

Alexandria University

Faculty of Computer and Data Science



Introduction to AI

(Report)

Prepared by: Aly Waleed (22010443), Filopatire Awedallah (2206202).

Fall 2023

Minesweeper Code

```
# Import the random module
import random

# Define the size of the board
rows = 10
cols = 10

# Define the number of mines
mines = 10

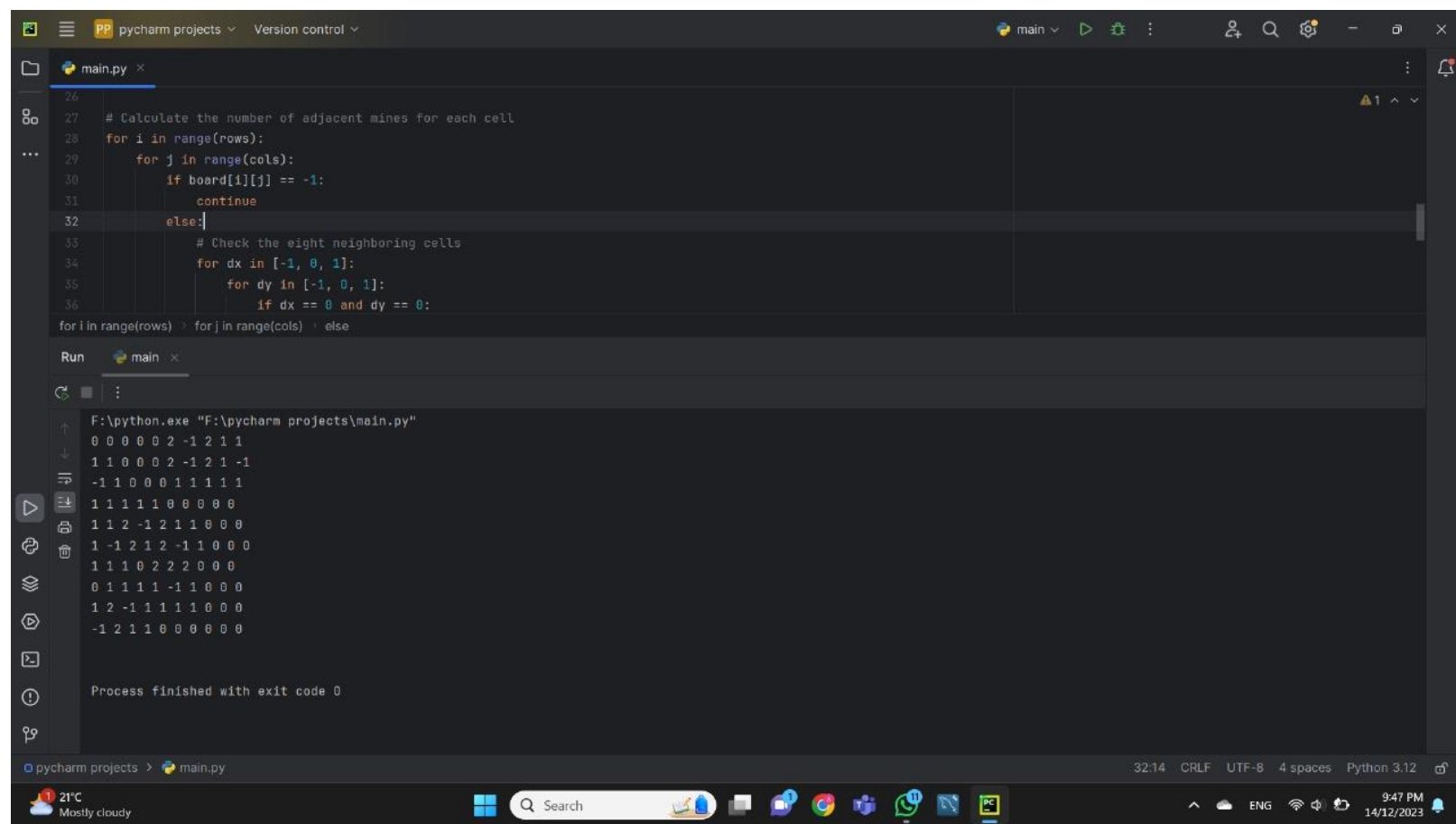
# Create an empty board
board = []
for i in range(rows):
    board.append([])
    for j in range(cols):
        board[i].append(0)

# Place the mines randomly
mine_count = 0
while mine_count < mines:
    x = random.randint(0, rows - 1)
    y = random.randint(0, cols - 1)
    if board[x][y] != -1: # -1 represents a mine
        board[x][y] = -1
        mine_count += 1

# Calculate the number of adjacent mines for each cell
for i in range(rows):
    for j in range(cols):
        if board[i][j] == -1:
            continue
        else:
            # Check the eight neighboring cells
            for dx in [-1, 0, 1]:
                for dy in [-1, 0, 1]:
                    if dx == 0 and dy == 0:
                        continue
                    else:
                        nx = i + dx
                        ny = j + dy
                        # Check if the neighbor is valid and has a mine
                        if 0 <= nx < rows and 0 <= ny < cols and board[nx][ny] == -1:
                            board[i][j] += 1

# Print the board
for i in range(rows):
    for j in range(cols):
        print(board[i][j], end=" ")
    print()
print()
```

Output Of Minesweeper Code



The screenshot displays the PyCharm IDE interface. The top editor pane shows a Python script named `main.py` with the following code:

```
26
27 # Calculate the number of adjacent mines for each cell
28 for i in range(rows):
29     for j in range(cols):
30         if board[i][j] == -1:
31             continue
32         else:
33             # Check the eight neighboring cells
34             for dx in [-1, 0, 1]:
35                 for dy in [-1, 0, 1]:
36                     if dx == 0 and dy == 0:
37                         continue
38                     board[i+dx][j+dy] += 1
39
40 for i in range(rows):
41     for j in range(cols):
42         if board[i][j] == -1:
43             board[i][j] = 0
44         else:
45             board[i][j] = board[i][j]
```

The bottom editor pane shows the output of the program, which is a 10x10 grid of numbers representing the number of adjacent mines for each cell. The output is as follows:

```
F:\python.exe "F:\pycharm projects\main.py"
0 0 0 0 0 2 -1 2 1 1
1 1 0 0 0 2 -1 2 1 -1
-1 1 0 0 0 1 1 1 1 1
1 1 1 1 1 0 0 0 0 0
1 1 2 -1 2 1 1 0 0 0
1 -1 2 1 2 -1 1 0 0 0
1 1 1 0 2 2 2 0 0 0
0 1 1 1 1 -1 1 0 0 0
1 2 -1 1 1 1 1 0 0 0
-1 2 1 1 0 0 0 0 0 0
```

Below the output, the message "Process finished with exit code 0" is displayed.

The bottom status bar of the IDE shows the following information: "pycharm projects" (selected), "main.py", "32:14", "CRLF", "UTF-8", "4 spaces", "Python 3.12".