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```
//Write a menu driven code to implement Queue ADT using arrays

#include <stdio.h>

#include <stdlib.h>

#define MAX 10 // Changing this value will change length of array

int queue[MAX];

int front = -1, rear = -1;

void Enqueue(void);

int Dequeue(void);

int GetFront(void);

int GetRear(void);

void size(void);

void display(void);

int main()

{

   int option, val;

   do {

      printf("\n\n****List of Operations****");

      printf("\n 1. Enqueue");

      printf("\n 2. Dequeue");

      printf("\n 3. Get Front");

      printf("\n 4. Get Rear");

      printf("\n 5. Size");

      printf("\n 6. Display");

      printf("\n 7. EXIT");

      printf("\n Enter your option: ");

      scanf("%d", &option);

      switch (option) {

      case 1:

         Enqueue();

         break;

      case 2:
```

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```
            val = Dequeue();
            if (val != -1)
               printf("\n The number deleted is: %d", val);
            break;
         case 3:
            val = GetFront();
            if (val != -1)
               printf("\n The first value in queue is: %d", val);
            break;
         case 4:
            val = GetRear();
            if (val != -1)
               printf("\n The last value in queue is: %d", val);
            break;
         case 5:
            size();
            break;
         case 6:
            display();
            break;
         case 7:
            printf("\n\tEXIT POINT");
            break;
         }
   } while (option != 7);
   return 0;
}
int isEmpty() {
   return (front == -1 && rear == -1);
}
int isFull() {
```

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```
   return rear == MAX - 1;
}
void Enqueue()
{
   int num;
   printf("\n Enter the number to be inserted in the queue: ");
   scanf("%d", &num);
   if (isFull())
      printf("\n OVERFLOW");
   else if (front == -1 && rear == -1)
      front = rear = 0;
   else
      rear++;
   queue[rear] = num;
}
int Dequeue()
{
   int val;
   if (isEmpty())
   {
      printf("\n UNDERFLOW");
      return -1;
   }
   else
   {
      val = queue[front];
      if (front == rear) {
         front = rear = -1;
      }
      else {
         front++;
```

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```
        }
        return val;
    }
}
int GetFront()
{
    if (isEmpty()) {
        printf("\nQUEUE IS EMPTY");
        return -1;
    }
    else {
        return queue[front];
    }
}
int GetRear(void)
{
    if (isEmpty()) {
        printf("\nQUEUE IS EMPTY");
        return -1;
    }
    else {
        return queue[rear];
    }
}
void size(void)
{
    int count=0;
    int i;
    if(front > -1 && rear > -1)
    {
        printf("The number of elements in queue: ");
```

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```
        for(i=front; i<=rear; i++) {

            count++;

        }

        printf("%d\n",count);

    }

    else

    {

        printf("\n The Queue is empty");

    }

}

void display()

{

    int i;

    printf("\n");

    if (isEmpty())

        printf("\nQUEUE IS EMPTY");

    else

    {

        printf("\nThe Linear Queue is: ");

        for (i=front; i<=rear; i++)

            printf("\t%d", queue[i]);

    }

}
```

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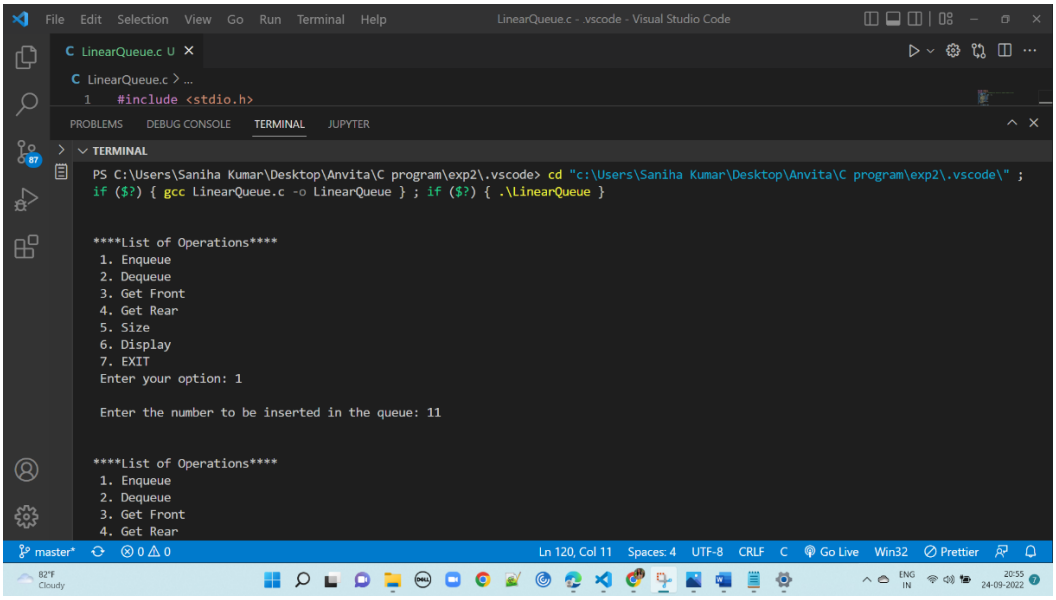

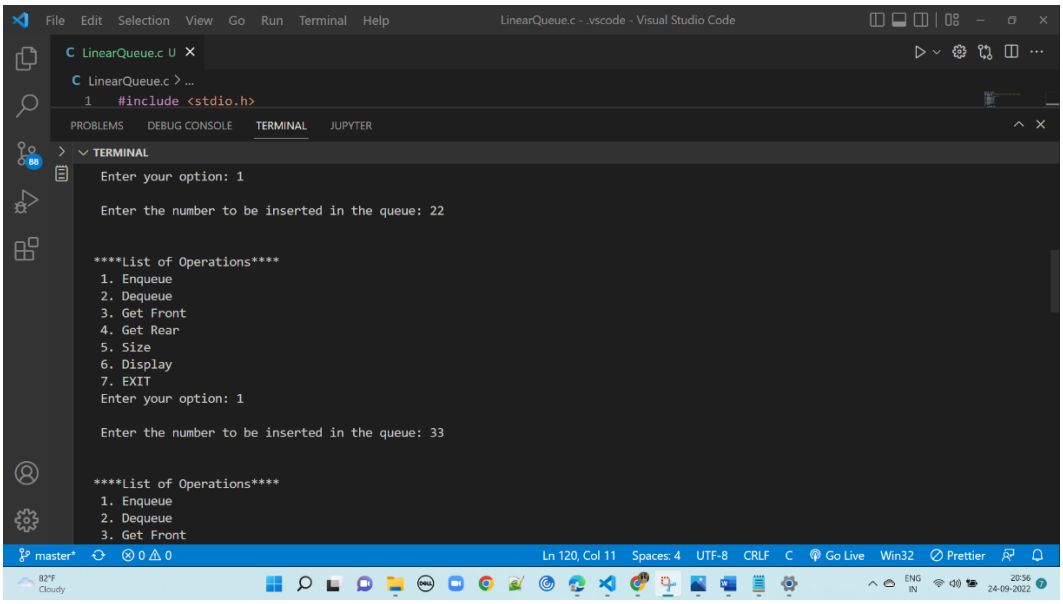

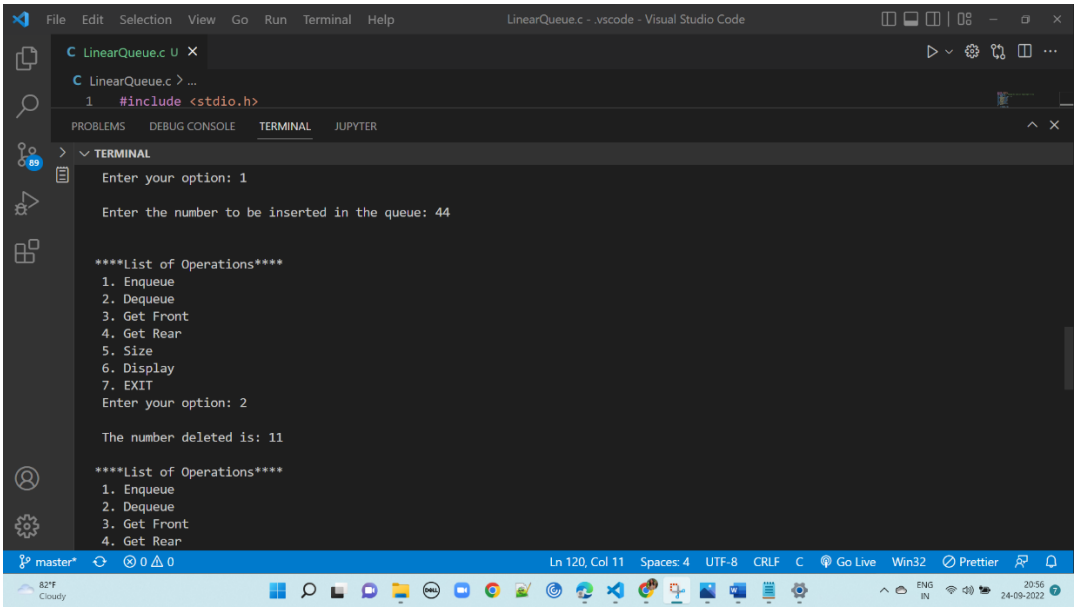

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