DS PRACTICAL 08[C]

AIM: Implement a Circular Queue and perform the Queue operations: Enqueue, Dequeue and Print using Menu Driver Program such as 1.Add, 2.Delete and 3.Print and 4.Exit.

PROGRAM:

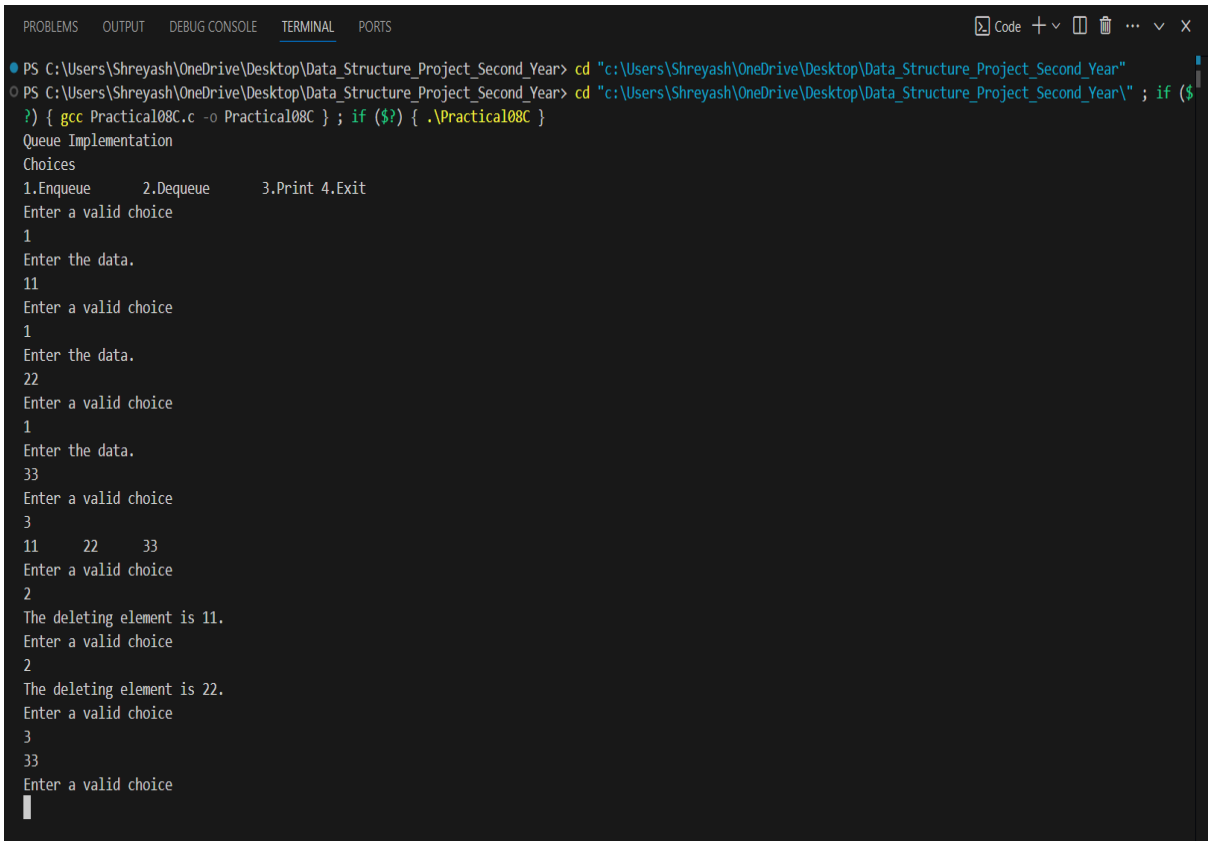
```
#include <stdio.h>


// Creating array Globaly
int Queue[5];
int front = -1, rear = -1, data;


// FUNCTION FOR ENQUEUE
int enqueue()
{
   if((rear + 1) % 5 == front){
      printf("The Queue is Overflow.\n");
   }else if(front == -1 && rear == -1){
      front = 0;
      rear = 0;
      printf("Enter the data.\n");
      scanf("%d", &data);
      Queue[rear] = data;
   }else{
      printf("Enter the data.\n");
      scanf("%d", &data);
      rear = (rear + 1) % 5;
      Queue[rear] = data;
   }
   return 0;
}


// FUNCTION FOR DEQUEUE
int dequeue()
```

```
{


   if(front == -1 && rear == -1 ){
      printf("The Queue is Underflow.\n");
   }else if(front == rear){
      printf("The Queue is Underflow.\n");
      front = rear = -1;
   }else{
      printf("The deleting element is %d.\n", Queue[front]);
      front = (front + 1) % 5;
   }
   return 0;
}


void display()
{
   if (front == -1)
   {
      // Checking the queue is empty or not.
      printf("The Queue is empty so, can not print the element.\n");
   }
   else
   {
      // printing the elements in the Queue
      int i = front;
      while (1)
      {
         printf("%d\t", Queue[i]);
         if (i == rear)
            break;      // Stop when we reach the rear
         i = (i + 1) % 5; // Move to the next index in circular manner
```

```
        }
        printf("\n");
    }
}

// MAIN FUNCTION
int main()
{
    int choice;
    printf("Queue Implementation\n");
    printf("Choices\n1.Enqueue\t2.Dequeue\t3.Print\t4.Exit\n");
    do
    {
        printf("Enter a valid choice\n");
        scanf("%d", &choice);

        switch (choice)
        {
        case 1:
            enqueue();
            break;
        case 2:
            dequeue();
            break;

        case 3:
            display();
            break;

        case 4:
            printf("You exited the Program successfully.");
```

```
            break;


        default:
            printf("Please enter a valid choice as mention!\n");
            break;
        }
    } while (choice != 4);


    return 0;
}
```

OUTPUT



GITHUB LINK: https://github.com/ShreyashGajbhiye453/Data-Structure-Practical-No.-01