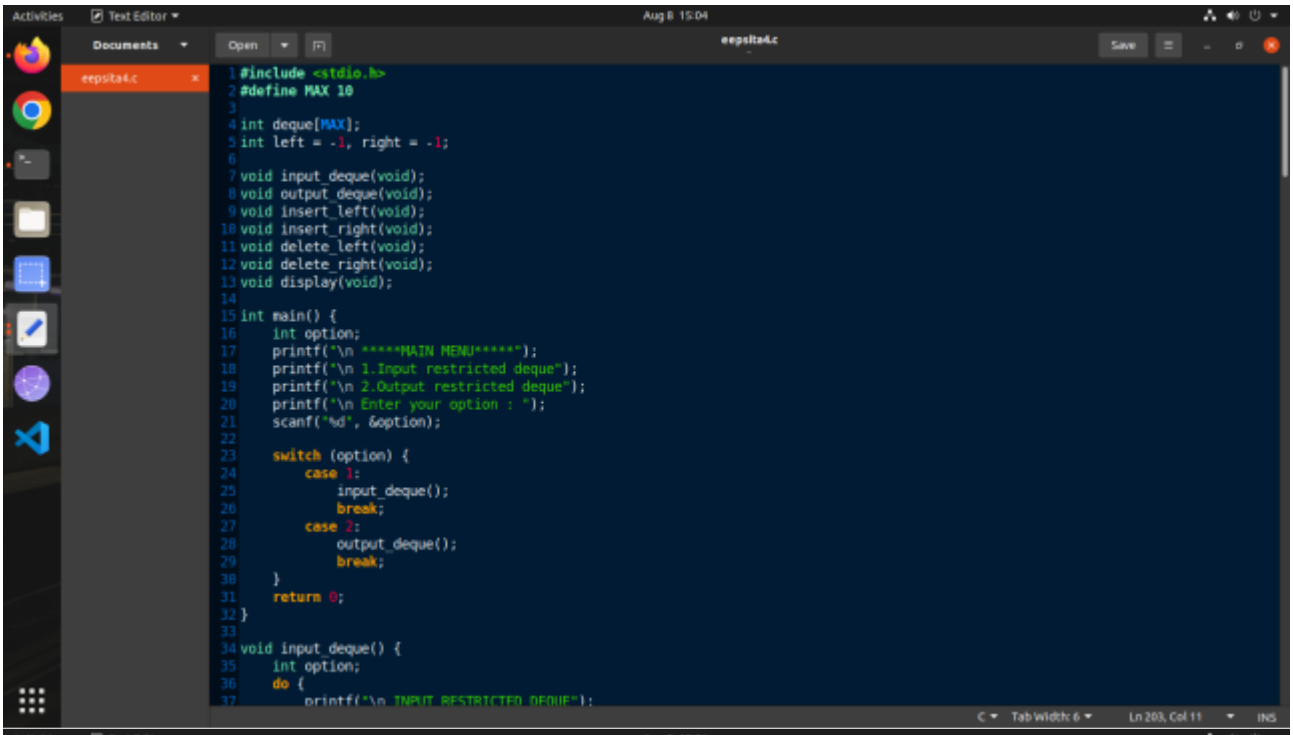
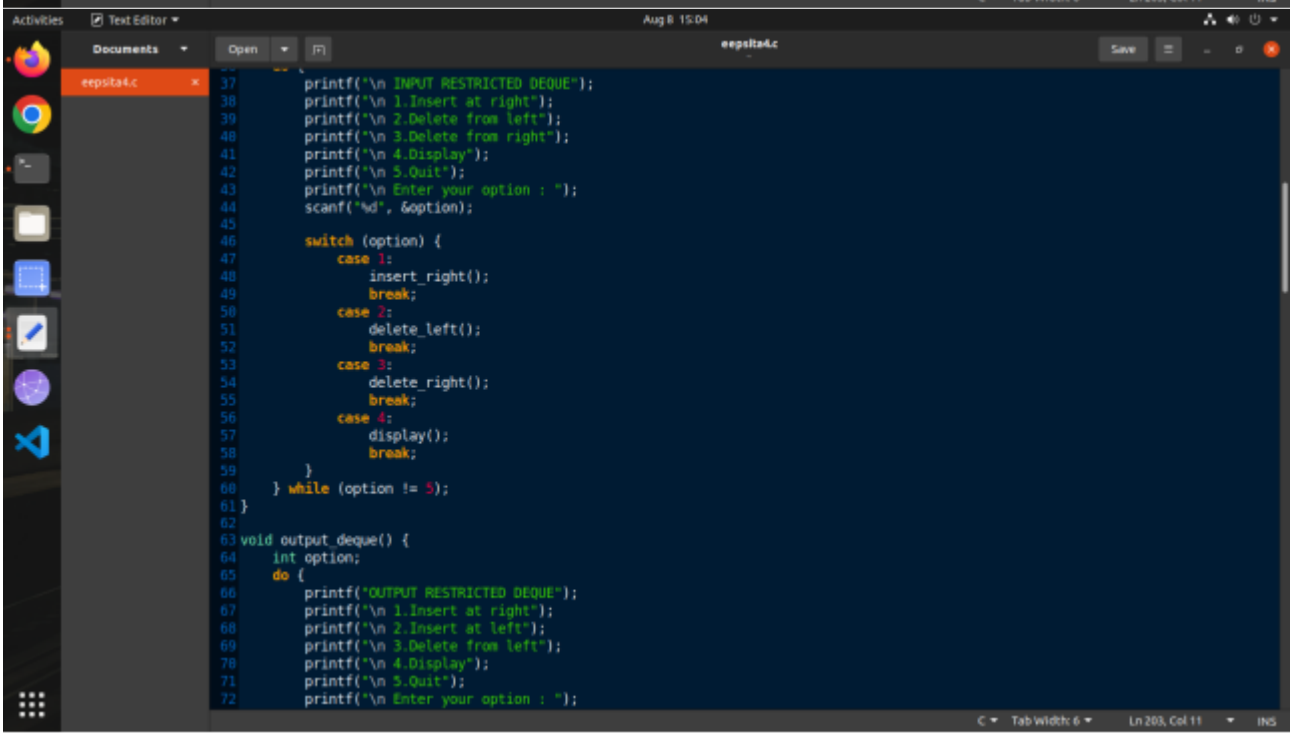
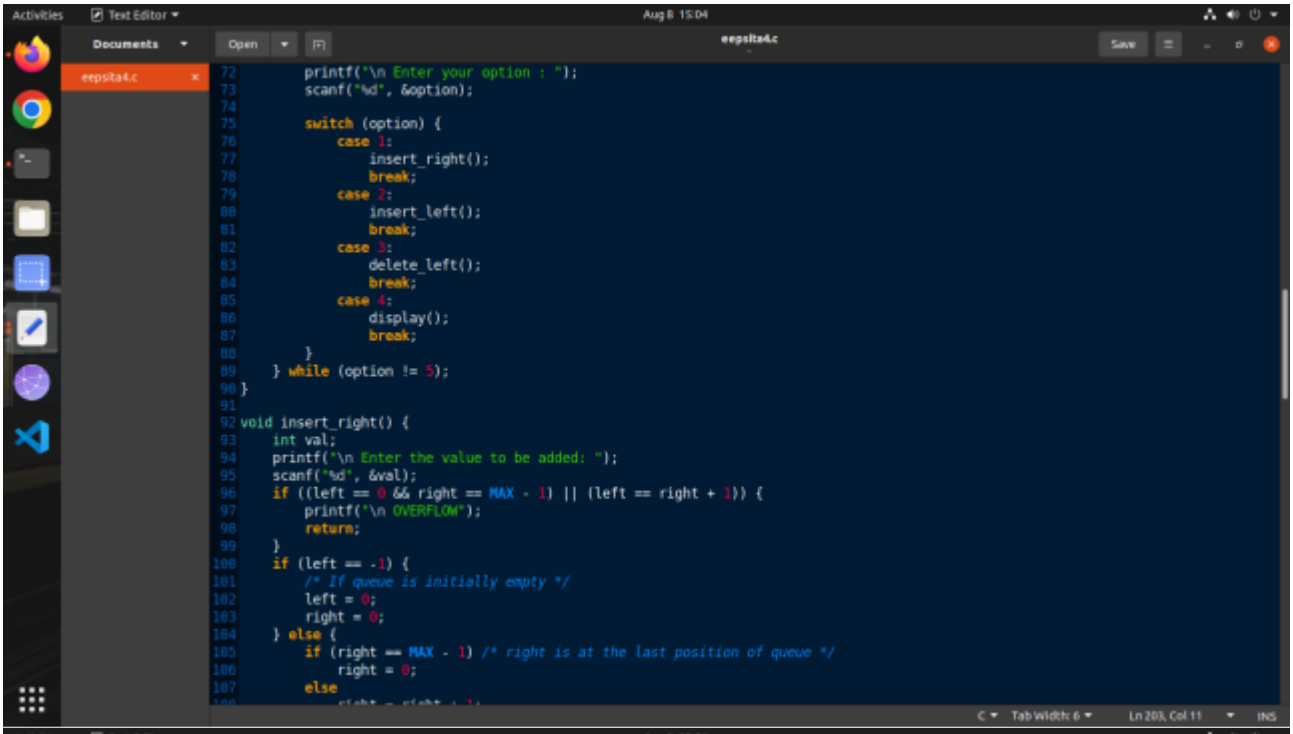
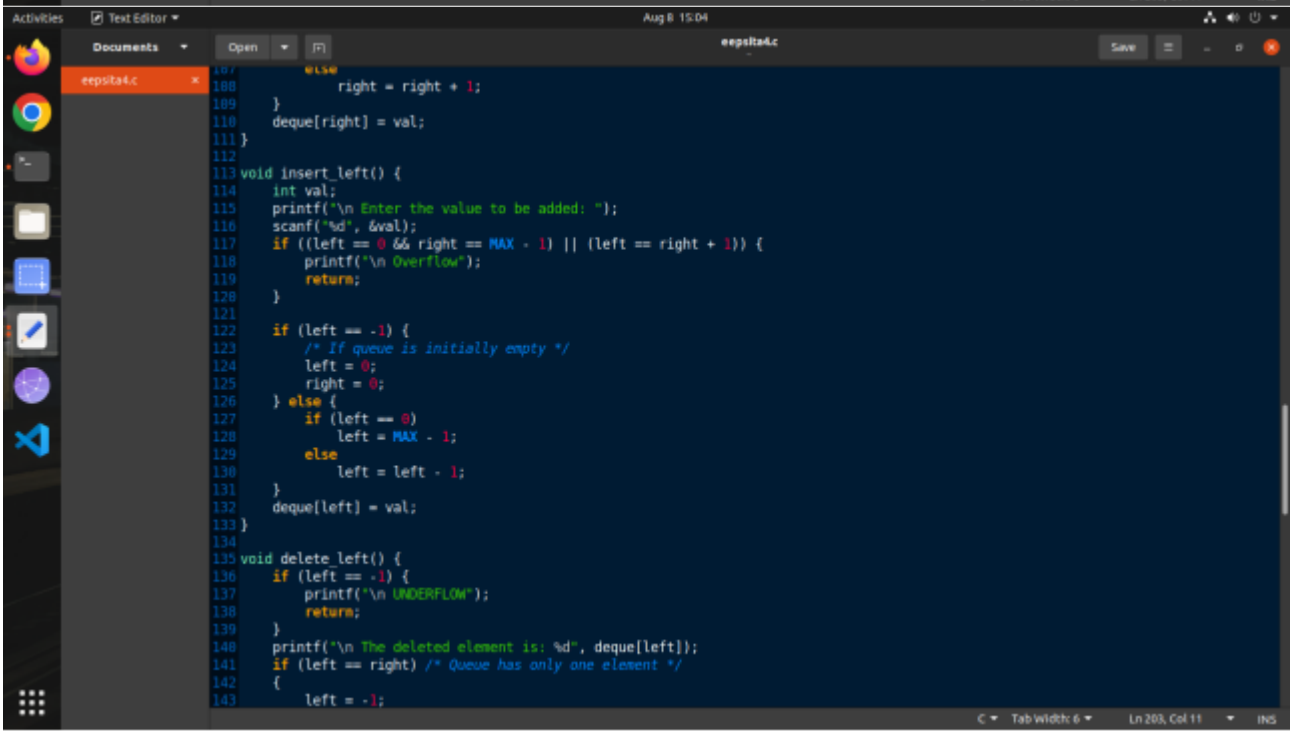

Activities
Text Editor
Aug 8 15:04
Documents
Open
eepsita4.c
Save
eepsita4.c
#include <stdio.h>
#define MAX 10
int deque[MAX];
int left = -1, right = -1;
void input_deque(void);
void output_deque(void);
void insert_left(void);
void insert_right(void);
void delete_left(void);
void delete_right(void);
void display(void);
int main() {
int option;
printf("\n *****MAIN MENU*****");
printf("\n 1.Input restricted deque");
printf("\n 2.Output restricted deque");
printf("\n Enter your option : ");
scanf("%d", &option);
switch (option) {
case 1:
input_deque();
break;
case 2:
output_deque();
break;
}
return 0;
}
void input_deque() {
int option;
do {
C
Tab Width: 6
Ln 203, Col 11
INS

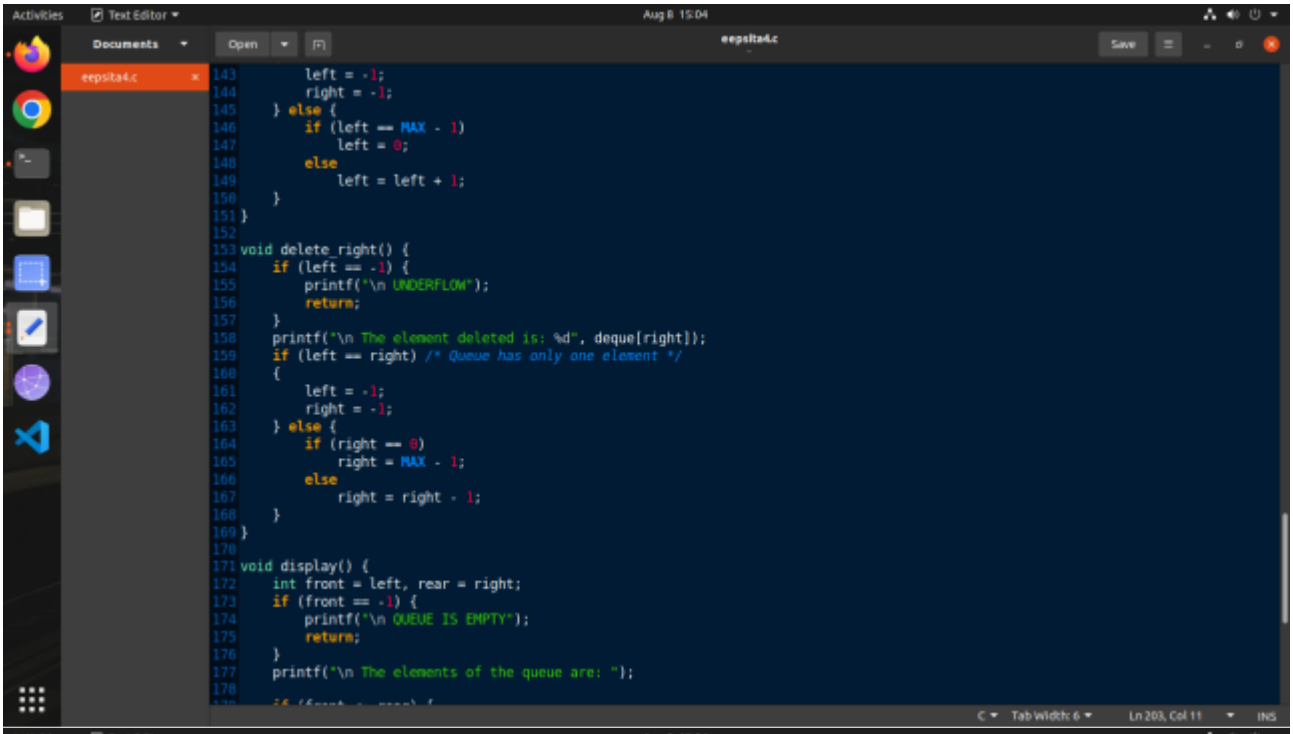

Activities
Text Editor
Aug 8 15:04
Documents
Open
eepsita4.c
Save
eepsita4.c
printf("\n INPUT RESTRICTED DEQUE");
printf("\n 1.Insert at right");
printf("\n 2.Delete from left");
printf("\n 3.Delete from right");
printf("\n 4.Display");
printf("\n 5.Quit");
printf("\n Enter your option : ");
scanf("%d", &option);
switch (option) {
case 1:
insert_right();
break;
case 2:
delete_left();
break;
case 3:
delete_right();
break;
case 4:
display();
break;
}
} while (option != 5);
}
void output_deque() {
int option;
do {
printf("OUTPUT RESTRICTED DEQUE");
printf("\n 1.Insert at right");
printf("\n 2.Insert at left");
printf("\n 3.Delete from left");
printf("\n 4.Display");
printf("\n 5.Quit");
printf("\n Enter your option : ");
C
Tab Width: 6
Ln 203, Col 11
INS

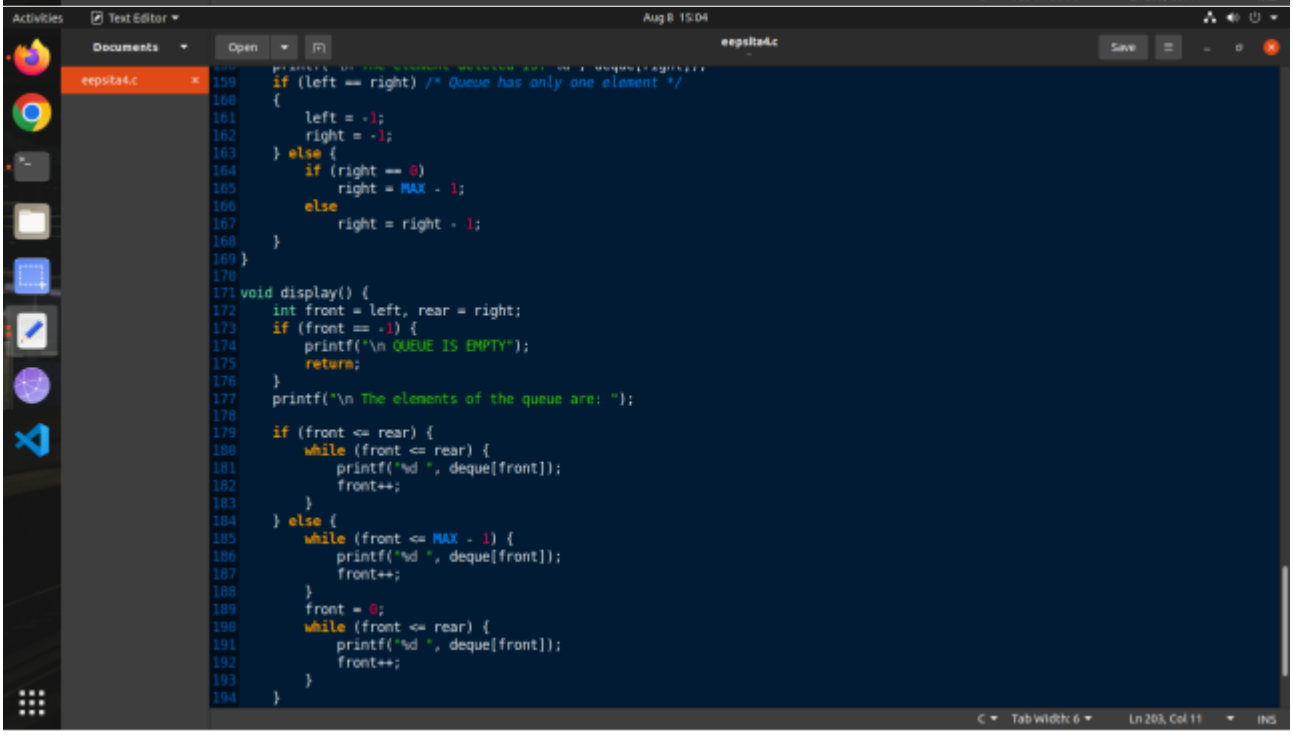


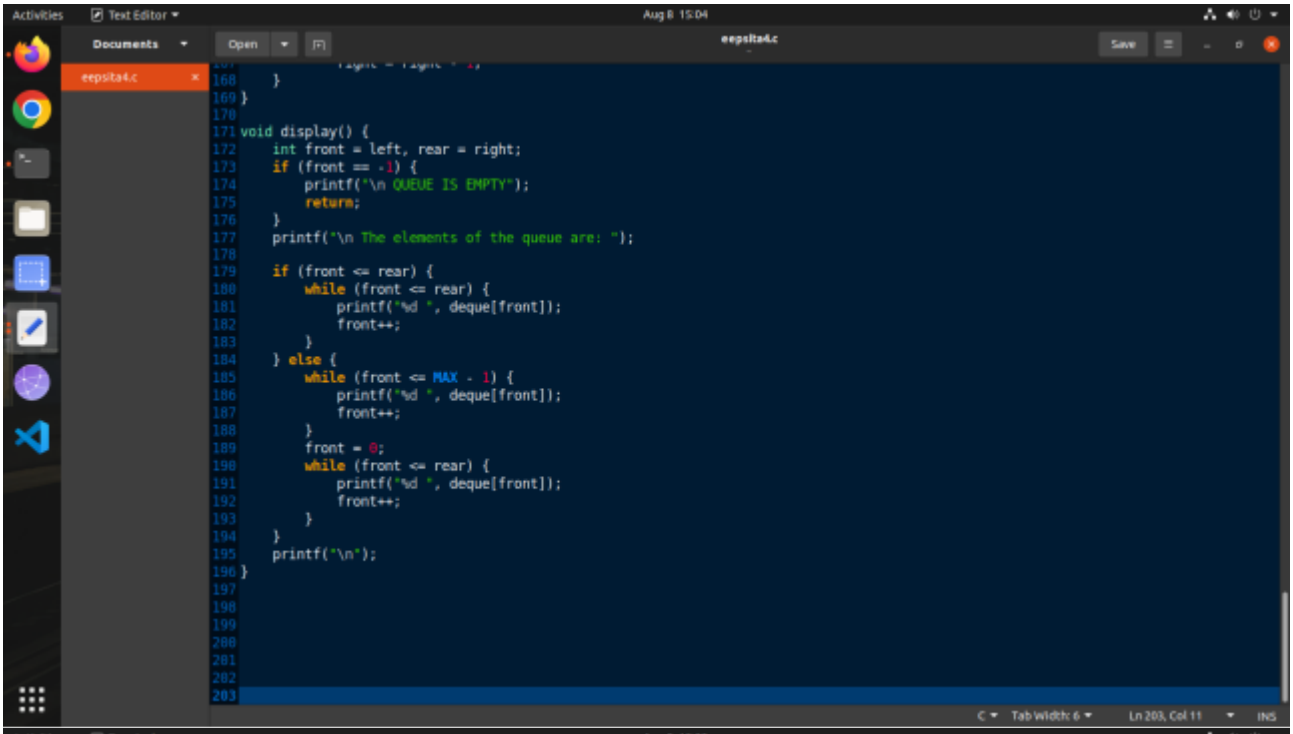
```
        printf("\n Enter your option : ");
        scanf("%d", &option);

        switch (option) {
            case 1:
                insert_right();
                break;
            case 2:
                insert_left();
                break;
            case 3:
                delete_left();
                break;
            case 4:
                display();
                break;
        }
    } while (option != 5);
}

void insert_right() {
    int val;
    printf("\n Enter the value to be added: ");
    scanf("%d", &val);
    if ((left == 0 && right == MAX - 1) || (left == right + 1)) {
        printf("\n OVERFLOW");
        return;
    }
    if (left == -1) {
        /* If queue is initially empty */
        left = 0;
        right = 0;
    } else {
        if (right == MAX - 1) /* right is at the last position of queue */
            right = 0;
        else
```

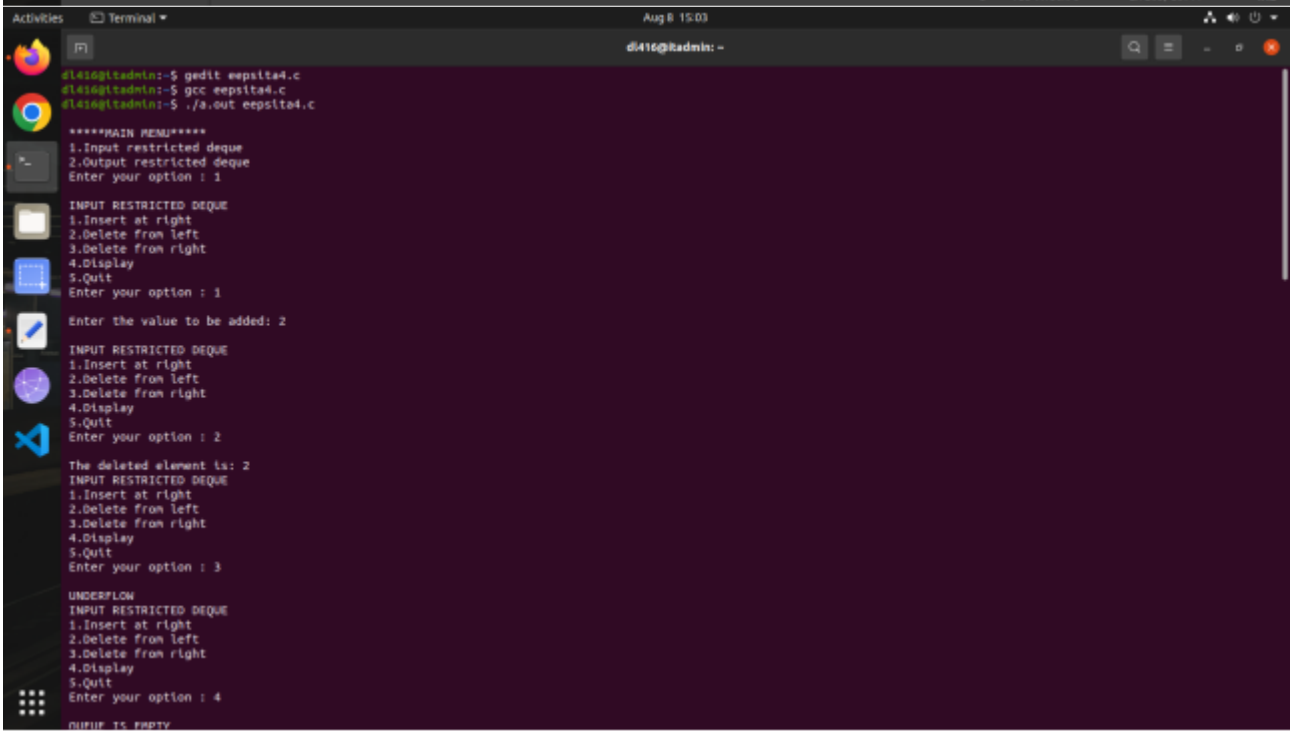


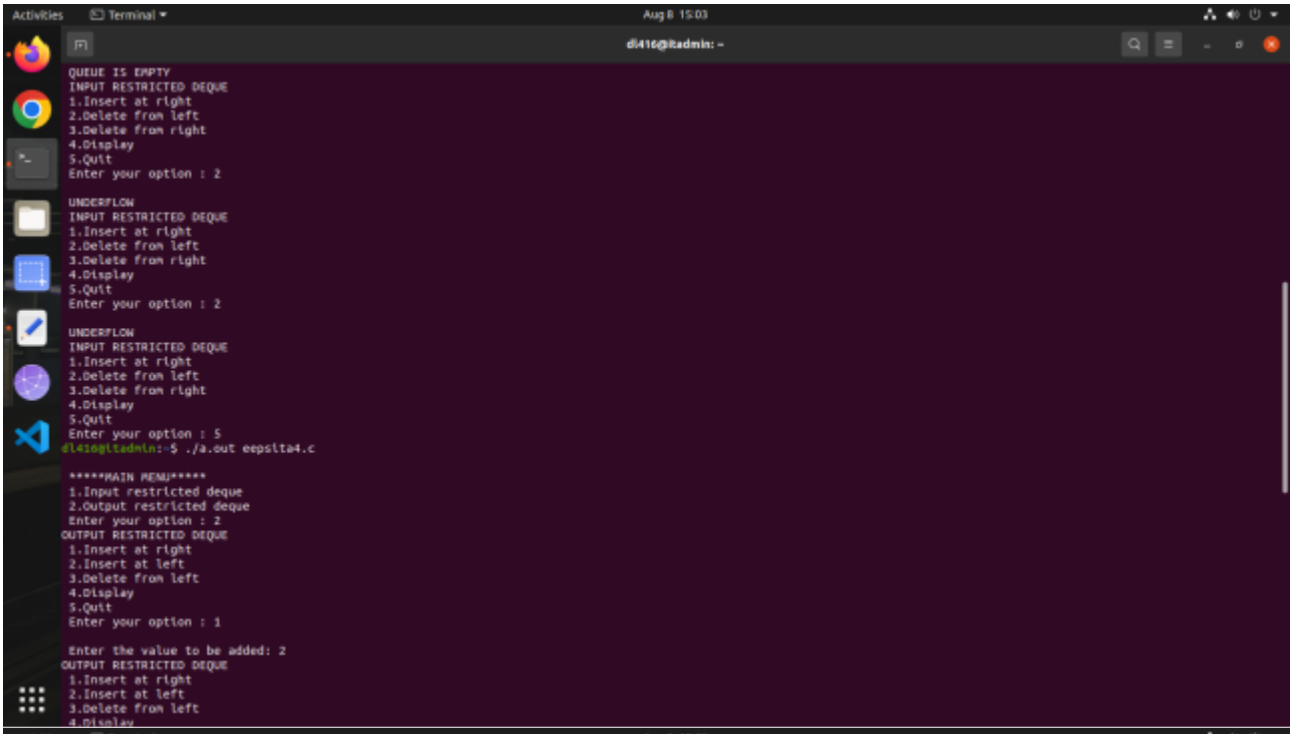
```
            right = right + 1;
    }
    deque[right] = val;
}

void insert_left() {
    int val;
    printf("\n Enter the value to be added: ");
    scanf("%d", &val);
    if ((left == 0 && right == MAX - 1) || (left == right + 1)) {
        printf("\n Overflow");
        return;
    }

    if (left == -1) {
        /* If queue is initially empty */
        left = 0;
        right = 0;
    } else {
        if (left == 0)
            left = MAX - 1;
        else
            left = left - 1;
    }
    deque[left] = val;
}

void delete_left() {
    if (left == -1) {
        printf("\n UNDERFLOW");
        return;
    }
    printf("\n The deleted element is: %d", deque[left]);
    if (left == right) /* Queue has only one element */
    {
        left = -1;
```

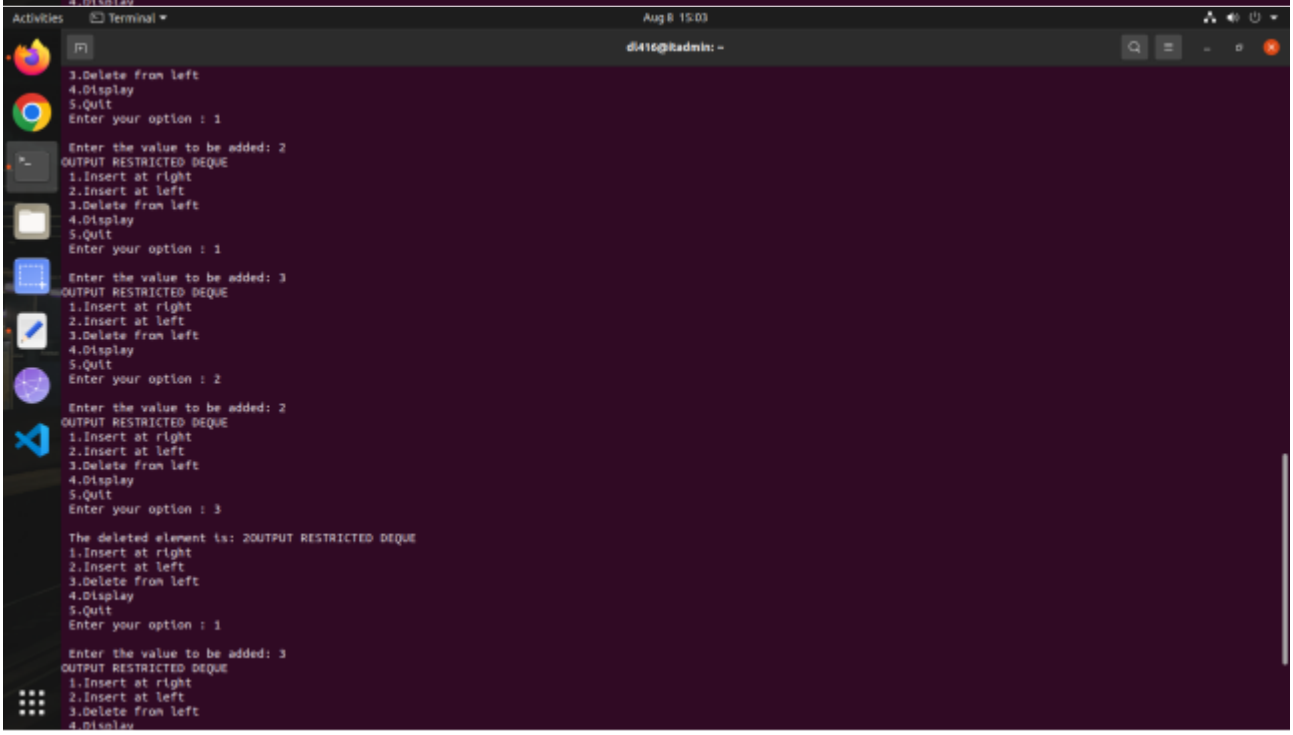

Activities
Text Editor
Aug 8 15:04
Documents
Open
eepsita4.c
Save
eepsita4.c
143 left = -1;
144 right = -1;
145 } else {
146 if (left == MAX - 1)
147 left = 0;
148 else
149 left = left + 1;
150 }
151 }
152
153 void delete_right() {
154 if (left == -1) {
155 printf("\n UNDERFLOW");
156 return;
157 }
158 printf("\n The element deleted is: %d", deque[right]);
159 if (left == right) /* Queue has only one element */
160 {
161 left = -1;
162 right = -1;
163 } else {
164 if (right == 0)
165 right = MAX - 1;
166 else
167 right = right - 1;
168 }
169 }
170
171 void display() {
172 int front = left, rear = right;
173 if (front == -1) {
174 printf("\n QUEUE IS EMPTY");
175 return;
176 }
177 printf("\n The elements of the queue are: ");
178
C
Tab Width: 6
Ln 203, Col 11
INS

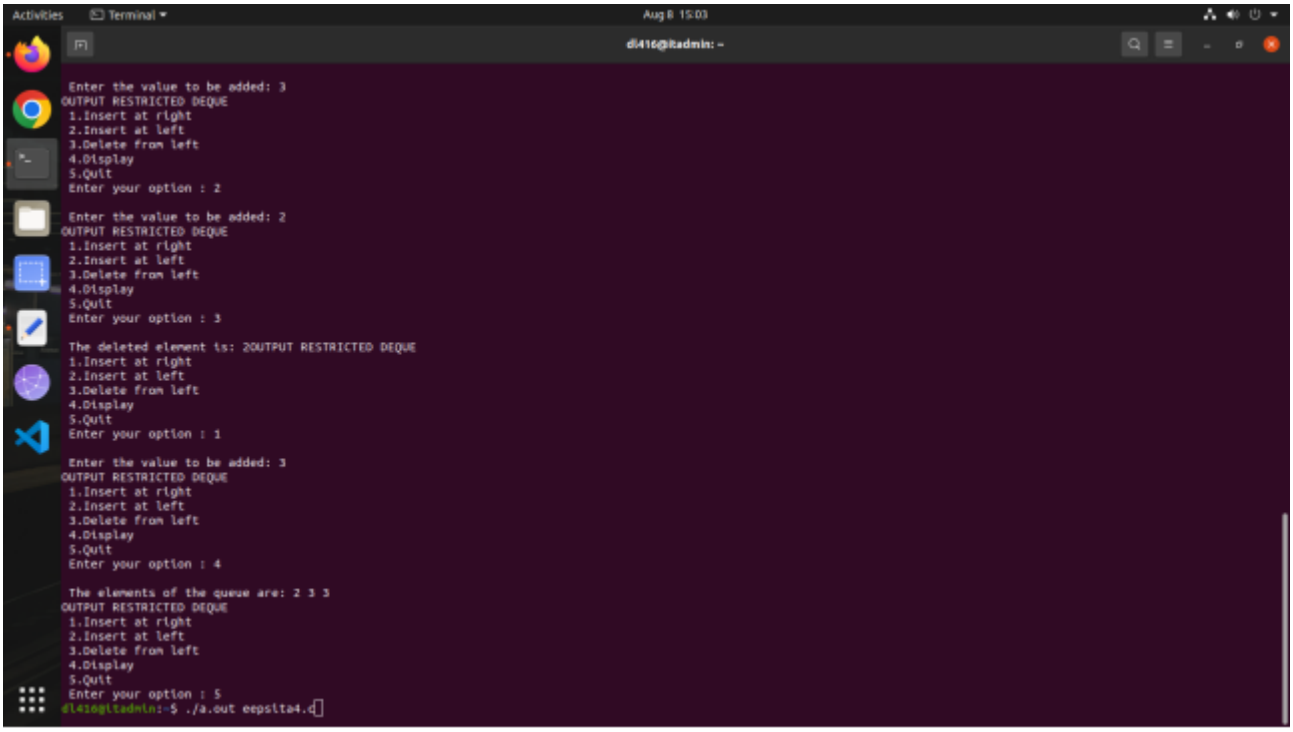

Activities
Text Editor
Aug 8 15:04
Documents
Open
eepsita4.c
Save
eepsita4.c
159 if (left == right) /* Queue has only one element */
160 {
161 left = -1;
162 right = -1;
163 } else {
164 if (right == 0)
165 right = MAX - 1;
166 else
167 right = right - 1;
168 }
169 }
170
171 void display() {
172 int front = left, rear = right;
173 if (front == -1) {
174 printf("\n QUEUE IS EMPTY");
175 return;
176 }
177 printf("\n The elements of the queue are: ");
178
179 if (front <= rear) {
180 while (front <= rear) {
181 printf("%d ", deque[front]);
182 front++;
183 }
184 } else {
185 while (front <= MAX - 1) {
186 printf("%d ", deque[front]);
187 front++;
188 }
189 front = 0;
190 while (front <= rear) {
191 printf("%d ", deque[front]);
192 front++;
193 }
194 }
C
Tab Width: 6
Ln 203, Col 11
INS


Activities
Text Editor
Aug 8 15:04
Documents
Open
eepsita4.c
Save
eepsita4.c
}
}
void display() {
int front = left, rear = right;
if (front == -1) {
printf("\n QUEUE IS EMPTY");
return;
}
printf("\n The elements of the queue are: ");
if (front <= rear) {
while (front <= rear) {
printf("%d ", deque[front]);
front++;
}
} else {
while (front <= MAX - 1) {
printf("%d ", deque[front]);
front++;
}
front = 0;
while (front <= rear) {
printf("%d ", deque[front]);
front++;
}
}
printf("\n");
}
C
Tab Width: 6
Ln 203, Col 11
INS


Activities
Terminal
Aug 8 15:03
dl416@ltadmin: ~
dl416@ltadmin:~$ gedit eepsita4.c
dl416@ltadmin:~$ gcc eepsita4.c
dl416@ltadmin:~$ ./a.out eepsita4.c
*****MAIN MENU*****
1.Input restricted deque
2.Output restricted deque
Enter your option : 1
INPUT RESTRICTED DEQUE
1.Insert at right
2.Delete from left
3.Delete from right
4.Display
5.Quit
Enter your option : 1
Enter the value to be added: 2
INPUT RESTRICTED DEQUE
1.Insert at right
2.Delete from left
3.Delete from right
4.Display
5.Quit
Enter your option : 2
The deleted element is: 2
INPUT RESTRICTED DEQUE
1.Insert at right
2.Delete from left
3.Delete from right
4.Display
5.Quit
Enter your option : 3
UNDERFLOW
INPUT RESTRICTED DEQUE
1.Insert at right
2.Delete from left
3.Delete from right
4.Display
5.Quit
Enter your option : 4
QUEUE IS EMPTY


Activities
Terminal
Aug 8 15:03
dl416@ltadmin: ~
QUEUE IS EMPTY
INPUT RESTRICTED DEQUE
1.Insert at right
2.Delete from left
3.Delete from right
4.Display
5.Quit
Enter your option : 2
UNDERFLOW
INPUT RESTRICTED DEQUE
1.Insert at right
2.Delete from left
3.Delete from right
4.Display
5.Quit
Enter your option : 2
UNDERFLOW
INPUT RESTRICTED DEQUE
1.Insert at right
2.Delete from left
3.Delete from right
4.Display
5.Quit
Enter your option : 5
dl416@ltadmin:~$ ./a.out eepsita4.c
*****MAIN MENU*****
1.Input restricted deque
2.Output restricted deque
Enter your option : 2
OUTPUT RESTRICTED DEQUE
1.Insert at right
2.Insert at left
3.Delete from left
4.Display
5.Quit
Enter your option : 1
Enter the value to be added: 2
OUTPUT RESTRICTED DEQUE
1.Insert at right
2.Insert at left
3.Delete from left


Activities
Terminal
Aug 8 15:03
dl416@ltadmin: ~
3.Delete from left
4.Display
5.Quit
Enter your option : 1
Enter the value to be added: 2
OUTPUT RESTRICTED DEQUE
1.Insert at right
2.Insert at left
3.Delete from left
4.Display
5.Quit
Enter your option : 1
Enter the value to be added: 3
OUTPUT RESTRICTED DEQUE
1.Insert at right
2.Insert at left
3.Delete from left
4.Display
5.Quit
Enter your option : 2
Enter the value to be added: 2
OUTPUT RESTRICTED DEQUE
1.Insert at right
2.Insert at left
3.Delete from left
4.Display
5.Quit
Enter your option : 3
The deleted element is: 2OUTPUT RESTRICTED DEQUE
1.Insert at right
2.Insert at left
3.Delete from left
4.Display
5.Quit
Enter your option : 1
Enter the value to be added: 3
OUTPUT RESTRICTED DEQUE
1.Insert at right
2.Insert at left
3.Delete from left


Activities
Terminal
Aug 8 15:03
dl416@ltadmin: ~
Enter the value to be added: 3
OUTPUT RESTRICTED DEQUE
1.Insert at right
2.Insert at left
3.Delete from left
4.Display
5.Quit
Enter your option : 2
Enter the value to be added: 2
OUTPUT RESTRICTED DEQUE
1.Insert at right
2.Insert at left
3.Delete from left
4.Display
5.Quit
Enter your option : 3
The deleted element is: 2OUTPUT RESTRICTED DEQUE
1.Insert at right
2.Insert at left
3.Delete from left
4.Display
5.Quit
Enter your option : 1
Enter the value to be added: 3
OUTPUT RESTRICTED DEQUE
1.Insert at right
2.Insert at left
3.Delete from left
4.Display
5.Quit
Enter your option : 4
The elements of the queue are: 2 3 3
OUTPUT RESTRICTED DEQUE
1.Insert at right
2.Insert at left
3.Delete from left
4.Display
5.Quit
Enter your option : 5
dl416@ltadmin:~$ ./a.out eepslta4.c