/*WAP to simulate the working of a circular queue of integers using an array. Provide the following operations: Insert, Delete & Display The program should print appropriate messages for queue empty and queue overflow conditions*/

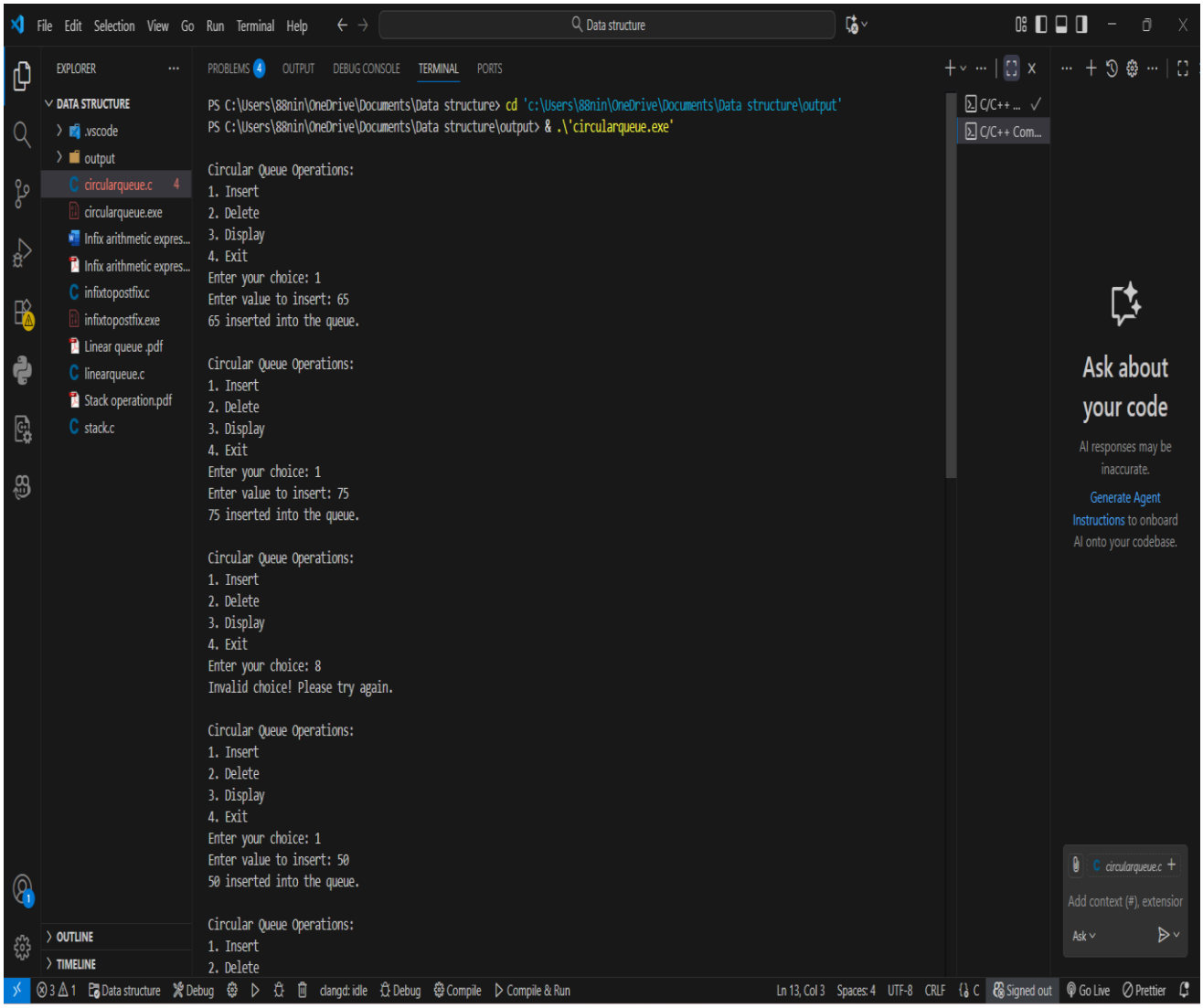
```
#include <stdio.h>

#define MAX 5

int queue[MAX];

int front = -1, rear = -1;

void insert(int value)

{

if ((front == 0 && rear == MAX - 1) || (front == (rear + 1) % MAX))

{

printf("Queue Overflow! Cannot insert %d\n", value);

}

else

{

if (front == -1)

{

front = 0;

rear = 0;

}

else

{

rear = (rear + 1) % MAX;

}queue[rear] = value;

printf("%d inserted into the queue.\n", value);
```

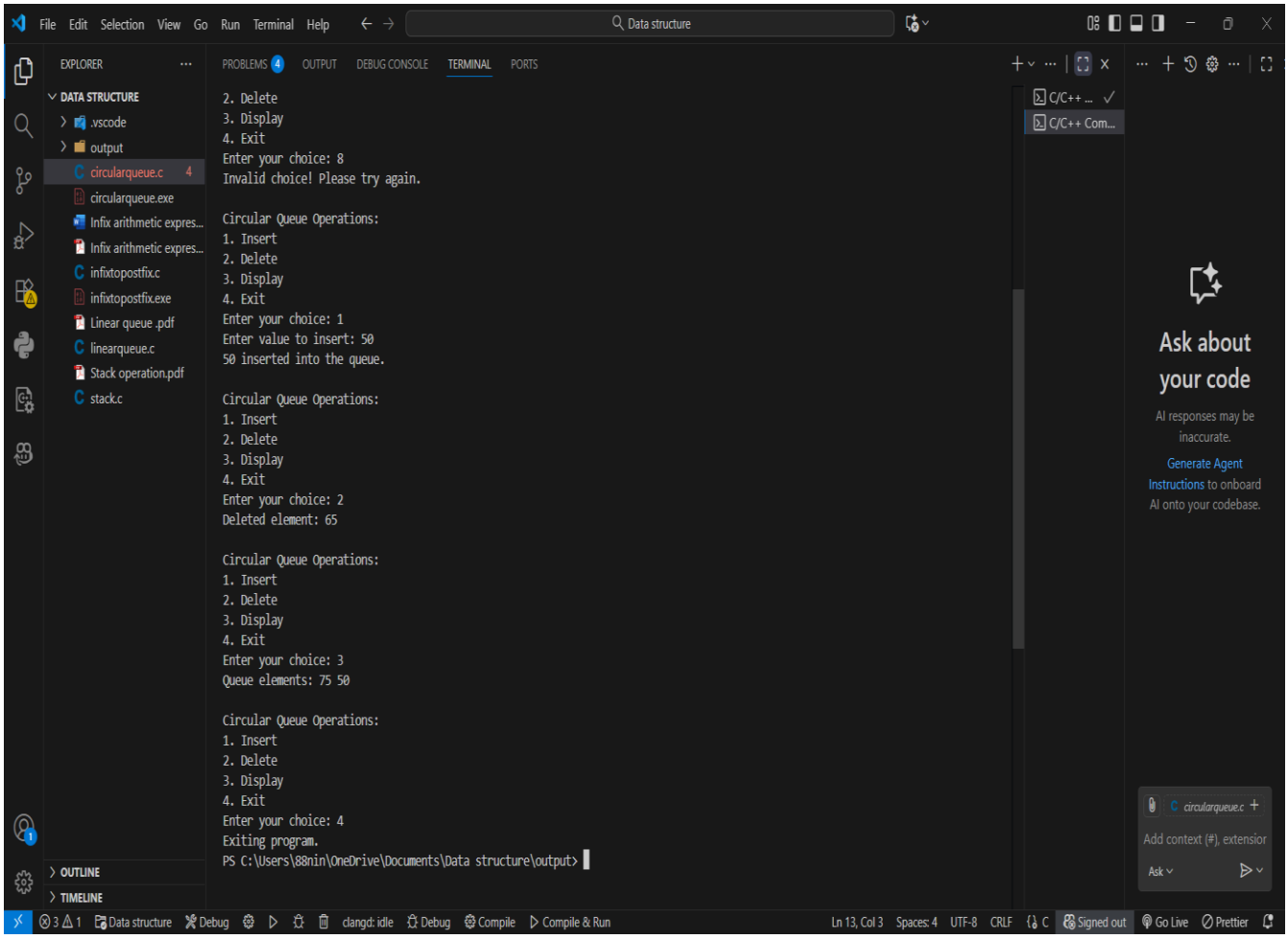
```
}
}
void delete()
{
if (front == -1)
{
printf("Queue Underflow! Queue is empty.\n");
}
else
{
printf("Deleted element: %d\n", queue[front]);
if (front == rear)
{
front = -1;
rear = -1;
}
else
{
front = (front + 1) % MAX;
}
}
}
void display(){
if (front == -1)
{
```

```
printf("Queue is empty.\n");
}
else
{
printf("Queue elements: ");
int i = front;
while (1)
{
printf("%d ", queue[i]);
if (i == rear)
break;
i = (i + 1) % MAX;
}
printf("\n");
}
}
int main()
{
int choice, value;
while (1)
{
printf("\nCircular Queue Operations:\n");
printf("1. Insert\n");
printf("2. Delete\n");
printf("3. Display\n");printf("4. Exit\n");
```

```
printf("Enter your choice: ");
scanf("%d", &choice);
switch (choice)
{
case 1:
printf("Enter value to insert: ");
scanf("%d", &value);
insert(value);
break;
case 2:
delete();
break;
case 3:
display();
break;
case 4:
printf("Exiting program.\n");
return 0;
default:
printf("Invalid choice! Please try again.\n");
}
}
return 0;
}
```

Output:-


File Edit Selection View Go Run Terminal Help
Data structure
EXPLORER
DATA STRUCTURE
.vscode
output
circularqueue.c 4
circularqueue.exe
Infix arithmetic expres...
Infix arithmetic expres...
infixtopostfix.c
infixtopostfix.exe
Linear queue .pdf
linearqueue.c
Stack operation.pdf
stack.c
OUTLINE
TIMELINE
PROBLEMS 4
OUTPUT
DEBUG CONSOLE
TERMINAL
PORTS
PS C:\Users\88nin\OneDrive\Documents\Data structure> cd 'c:\Users\88nin\OneDrive\Documents\Data structure\output'
PS C:\Users\88nin\OneDrive\Documents\Data structure\output> & .\'circularqueue.exe'
Circular Queue Operations:
1. Insert
2. Delete
3. Display
4. Exit
Enter your choice: 1
Enter value to insert: 65
65 inserted into the queue.
Circular Queue Operations:
1. Insert
2. Delete
3. Display
4. Exit
Enter your choice: 1
Enter value to insert: 75
75 inserted into the queue.
Circular Queue Operations:
1. Insert
2. Delete
3. Display
4. Exit
Enter your choice: 8
Invalid choice! Please try again.
Circular Queue Operations:
1. Insert
2. Delete
3. Display
4. Exit
Enter your choice: 1
Enter value to insert: 50
50 inserted into the queue.
Circular Queue Operations:
1. Insert
2. Delete
C/C++ ...
C/C++ Com...
Ask about your code
AI responses may be inaccurate.
Generate Agent Instructions to onboard AI onto your codebase.
circularqueue.c
Add context (#), extensior
Ask
Data structure
Debug
clangd: idle
Compile
Compile & Run
Ln 13, Col 3
Spaces: 4
UTF-8
CRLF
C
Signed out
Go Live
Prettier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2. Delete
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Enter your choice: 8
Invalid choice! Please try again.
Circular Queue Operations:
1. Insert
2. Delete
3. Display
4. Exit
Enter your choice: 1
Enter value to insert: 50
50 inserted into the queue.
Circular Queue Operations:
1. Insert
2. Delete
3. Display
4. Exit
Enter your choice: 2
Deleted element: 65
Circular Queue Operations:
1. Insert
2. Delete
3. Display
4. Exit
Enter your choice: 3
Queue elements: 75 50
Circular Queue Operations:
1. Insert
2. Delete
3. Display
4. Exit
Enter your choice: 4
Exiting program.
PS C:\Users\88nin\OneDrive\Documents\Data structure\output>
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