } ; if ($?) { .\q3_inserting_node_in_begin }
1 2 3 4 5 6 7
 press 1 to insert in begin
 press 2 to insert in last
press 3 to insert b/w any node
1
entre the data to the node 32
32 1 2 3 4 5 6 7
PS D:\my codes\DSA_clg\lab4 24.8.21_link_list> cd "d:\my codes\DSA_clg\lab4 24.8.21_link_list\" ; if ($?) { gcc q3_inserting
_node_in_begin.c -o q3_inserting_node_in_begin } ; if ($?) { .\q3_inserting_node_in_begin }
1 2 3 4 5 6 7
 press 1 to insert in begin
 press 2 to insert in last
press 3 to insert b/w any node
2
entre the data to the node43
1 2 3 4 5 6 7 43
PS D:\my codes\DSA_clg\lab4 24.8.21_link_list> cd "d:\my codes\DSA_clg\lab4 24.8.21_link_list\" ; if ($?) { gcc q3_inserting
_node_in_begin.c -o q3_inserting_node_in_begin } ; if ($?) { .\q3_inserting_node_in_begin }
1 2 3 4 5 6 7
 press 1 to insert in begin
 press 2 to insert in last
press 3 to insert b/w any node
3
After which node you want to enter3
entre the data to the node43
1 2 3 43 4 5 6 7
PS D:\my codes\DSA_clg\lab4 24.8.21_link_list>
```

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