29/1/2 **STACK USING LINKED LIST** NAME:Shivaraj K Pujari ,USN:1BM22CS259

```
#include <stdio.h>
#include <stdlib.h>
void push();
void pop();
void display();
struct node
{
int val;
struct node *next;
};
struct node *head;

void main ()
{
   int choice=0;
   printf("MENU: 1.push 2.pop 3.display 4.exit\n");
   while(choice != 4)
   {
      printf("Enter your choice \n");
      scanf("%d",&choice);
      switch(choice)
      {
         case 1:
         {
            push();
            break;
         }
         case 2:
         {
            pop();
            break;
         }
```

```
        case 3:
        {
            display();
            break;
        }
        case 4:
        {
            printf("Exiting");
            break;
        }
        default:
        {
            printf("Please Enter valid choice ");
        }
    };
}
}
void push ()
{
    int val;
    struct node *ptr = (struct node*)malloc(sizeof(struct node));
    if(ptr == NULL)
    {
        printf("not able to push the element\n");
    }
    else
    {
        printf("Enter the value\n");
        scanf("%d",&val);
        if(head==NULL)
        {
            ptr->val = val;
            ptr -> next = NULL;
```

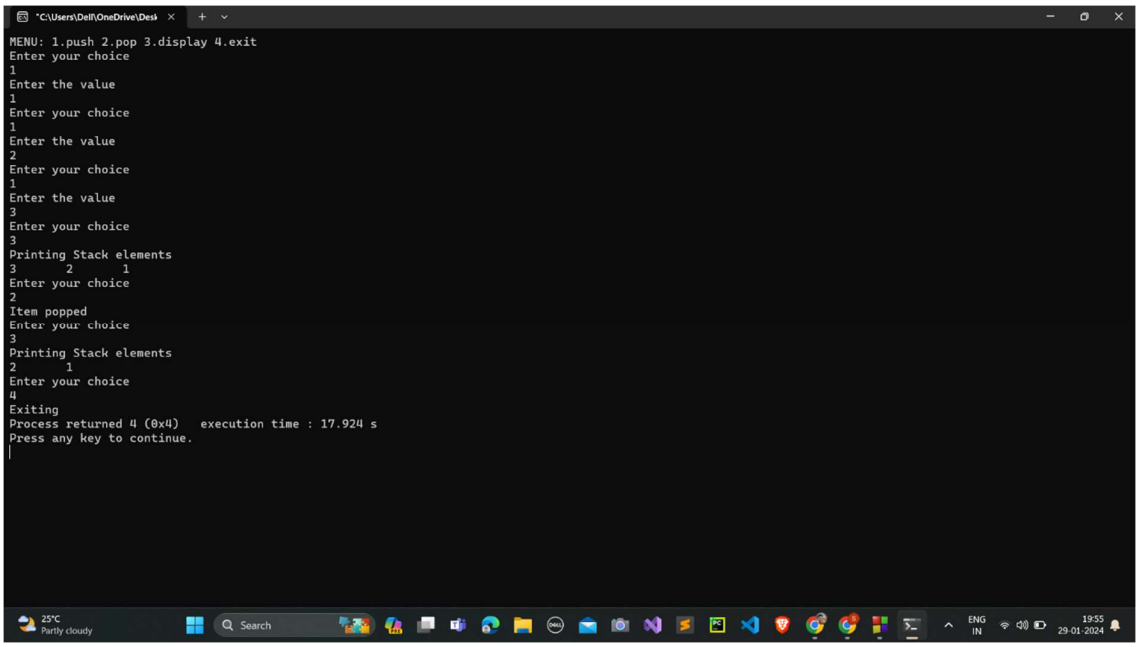
```
            head=ptr;
        }
        else
        {
            ptr->val = val;
            ptr->next = head;
            head=ptr;
        }
    }
}

void pop()
{
    int item;
    struct node *ptr;
    if (head == NULL)
    {
        printf("Underflow\n");
    }
    else
    {
        item = head->val;
        ptr = head;
        head = head->next;
        free(ptr);
        printf("Item popped\n");

    }
}
void display()
{
    int i;
    struct node *ptr;
```

```
    ptr=head;
    if(ptr == NULL)
    {
        printf("Stack is empty\n");
    }
    else
    {
        printf("Printing Stack elements \n");
        while(ptr!=NULL)
        {
            printf("%d\t",ptr->val);
            ptr = ptr->next;
        }
        printf("\n");
    }
}
```

OUTPUT:



QUEUES USING LINKEDLIST

```
#include<stdio.h>
#include<stdlib.h>
struct node
{
   int data;
   struct node *next;
};
struct node *front;
struct node *rear;
void insert();
void delete();
void display();
void main ()
{
   int choice;
   printf("MENU: 1.enqueue 2.dequeue 3.display 4.exit\n");
   while(choice != 4)
   {
      printf("Enter your choice \n");
      scanf("%d",& choice);
      switch(choice)
      {
         case 1:
         insert();
         break;
         case 2:
         delete();
         break;
         case 3:
         display();
         break;
         case 4:
```

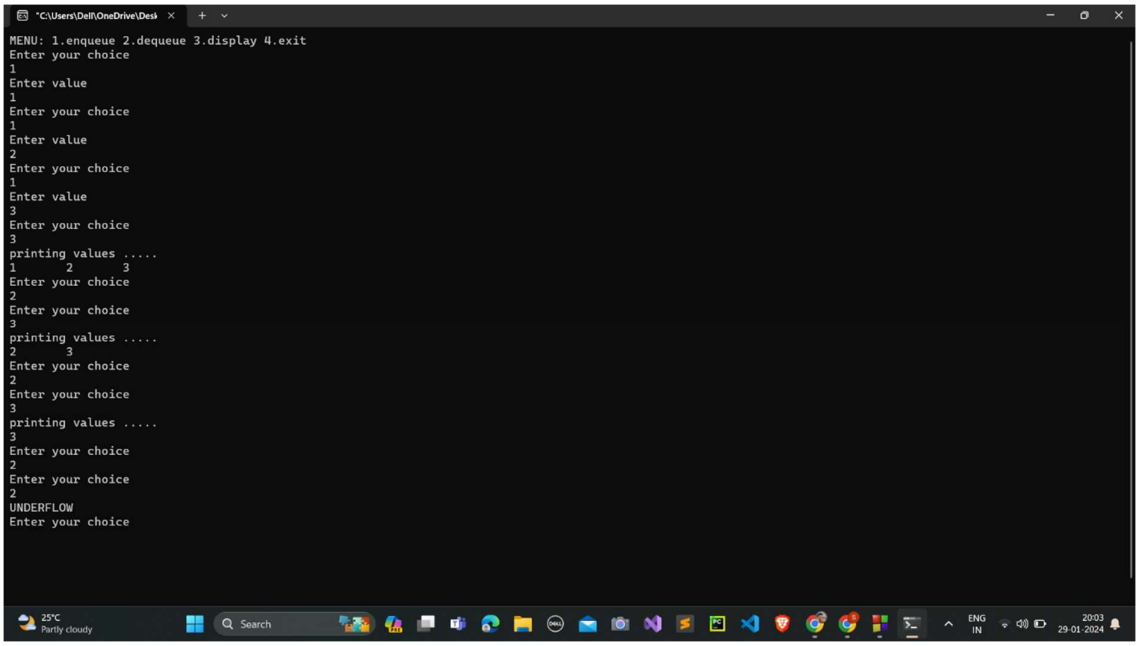
```
            exit(0);
            break;
            default:
            printf("Enter valid choice\n");
        }
    }
}
void insert()
{
    struct node *ptr;
    int item;

    ptr = (struct node *) malloc (sizeof(struct node));
    if(ptr == NULL)
    {
        printf("OVERFLOW\n");
        return;
    }
    else
    {
        printf("Enter value\n");
        scanf("%d",&item);
        ptr -> data = item;
        if(front == NULL)
        {
            front = ptr;
            rear = ptr;
            front -> next = NULL;
            rear -> next = NULL;
        }
        else
        {
            rear -> next = ptr;
```

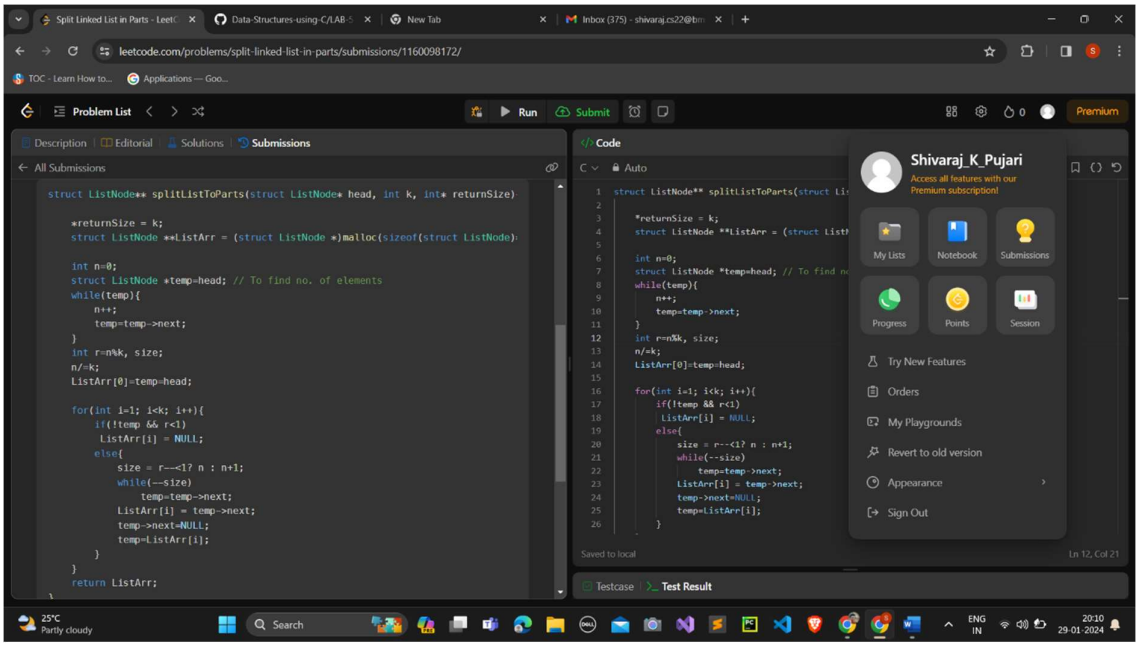
```
            rear = ptr;
            rear->next = NULL;
        }
    }
}
void delete ()
{
    struct node *ptr;
    if(front == NULL)
    {
        printf("UNDERFLOW\n");
        return;
    }
    else
    {
        ptr = front;
        front = front -> next;
        free(ptr);
    }
}
void display()
{
    struct node *ptr;
    ptr = front;
    if(ptr== NULL)
    {
        printf("Empty queue\n");
    }
    else
    {   printf("printing values .....\n");
        while(ptr != NULL)
        {
            printf("%d\t",ptr -> data);
```

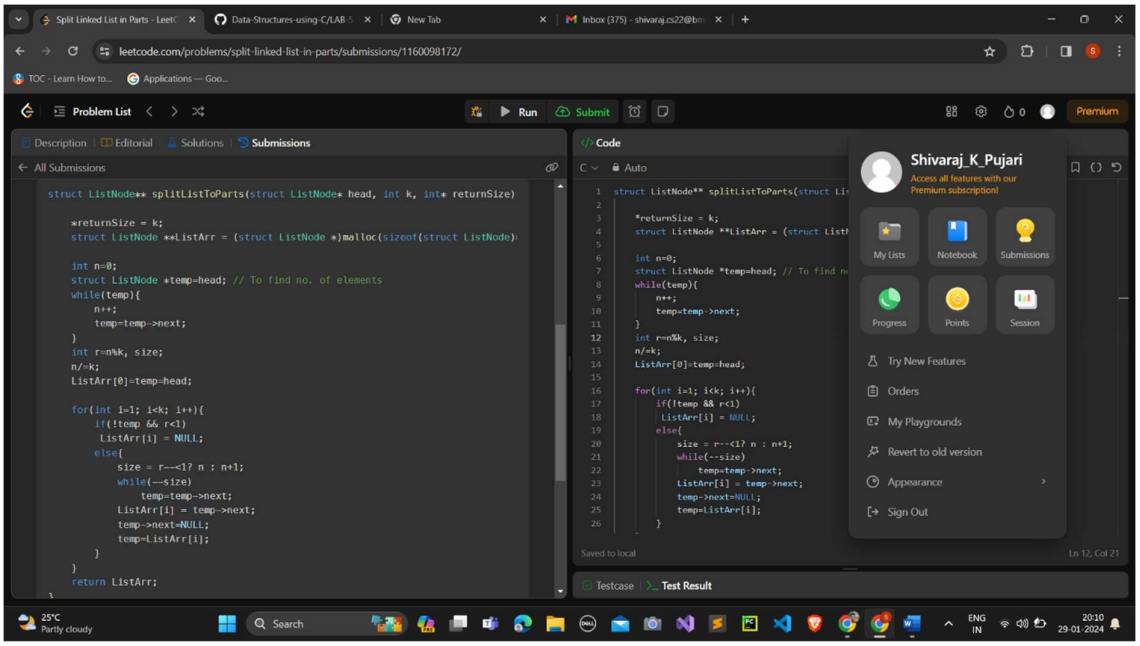
```
        ptr = ptr -> next;
      }
      printf("\n");
   }
}
```

OUTPUT:



LEETCODE PROBLEM: 725. Split Linked List in Parts




Split Linked List in Parts - LeetC
Data-Structures-using-C/LAB-5
New Tab
Inbox (375) - shivaraj.cs22@bm
leetcode.com/problems/split-linked-list-in-parts/submissions/1160098172/
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struct ListNode** splitListToParts(struct ListNode* head, int k, int* returnSize)
*returnSize = k;
struct ListNode **ListArr = (struct ListNode *)malloc(sizeof(struct ListNode)
int n=0;
struct ListNode *temp=head; // To find no. of elements
while(temp){
n++;
temp=temp->next;
}
int r=n%k, size;
n/=k;
ListArr[0]=temp=head;
for(int i=1; i<k; i++){
if(!temp && r<1)
ListArr[i] = NULL;
else{
size = r--<1? n : n+1;
while(--size)
temp=temp->next;
ListArr[i] = temp->next;
temp->next=NULL;
temp=ListArr[i];
}
}
return ListArr;
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