ASSIGNMENT 3 – LINKED LIST

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C program to create a Singly Linked List and with the following operations

1. Create
2. Add at the beginning
3. Add at the end
4. Add at any intermediate location

**Source Code:**

#include<stdio.h>

#include<stdlib.h>

struct Node {

int data;

struct Node \*next;

};

struct Node\* createSLL(int value) {

struct Node\* newNode = (struct Node\*)malloc(sizeof(struct Node));

newNode->data = value;

newNode->next = NULL;

return newNode;

}

void addAtBeginning(struct Node \*\*head, int value) {

struct Node\* newNode = createSLL(value);

newNode->next = \*head;

\*head = newNode;

}

void addAtEnd(struct Node \*\*head, int value) {

struct Node\* newNode = createSLL(value);

struct Node\* curr = \*head;

while(curr->next != NULL) {

curr = curr->next;

}

curr->next = newNode;

newNode->next = NULL;

}

void addAtIntermediate(struct Node \*prevNode, int value) {

if(prevNode == NULL) {

printf("Cannot add!! Previous node is NULL\n");

return;

}

struct Node \*newNode = createSLL(value);

newNode->next = prevNode->next;

prevNode->next = newNode;

}

void displaySLL(struct Node\* head) {

struct Node\* curr = head;

while(curr != NULL) {

printf("%d -> ", curr->data);

curr = curr->next;

}

printf("NULL\n");

}

int main() {

struct Node\* head = NULL;

int choise, value, prevValue;

do {

printf("Enter your choise\n 1. Add At Beginning\t 2. Add At End\t 3. Display SLL\t 4. Add At Intermediate 0. Exit\n");

scanf("%d", &choise);

switch(choise) {

case 1:

printf("Enter the value: ");

scanf("%d", &value);

addAtBeginning(&head, value);

break;

case 2:

printf("Enter the value: ");

scanf("%d", &value);

addAtEnd(&head, value);

break;

case 3:

displaySLL(head);

break;

case 4:

printf("Enter the value to be added: ");

scanf("%d", &value);

printf("Enter the value after which you want to add: ");

scanf("%d",&prevValue);

struct Node \*curr = head;

while(curr->data != prevValue) {

curr = curr->next;

}

struct Node \*prevNode = curr;

addAtIntermediate(prevNode, value);

break;

default:

printf("Invalid Choise! Try Again.\n");

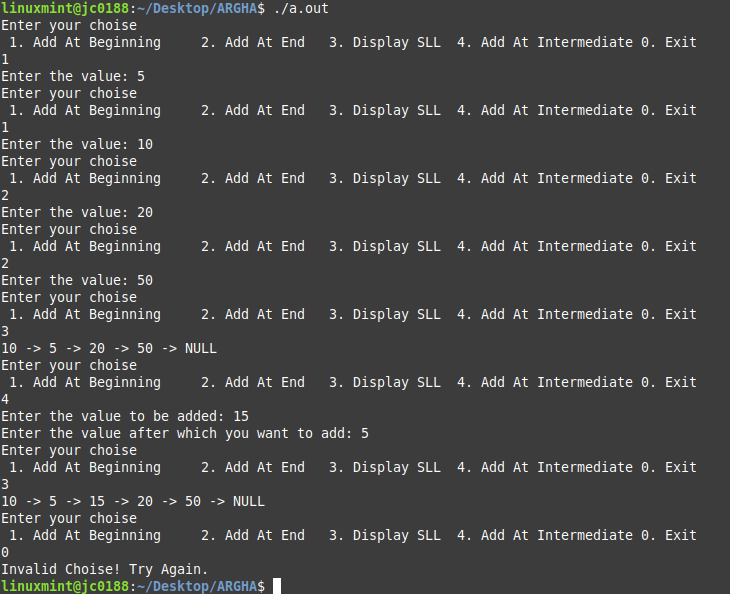
break;

}

} while (choise != 0);

}

**Output:**

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