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Lab-3 :-

~~Circular Queue :-~~

~~#include <stdio.h>~~
~~# define SIZE 5~~
~~int [SIZE];~~
~~int front = -1;~~
~~int rear = -1;~~

{

Lab-3 :-

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Circular Queue

```
#include <stdio.h>
# define SIZE 5

int items [SIZE];
int front = -1, rear = -1;

int isFULL () {
        if ((front == rear +1) || (front == 0 && rear == SIZE -1))
         Return 1;
        return 0;
  }

int isEmpty () {
          if (front == -1)
           Return 1;
           return 0;
    }
```

```
void enQueue (int elment) {
        if (isFULL())
        printf ("\n Queue is full !! \n");
     else {
        if (front == -1) frot = 0;
        rear = (rear + 1) % SIZE;
        items [rear] = elment;
        printf ("\n Inserted -> %d", element);
    }
  printf ("\n");
}


int deQueue() {
       int element;
       if (isEmpty()) {
              printf ("\nQueue is empty !! \n");
           return (-1);
       }
        else {
          element = items [front];
          if (front == rear) {
               front = -1;
               rear = -1;
          }
          else {
             front = (front + 1) % SIZG;
          }
      printf ("\n Deleted element -> %d \n", element);
      return (element);
   }
 printf ("\n");
}
```

```
void display() {
    int i;
  if (isEmpty())
     printf(" \n Empty Queue\n");
  else {
      printf("\n Front → %d ", front);
      printf("\n Items → ");
      for (i = front ; i != rear ; i = (i+1) % SIZE)
         printf("\n Rear → %d \n", rear);
  }
  printf(" \n");
}


void main()
 {
    int option, val;
     int ele;
     do
     {

        printf("1. insert \n");
        printf("2. Delete\n");
       printf("3. Display\n");
       printf("4. Exit\n");
      printf("Enter your option : \n");
      scanf("%d", &option);
      switch (option)
       {

          case 1:
                  printf("enter the element : ");
                  scanf("%d", &ele);
                  enQueue (ele);
                  break;
Case 2: val=deQueue();
            if (val!=-1)
                printf("the number deleted is: %d.", val);
            break;
   Case 3: display();
            break;
        }
   } while (option!=4);
}
```

Output :-

```
1. insert
2. Delete
3. Display
4. Exit
enter your option:
  1
enter the elmnt: 2

inserted -> 2

1. Insert
2. Delete
3. Display
4. Exit
enter your Option:
1
enter the elemt: 6
inserted -> 6
```

```
1.insert
2. Delete
3. Display
4. Exit

enter your option :
 2
Deleted element -> 2
the number deleted is 2

1. inset
 2. Delete
3 Display
4. Exit
enter you option :
 3
  Front -> 1
  Item -> 6
  Rear -> 1
```

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Lab-3

- Linked - List :-

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

Struct Node
{
   int data;
   Struct Node *next;
};

void insert(Struct Node ** head, int data)
{
   struct Node * newnode = (Struct Node *) malloc (sizeof
                                                  (Struct Node));

newnode ->
  data = data;
   newnode ->
   next = * head;
 * head = newnode;
}
void display (struct Node * node)
{
   printf("\n Linked List:");
    while (node != NULL)
   {
     printf (" %d", node -> data);
     node = node -> next;
   }
printf("\n");
}
```

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```
void main()
{
   struct Node *head = NULL;
    insert (&head, 22))
   Insert (&head, 33);
   Insert (&head, 44);
    insert (&head, 55);
    insert (&head, 66);
    display(head);
}
```

Output :-

```
Linked List : 66  55  44  33  22
```

P.E

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