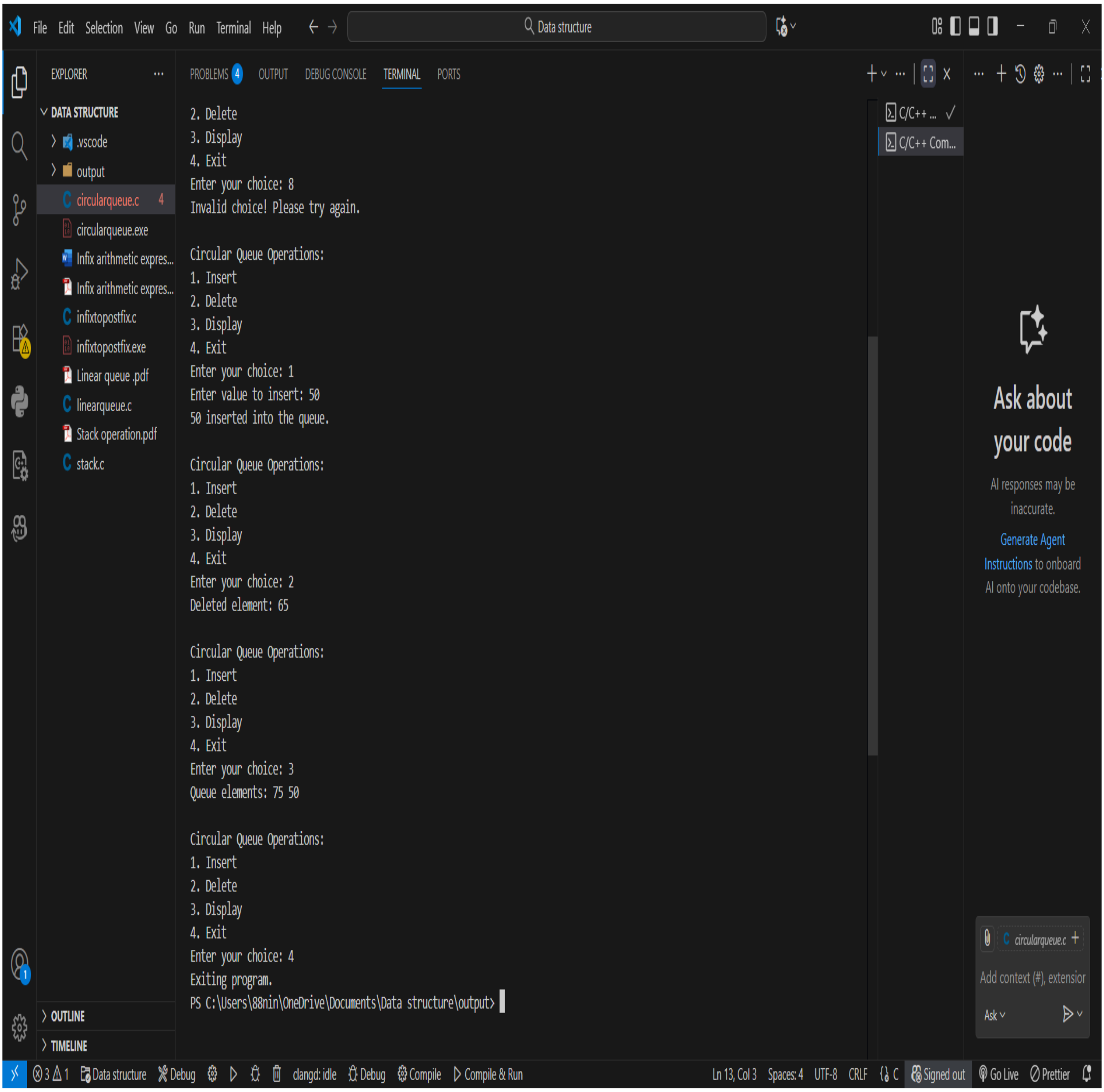
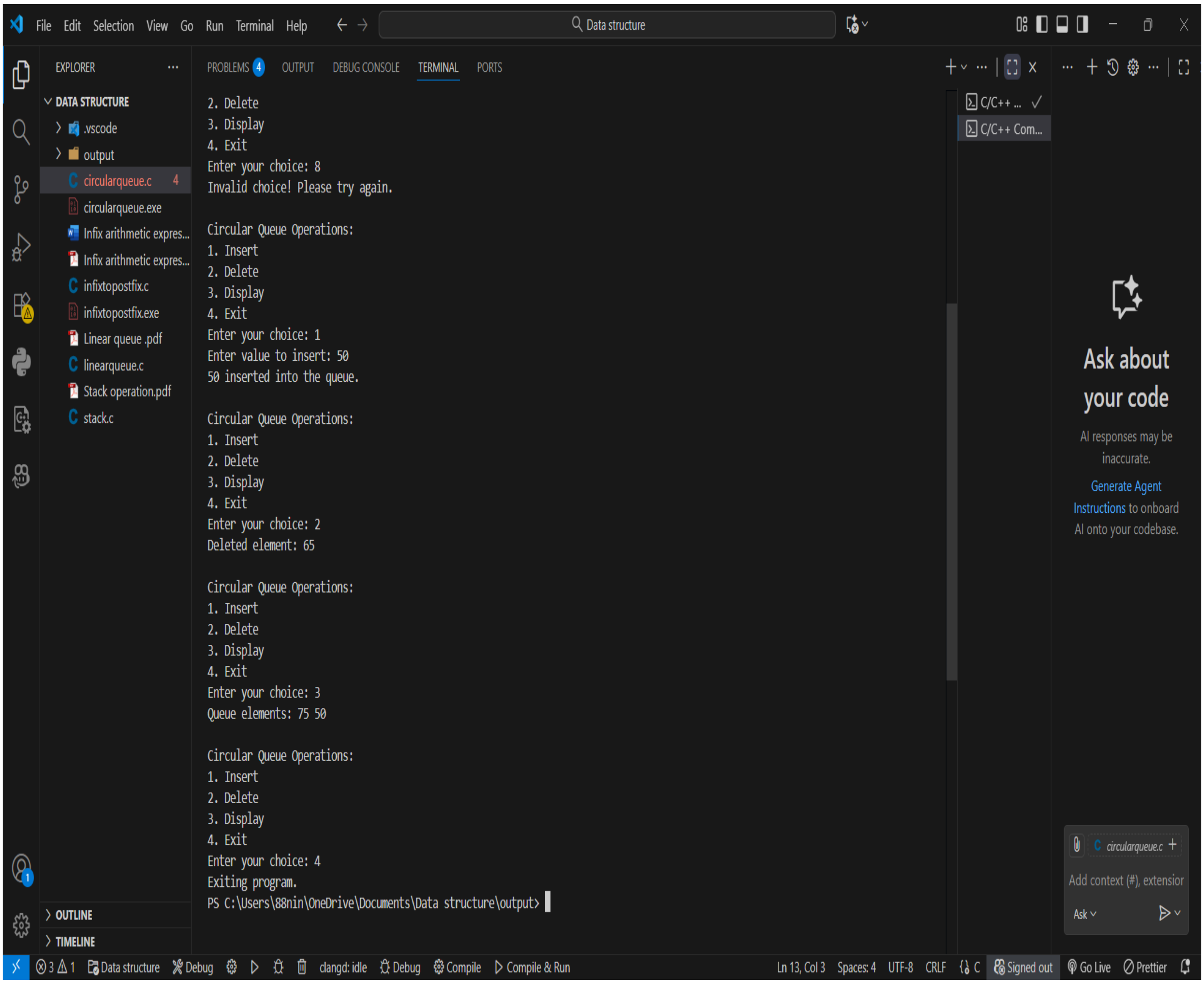
```
/*WAP to simulate the working of a circular queue of integers using an array. Provide the
following operations: Insert, Delete & Display
The program should print appropriate messages for queue empty and queue overflow
conditions*/
#include <stdio.h>
#define MAX 5
int queue[MAX];
int front = -1, rear = -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
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 (#), extension
Ask
⊗3 ⚠1 Data structure Debug clangd: idle Debug Compile Compile & Run
Ln 13, Col 3 Spaces: 4 UTF-8 CRLF { } C Signed out Go Live Prettier

```
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
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>
```



```
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
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> 
```

Ask about your code

AI responses may be inaccurate.

Generate Agent Instructions to onboard AI onto your codebase.