// Write a C program to create two linked lists named as Odd and Even from a linked list, so

that Odd linked list contains all nodes with odd values and even linked list with even values

(using double pointer).

/\*

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\*/

#include<stdio.h>

#include<stdlib.h>

typedef struct node{

int data;

struct node \*next;

}nodetype;

nodetype\* createLinkedList();

void splitIntoOddAndEven(nodetype\*); //Function Declaration

void display(nodetype\*);

int main(){

nodetype \*front=NULL;

front=createLinkedList(); //Function Calling

printf("\n----------------The original linked list---------------\n");

display(front);

splitIntoOddAndEven(front);

return 0;

}

nodetype\* createLinkedList(){

nodetype \*p=NULL ,\*front=NULL,\*rear=NULL;

int num,choice=1;

/\*This loop creates a linked list until user wants to add new nodes \*/

while(choice==1){

printf("\nEnter the value to be inserted :");

scanf("%d",&num);

p=(nodetype\*)malloc(sizeof(nodetype));

if(p!=NULL)

p->data=num;

else

printf("\nmemory not allocated");

if(rear==NULL)

rear=front=p;

else{

rear->next=p;

rear=p;

}

rear->next=NULL;

printf("\nPress 1 to continue adding nodes else press other key : ");

scanf("%d",&choice);

}

return front;

}

void splitIntoOddAndEven(nodetype \*front){

nodetype \*odd\_front=NULL,\*odd\_rear=NULL,\*even\_front=NULL, \*even\_rear=NULL,\*p=NULL;

while(front!=NULL)

{

p=(nodetype\*)malloc(sizeof(nodetype));

p->data=front->data;

/\*Condition to check whether node’s data is even or odd and then join that node to the respective linked list \*/

if((p->data%2)==0)

{

if(even\_front==NULL)

even\_front=p;

else

even\_rear->next=p;

even\_rear=p;

front=front->next;

even\_rear->next=NULL;

}

else

{

if(odd\_front==NULL)

odd\_front=p;

else

odd\_rear->next=p;

odd\_rear=p;

front=front->next;

odd\_rear->next=NULL;

}

}

printf("\n----------------The ODD linked list---------------\n");

display(odd\_front);

printf("\n----------------The EVEN linked list---------------\n");

display(even\_front);

}

void display(nodetype \*front){

if(front!=NULL){

while(front!=NULL){

printf("%d\t",front->data);

front=front->next;

}

}

else

printf("\nqueue is empty");

}