Practical 8[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:-

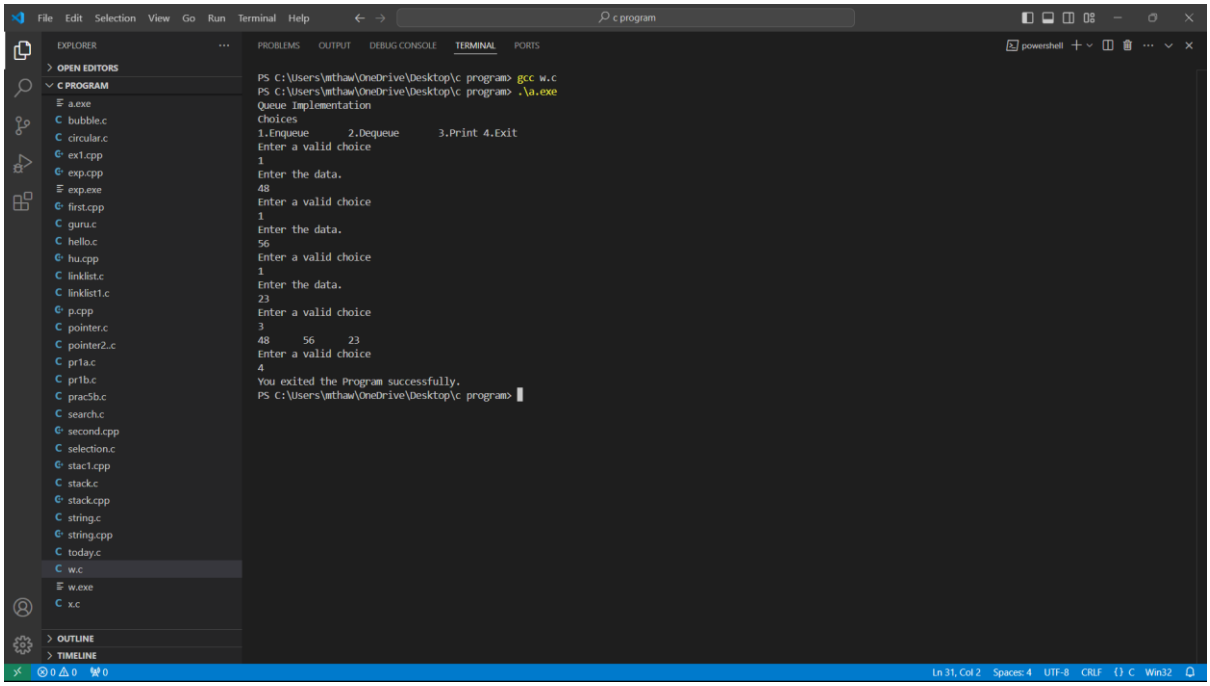
```
#include <stdio.h>


// 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/MayurThaware122/DSA