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**Class Assignment**

**Program 3**

**Question:**

WAP to Remove Duplicate from a Single Linked List of n Nodes.

**Code:**

#include <stdio.h>

#include <stdlib.h>

#include <string.h>

#include <math.h>

#include <stdint.h>

#include <stdbool.h>

//all packages are imported now

typedef struct node

{

int data;

struct node \*next;

}\*NODE;

//we made the structure

NODE create(NODE start)

{

//this method creates a new node

NODE new\_node;

int data;

printf("\nEnter the data. If entered -1, list is complete \n");

scanf("%d",&data);

while(data!=-1)

{

new\_node=(struct node\*)malloc(sizeof(struct node\*));

new\_node->data=data;

if(start==NULL)

{

//this is for empty list

start=new\_node;

new\_node->next=NULL;

}

else //making it the first node

{

//here the nodes are inserted from the first

new\_node->next=start;

start=new\_node;

}

printf("\nEnter the data. If entered -1, list is complete \n");

scanf("%d",&data);

}

return start;

}

//end of creating node method

int count\_node(NODE start)

{

//here the number of nodes are counted

NODE ptr=start;

int count=0;

while(ptr!=NULL)

{

ptr=ptr->next;

count++;

}

return count;

}

//end of count\_node method

void display(NODE start)

{

//this method displays the list

NODE ptr;

ptr=start;

int count=1;

printf("\nThe List:\n");

while(ptr!=NULL)

{

printf("%d. %d\n",count,ptr->data);

ptr=ptr->next;

count++;

}

//list is displayed

printf("\n");

}

//end of diaplay method

void duplicate(NODE start)

{

//this method searches an item entered by the user

NODE ptr1=start;

NODE ptr2;

NODE ptr3;

while(ptr1->next!=NULL)

{

ptr2=ptr1->next;

ptr3=ptr1;

while(ptr2->next!=NULL)

{

if(ptr2->data==ptr1->data)

{

ptr3->next=ptr2->next;

ptr3=ptr2;

ptr2=ptr2->next;

}

else

{

ptr3=ptr2;

ptr2=ptr2->next;

}

}

ptr1=ptr1->next;

}

display(start);

}

//end of search method

int main()

{

//this is the main execution method which controls the flow of execution

NODE start=NULL;

//main execution function

start=create(start);

display(start);

duplicate(start);

return 0;

}

//end of main method

**Output:**



