

## Code Report: "HOMEWORK7"

### 1. Purpose and Overview:

The provided C program is a console-based implementation of a traditional board game, most likely a variant of Mancala. The game involves distributing stones across various cups on a board and making strategic moves to accumulate more stones in one's own "store" (cup) than the opponent.

### 2. Functions Overview:

`initializeGame(int stones[2][7])`: Initializes the game board by setting each cup with 3 stones and leaving the "store" (last cup) empty for both players.

`duplicateArray(int mainArr[2][7], int destinationArr[2][7])`: Copies the contents of one 2D array to another.

`isOver(int stones[2][7])`: Checks if the game is over by summing up the stones in each player's cups and checking if any player has no stones left.

`printBoard(int stones[2][7])`: Prints the current state of the game board with the stone counts in each cup.

`movee(int stones[2][7], int selectedHole, int isComp, int row)`: Manages the movement of stones based on the cup selected by the player or the computer. Handles the logic of distributing stones according to the game rules.

`findMax(int stones[2][7])`: Finds the index of the cup with the maximum number of stones for the computer's move.

`gamePlay(int stones[2][7])`: Facilitates the actual gameplay by alternating turns between the player and the computer until the game is over. It prompts the player to select a cup and makes moves accordingly.

### 3. Key Features:

**Interactive Gameplay**: Allows the player to make moves by selecting a cup and incorporates logic for the computer's moves.

**Dynamic Board Representation**: The game board is represented graphically using ASCII art, providing a clear visual of the current game state.

**End Game Detection**: Continuously checks for the game's end condition, i.e., when one player has no stones left in their cups.

### 4. Conclusion:

The provided C program offers a functional implementation of a traditional board game, providing an engaging gameplay experience for users. With some refinements and optimizations, it could serve as a solid foundation for further development or as a learning exercise in C programming and game development.

Below are some outputs:

```

please enter the stone number 4
+---+---+---+---+---+---+---+
|   | 04 | 04 | 04 | 04 | 04 | 04 | |
| 00 |---|---|---|---|---|---| 00 |
|   | 04 | 04 | 04 | 04 | 04 | 04 | |
+---+---+---+---+---+---+---+

please select a cup
1
+---+---+---+---+---+---+---+
|   | 09 | 02 | 09 | 02 | 00 | 03 | |
| 00 |---|---|---|---|---|---| 05 |
|   | 01 | 04 | 01 | 10 | 01 | 01 | |
+---+---+---+---+---+---+---+

please select a cup again 1
+---+---+---+---+---+---+---+
|   | 09 | 02 | 09 | 02 | 00 | 03 | |
| 00 |---|---|---|---|---|---| 05 |
|   | 00 | 05 | 01 | 10 | 01 | 01 | |
+---+---+---+---+---+---+---+

please select a cup again 1
you can not chose this cup
please select a cup again 3
+---+---+---+---+---+---+---+
|   | 09 | 02 | 09 | 02 | 00 | 03 | |
| 00 |---|---|---|---|---|---| 05 |
|   | 00 | 05 | 00 | 11 | 01 | 01 | |
+---+---+---+---+---+---+---+

turn comp
the comp play with 3. cup
+---+---+---+---+---+---+---+
|   | 10 | 03 | 00 | 02 | 01 | 04 | |
| 01 |---|---|---|---|---|---| 05 |
|   | 01 | 06 | 01 | 12 | 02 | 00 | |
+---+---+---+---+---+---+---+

please select a cup
5
+---+---+---+---+---+---+---+
|   | 10 | 03 | 00 | 02 | 01 | 05 | |
| 01 |---|---|---|---|---|---| 06 |
|   | 01 | 06 | 01 | 12 | 00 | 01 | |
+---+---+---+---+---+---+---+

please select a cup again 2
+---+---+---+---+---+---+---+
|   | 14 | 02 | 00 | 06 | 02 | 00 | |
| 01 |---|---|---|---|---|---| 10 |
|   | 03 | 00 | 03 | 02 | 05 | 01 | |
+---+---+---+---+---+---+---+

please select a cup again 1
+---+---+---+---+---+---+---+
|   | 14 | 02 | 00 | 06 | 02 | 01 | |
| 01 |---|---|---|---|---|---| 11 |
|   | 00 | 01 | 04 | 00 | 06 | 02 | |
+---+---+---+---+---+---+---+

please select a cup again 4
you can not chose this cup
please select a cup again 5
+---+---+---+---+---+---+---+
|   | 14 | 02 | 01 | 07 | 03 | 02 | |
| 01 |---|---|---|---|---|---| 12 |
|   | 00 | 01 | 04 | 00 | 00 | 03 | |
+---+---+---+---+---+---+---+

turn comp
the comp play with 5. cup
+---+---+---+---+---+---+---+
|   | 01 | 03 | 02 | 08 | 04 | 03 | |
| 03 |---|---|---|---|---|---| 12 |
|   | 02 | 02 | 05 | 01 | 01 | 04 | |
+---+---+---+---+---+---+---+

```

the comp play with 5. cup

+	-----	+	-----	+	-----	+	-----	+	-----	+	-----	+	-----	+
			00		00		00		00		00		00	
	19		----		----		----		----		----		15	
			00		01		00		00		01		01	
+	-----	+	-----	+	-----	+	-----	+	-----	+	-----	+	-----	+

the comp won this gameProgram ended with exit code: 0