Competitive programming

Assisgnment-Backtracking

Date:16/02/2026

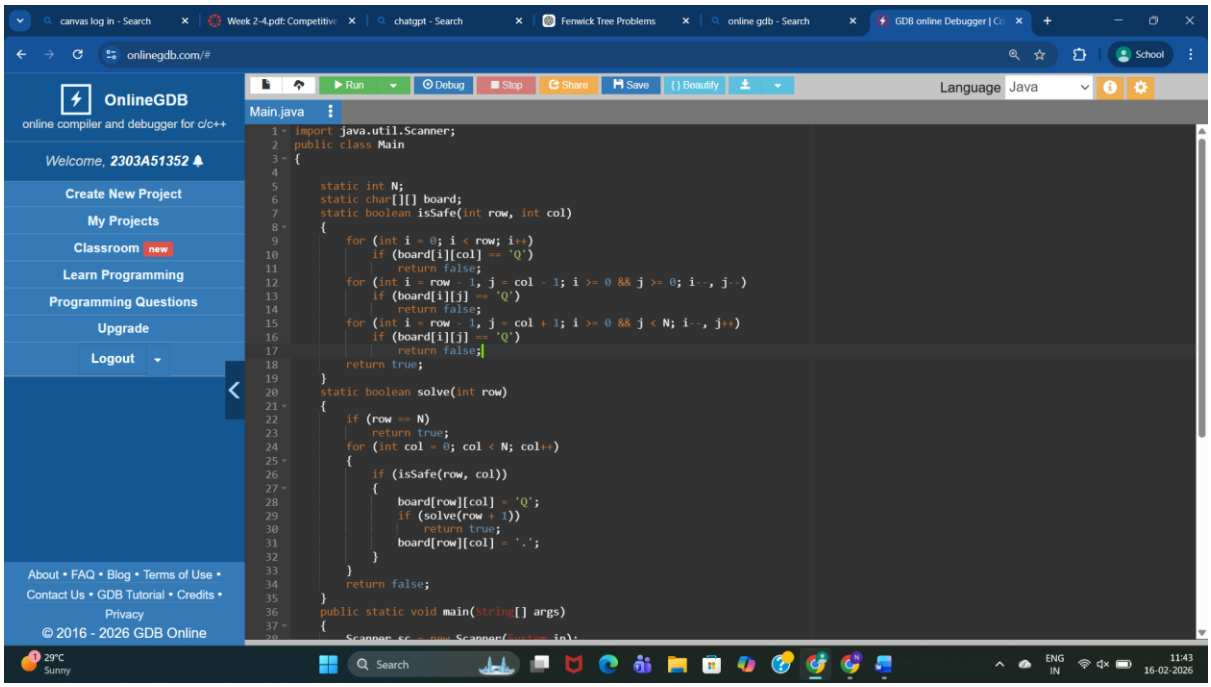
Backtracking : N-Queens Problem

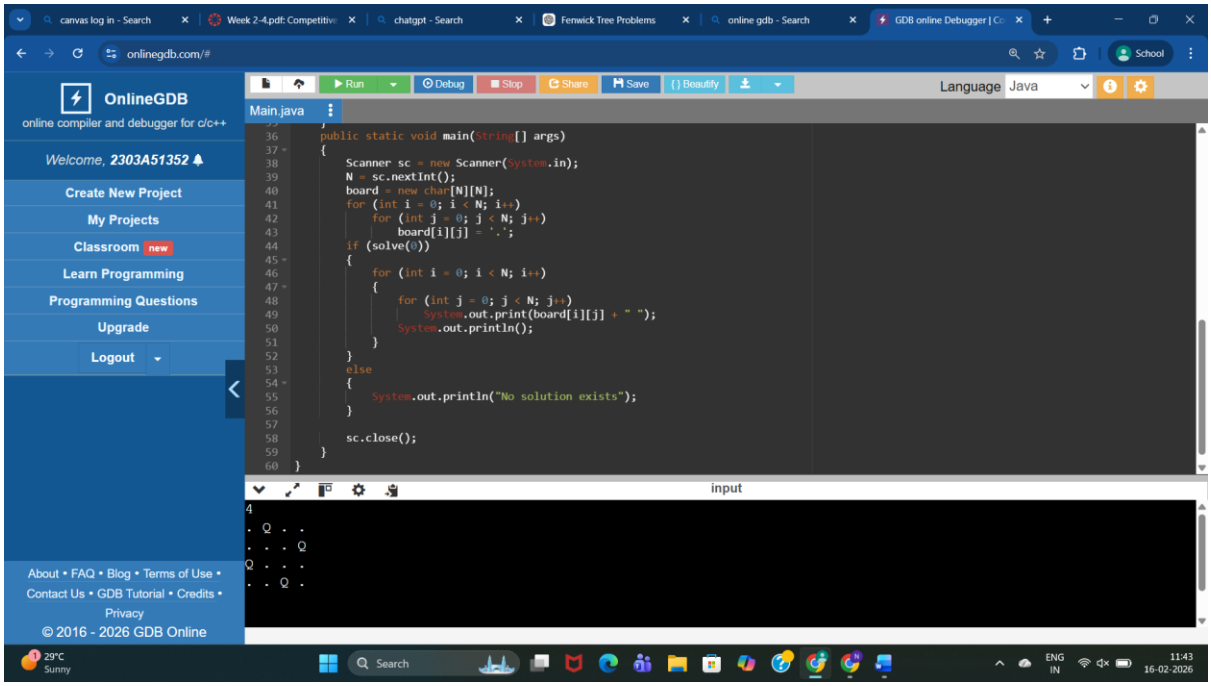
Code:

```
import java.util.Scanner;
public class Main
{
   static int N;
   static char[][] board;
   static boolean isSafe(int row, int col)
   {
      for (int i = 0; i < row; i++)
         if (board[i][col] == 'Q')
            return false;
      for (int i = row - 1, j = col - 1; i >= 0 && j >= 0; i--, j--)
         if (board[i][j] == 'Q')
            return false;
      for (int i = row - 1, j = col + 1; i >= 0 && j < N; i--, j++)
         if (board[i][j] == 'Q')
            return false;
      return true;
   }
   static boolean solve(int row)
   {
      if (row == N)
```

```
        return true;
    for (int col = 0; col < N; col++)
    {
        if (isSafe(row, col))
        {
            board[row][col] = 'Q';
            if (solve(row + 1))
                return true;
            board[row][col] = '.';
        }
    }
    return false;
}
public static void main(String[] args)
{
    Scanner sc = new Scanner(System.in);
    N = sc.nextInt();
    board = new char[N][N];
    for (int i = 0; i < N; i++)
        for (int j = 0; j < N; j++)
            board[i][j] = '.';
    if (solve(0))
    {
        for (int i = 0; i < N; i++)
        {
            for (int j = 0; j < N; j++)
                System.out.print(board[i][j] + " ");
            System.out.println();
```

```
        }
    }
    else
    {
        System.out.println("No solution exists");
    }
    sc.close();
  }
}
```

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Language Java
Main.java
public static void main(String[] args)
{
Scanner sc = new Scanner(System.in);
N = sc.nextInt();
board = new char[N][N];
for (int i = 0; i < N; i++)
for (int j = 0; j < N; j++)
board[i][j] = '.';
if (solve(0))
{
for (int i = 0; i < N; i++)
{
for (int j = 0; j < N; j++)
System.out.print(board[i][j] + " ");
System.out.println();
}
}
else
{
System.out.println("No solution exists");
}
sc.close();
}
}
input
4
. Q . .
. . . Q
Q . . .
. . Q .
29°C
Sunny
Search
ENG
IN
11:43
16-02-2026