

Step-by-Step Solution

Step 1: Define the pieces

We define the rows of the noble pieces as lists of strings.

```
# Black pieces (lowercase letters) - Row 0 of the matrix
black_pieces = ["r", "n", "b", "q", "k", "b", "n", "r"]

# White pieces (uppercase letters) - Row 7 of the matrix
white_pieces = ["R", "N", "B", "Q", "K", "B", "N", "R"]
```

Step 2: Define the pawn rows

We can use list multiplication in Python to do this more quickly.

```
# Row of 8 black pawns
black_pawns = ["p"] * 8 # Result: ['p', 'p', 'p', 'p', 'p', 'p', 'p', 'p']

# Row of 8 white pawns
white_pawns = ["P"] * 8
```

Step 3: Define empty rows

The center of the chessboard (ranks 3 to 6 in chess, indices 2–5 in the code) is empty (for us, for now, the empty square will contain a dot)

```
# A single empty row
empty_row = ["."] * 8
```

Step 4: Assemble the Board (The Matrix)

We build the final list of lists.

```
board = [
    black_pieces,      # Index 0 (Rank 8)
    black_pawns,      # Index 1 (Rank 7)
    empty_row,        # Index 2
    empty_row,        # Index 3
    empty_row,        # Index 4
    empty_row,        # Index 5
    white_pawns,      # Index 6 (Rank 2)
    white_pieces     # Index 7 (Rank 1)
]
```

Step 5: Display the result

If we simply use `print(board)`, the result will be unreadable as it will all appear on a single line. We need to print it row by row to see it as a grid.

```
print("---- INITIAL CHESSBOARD ----")
for row in board:
    print(row)
```





ChessAlthon
Chess Artificial Intelligence Hackathon

Project Number: 2025-1-ES01-KA220-VET-000354329



This work is licensed under a Creative Commons
Attribution-NonCommercial-ShareAlike 4.0
International License.

Expected output:

```
--- INITIAL CHESSBOARD ---  
['r', 'n', 'b', 'q', 'k', 'b', 'n', 'r']  
['p', 'p', 'p', 'p', 'p', 'p', 'p', 'p']  
['.', '.', '.', '.', '.', '.', '.', '.']  
['.', '.', '.', '.', '.', '.', '.', '.']  
['.', '.', '.', '.', '.', '.', '.', '.']  
['.', '.', '.', '.', '.', '.', '.', '.']  
['.', '.', '.', '.', '.', '.', '.', '.']  
['P', 'P', 'P', 'P', 'P', 'P', 'P', 'P']  
['R', 'N', 'B', 'Q', 'K', 'B', 'N', 'R']
```

Concluding Reflection

You have just created your first **data map**.

- The computer doesn't "see" a wooden board; it sees a list of lists of strings.
- To move a piece, we don't physically shift it; we simply change the data inside these lists (for example, replacing a "P" with a "." in the old position and a "." with a "P" in the new one).



**Co-funded by
the European Union**

The project "ChessAlthon" (2025-1-ES01-KA220-VET-000354329) is co-funded by the European Union. The views and opinions expressed in this publication are those of the author(s) only and do not necessarily reflect those of the European Union or the Spanish Service for the Internationalisation of Education (SEPIE). Neither the European Union nor the National Agency SEPIE can be held responsible for them.