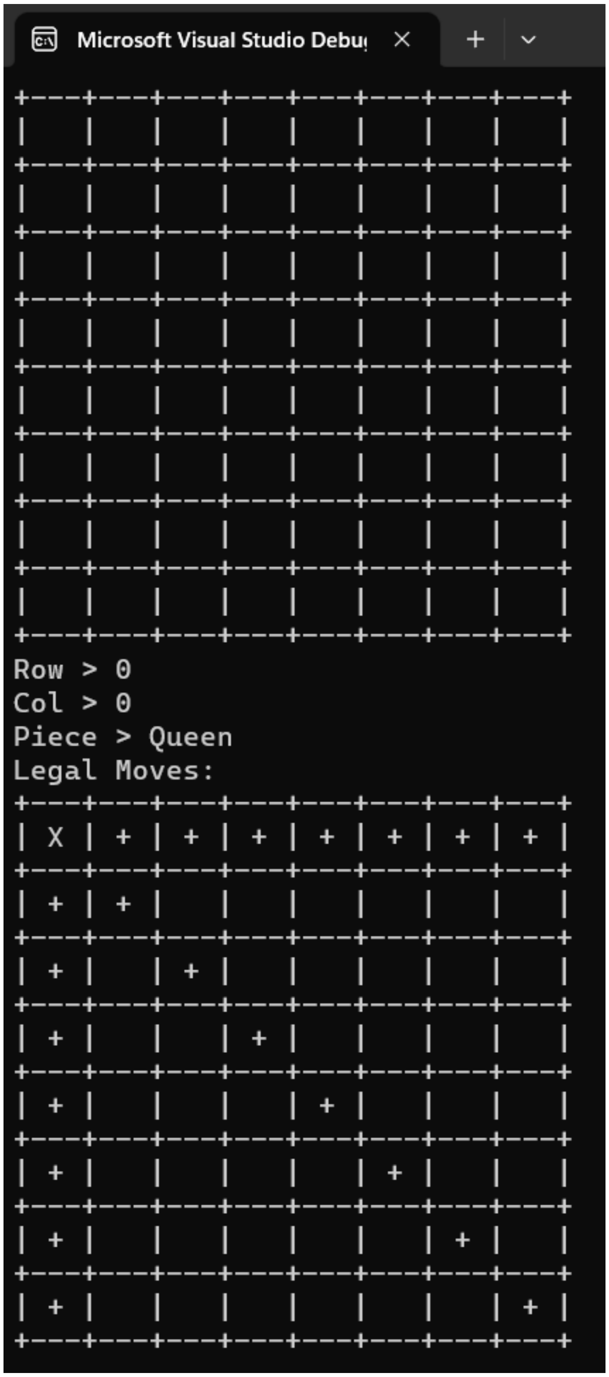
Activity 2: Chess/Animals

Jesse Dalton
April 2, 2023

CHESS

Program Output:

Console Application (happy path):



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+---+---+---+---+---+---+---+---+
|   |   |   |   |   |   |   |   |
+---+---+---+---+---+---+---+---+
Row > 0
Col > 0
Piece > Queen
Legal Moves:
+---+---+---+---+---+---+---+---+
| X | + | + | + | + | + | + | + |
+---+---+---+---+---+---+---+---+
| + | + |   |   |   |   |   |   |
+---+---+---+---+---+---+---+---+
| + |   | + |   |   |   |   |   |
+---+---+---+---+---+---+---+---+
| + |   |   | + |   |   |   |   |
+---+---+---+---+---+---+---+---+
| + |   |   |   | + |   |   |   |
+---+---+---+---+---+---+---+---+
| + |   |   |   |   | + |   |   |
+---+---+---+---+---+---+---+---+
| + |   |   |   |   |   | + |   |
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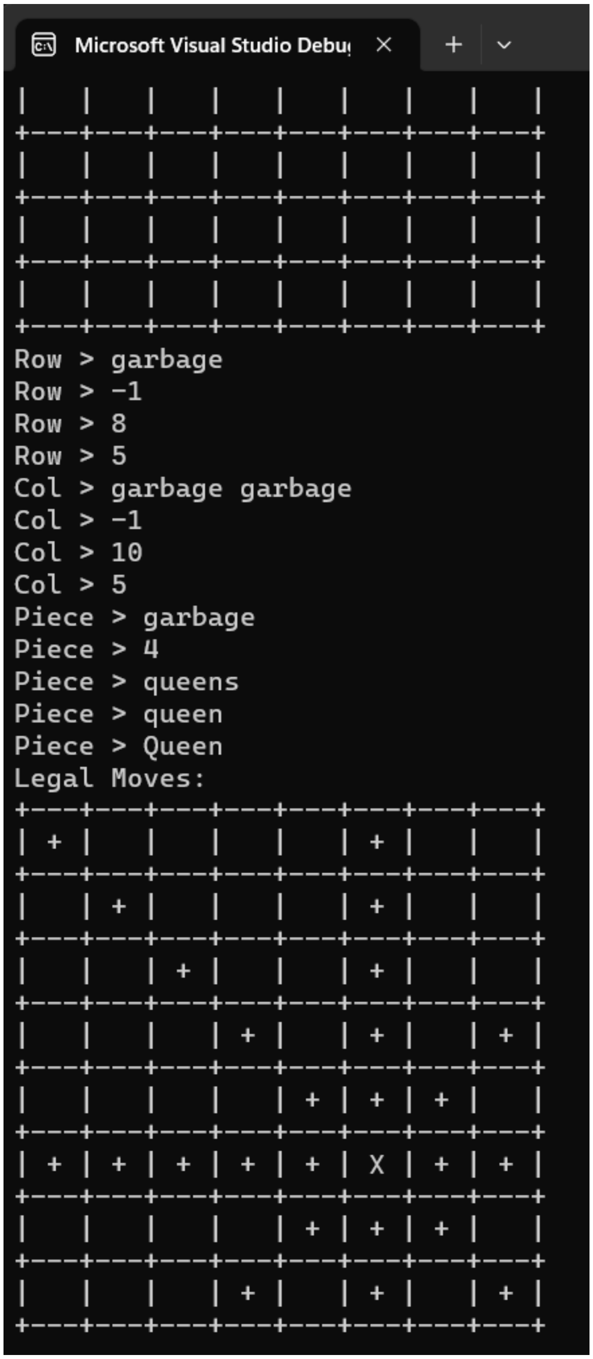
| + |   |   |   |   |   |   | + |
+---+---+---+---+---+---+---+---+
```

(error checking):



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|   |   |   |   |   |   |   |   |
+---+---+---+---+---+---+---+---+
|   |   |   |   |   |   |   |   |
+---+---+---+---+---+---+---+---+
Row > garbage
Row > -1
Row > 8
Row > 5
Col > garbage garbage
Col > -1
Col > 10
Col > 5
Piece > garbage
Piece > 4
Piece > queens
Piece > queen
Piece > Queen
Legal Moves:
+---+---+---+---+---+---+---+---+
| + |   |   |   |   | + |   |   |
+---+---+---+---+---+---+---+---+
|   | + |   |   |   | + |   |   |
+---+---+---+---+---+---+---+---+
|   |   | + |   |   | + |   |   |
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+---+---+---+---+---+---+---+---+
| + | + | + | + | + | X | + | + |
+---+---+---+---+---+---+---+---+
|   |   |   |   | + | + | + |   |
+---+---+---+---+---+---+---+---+
|   |   |   | + |   | + |   | + |
+---+---+---+---+---+---+---+---+
```
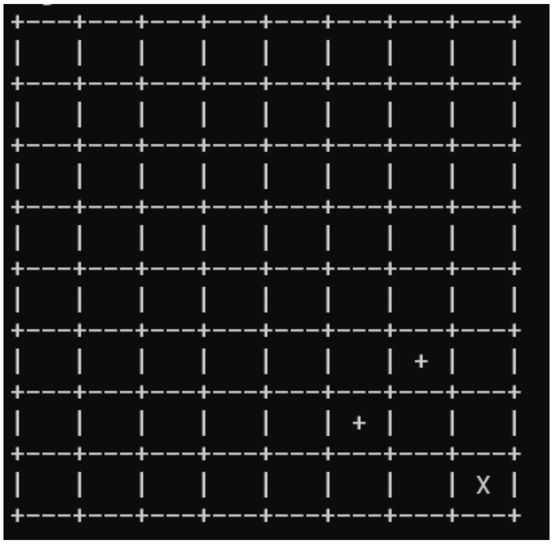

Knight:



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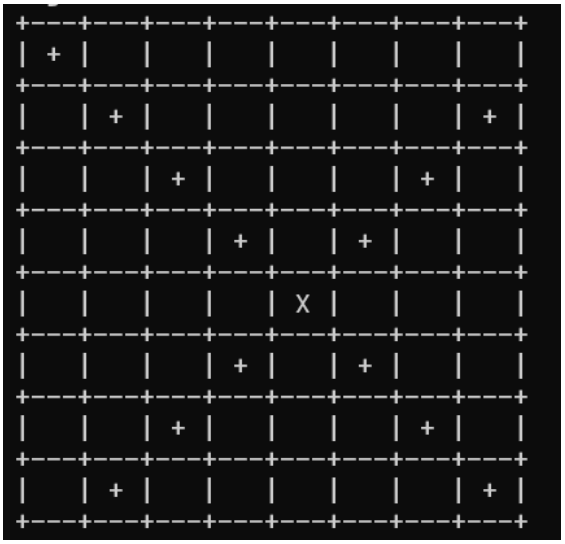
+---+---+---+---+---+---+---+---+
|   |   |   |   |   |   |   |   |
+---+---+---+---+---+---+---+---+
|   |   |   |   |   |   |   |   |
+---+---+---+---+---+---+---+---+
|   |   |   |   |   |   |   |   |
+---+---+---+---+---+---+---+---+
|   |   |   |   |   |   | + |   |
+---+---+---+---+---+---+---+---+
|   |   |   |   |   | + |   |   |
+---+---+---+---+---+---+---+---+
|   |   |   |   |   |   |   | X |
+---+---+---+---+---+---+---+---+
```

Bishop:



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+---+---+---+---+---+---+---+---+
| + |   |   |   |   |   |   |   |
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|   | + |   |   |   |   |   | + |
+---+---+---+---+---+---+---+---+
|   |   | + |   |   |   | + |   |
+---+---+---+---+---+---+---+---+
|   |   |   | + |   | + |   |   |
+---+---+---+---+---+---+---+---+
|   |   |   |   | X |   |   |   |
+---+---+---+---+---+---+---+---+
|   |   |   | + |   | + |   |   |
+---+---+---+---+---+---+---+---+
|   |   | + |   |   |   | + |   |
+---+---+---+---+---+---+---+---+
|   | + |   |   |   |   |   | + |
+---+---+---+---+---+---+---+---+
```
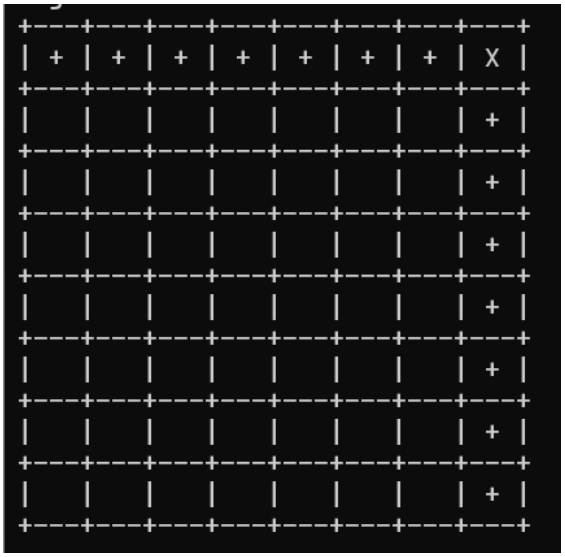
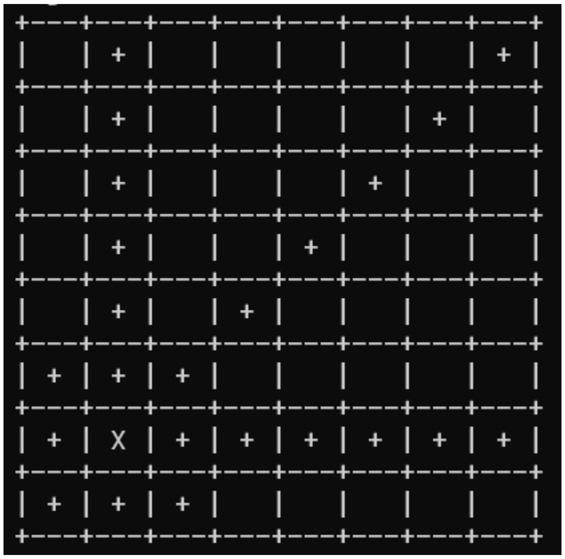

Rook:



```
+---+---+---+---+---+---+---+---+
| + | + | + | + | + | + | + | X |
+---+---+---+---+---+---+---+---+
|   |   |   |   |   |   |   | + |
+---+---+---+---+---+---+---+---+
|   |   |   |   |   |   |   | + |
+---+---+---+---+---+---+---+---+
|   |   |   |   |   |   |   | + |
+---+---+---+---+---+---+---+---+
|   |   |   |   |   |   |   | + |
+---+---+---+---+---+---+---+---+
|   |   |   |   |   |   |   | + |
+---+---+---+---+---+---+---+---+
|   |   |   |   |   |   |   | + |
+---+---+---+---+---+---+---+---+
|   |   |   |   |   |   |   | + |
+---+---+---+---+---+---+---+---+
```

Queen:



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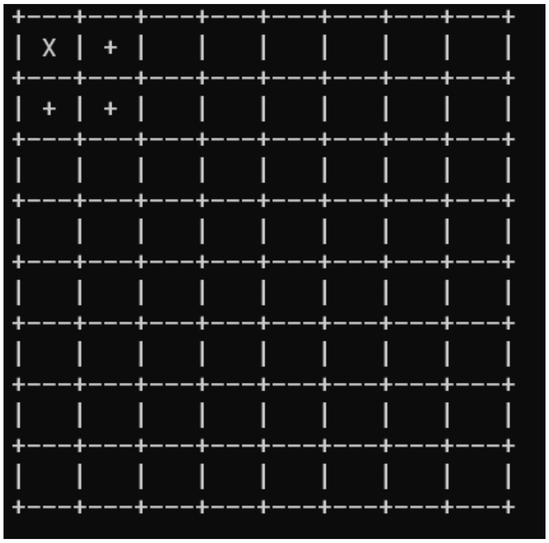
| + | X | + | + | + | + | + | + |
+---+---+---+---+---+---+---+---+
| + | + | + |   |   |   |   |   |
+---+---+---+---+---+---+---+---+
```

King:



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+---+---+---+---+---+---+---+---+
| X | + |   |   |   |   |   |   |
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| + | + |   |   |   |   |   |   |
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|   |   |   |   |   |   |   |   |
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```
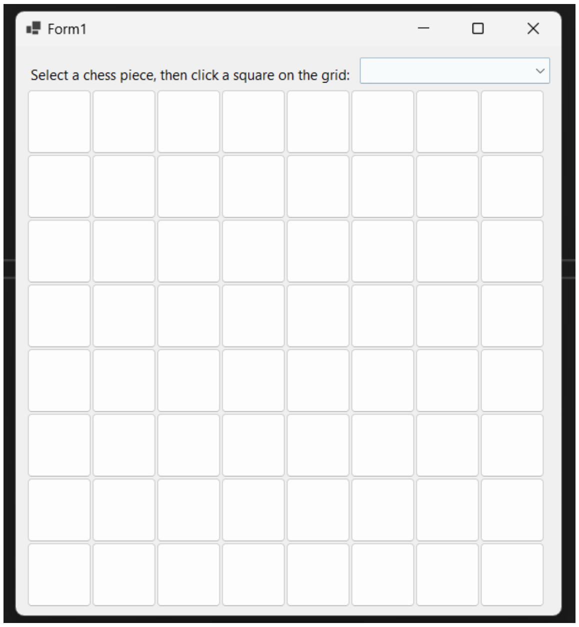
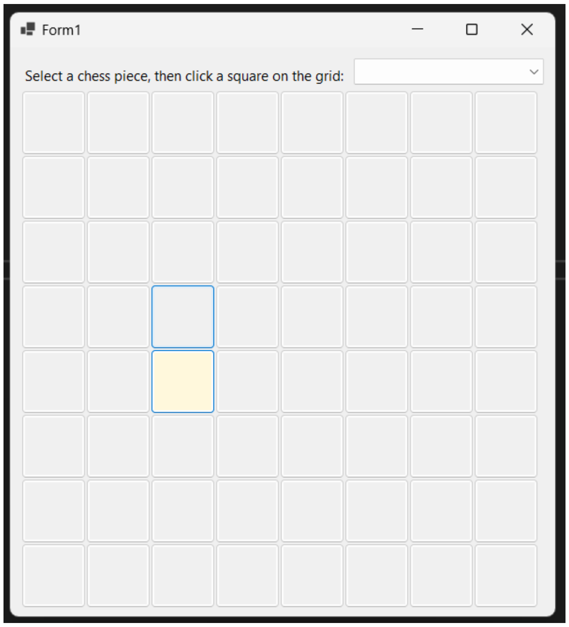

GUI Application:

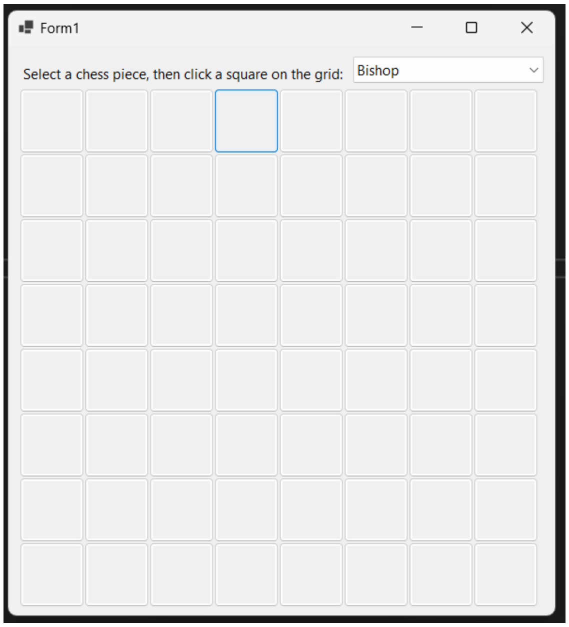
Empty Form:



No Piece Selected:

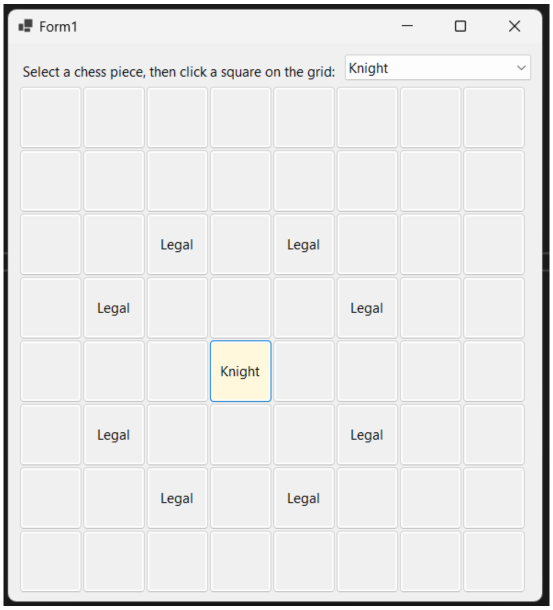


Board Cleared After New Piece Selected:



Select a chess piece, then click a square on the grid: Bishop

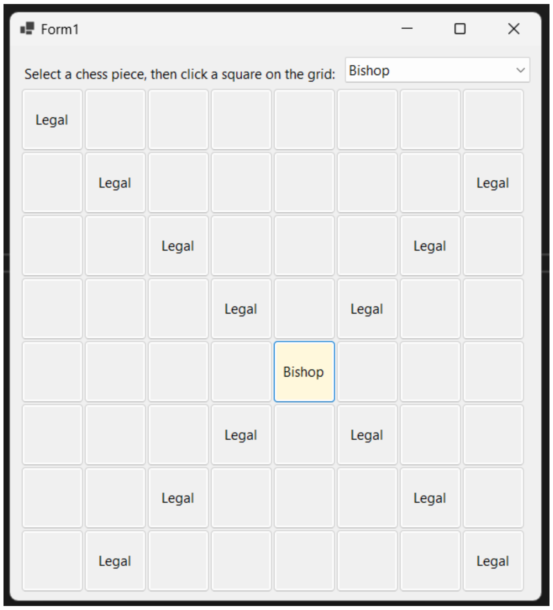
Knight:



Select a chess piece, then click a square on the grid: Knight

		Legal		Legal			
	Legal				Legal		
			Knight				
	Legal				Legal		
		Legal		Legal			

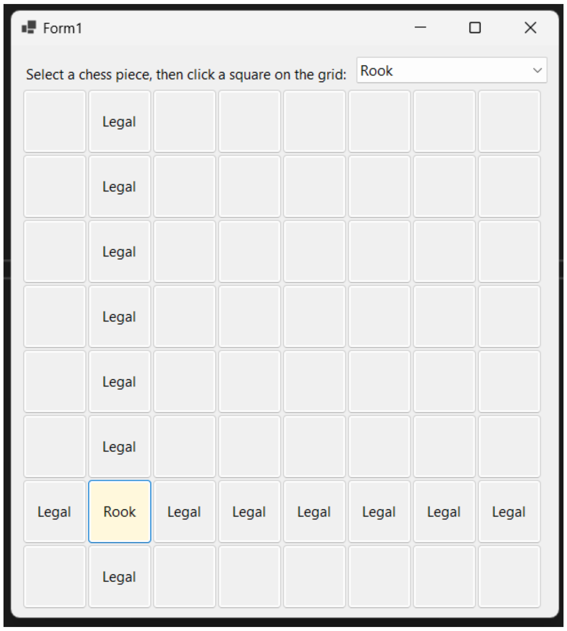
Bishop:



Select a chess piece, then click a square on the grid: Bishop

Legal							
	Legal						Legal
		Legal				Legal	
			Legal		Legal		
				Bishop			
			Legal		Legal		
		Legal				Legal	
	Legal						Legal

Rook:



Select a chess piece, then click a square on the grid: Rook

	Legal						
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	Legal						
	Legal						
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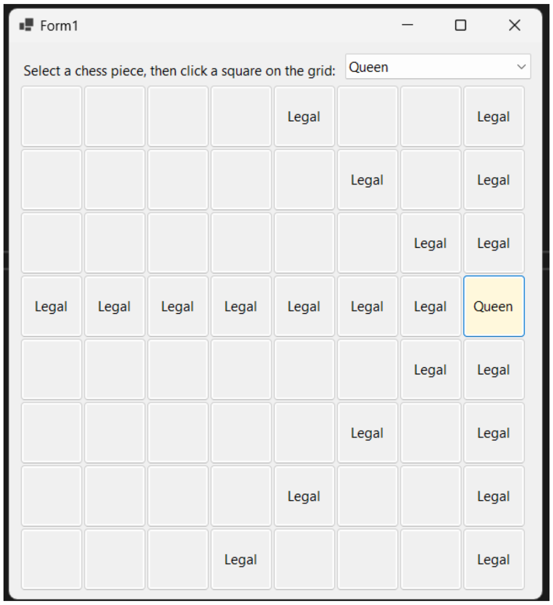
	Legal						
Legal	Rook	Legal	Legal	Legal	Legal	Legal	Legal
	Legal						

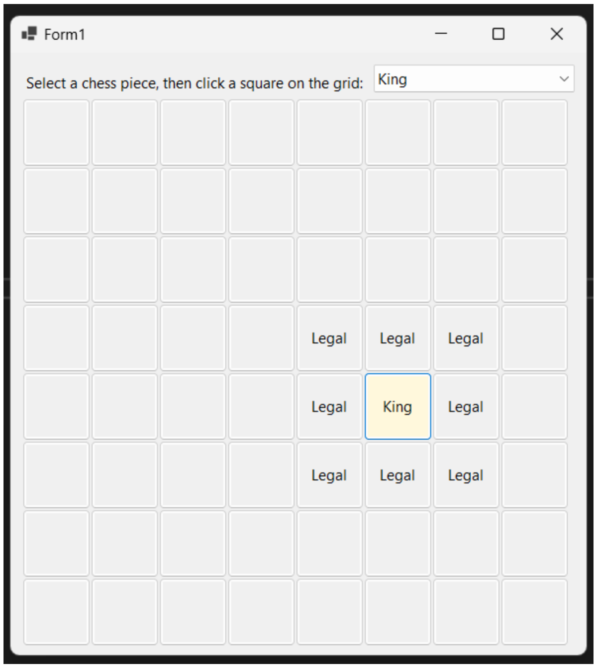
Queen:



Select a chess piece, then click a square on the grid: Queen

				Legal			Legal
					Legal		Legal
						Legal	Legal
Legal	Legal	Legal	Legal	Legal	Legal	Legal	Queen
						Legal	Legal
					Legal		Legal
				Legal			Legal
			Legal				Legal

King:



Select a chess piece, then click a square on the grid: King

				Legal	Legal	Legal	
				Legal	King	Legal	
				Legal	Legal	Legal	

Console Application Challenges:

1. **Out of Bounds Errors:** I added an exists(x, y) function on the Board class that can be used to check if the array should be indexed at that location before actually doing so.
2. **Input Errors:** I used a TryParse call instead of Parse inside a conditional. If the TryParse fails, then the function recursively re-prompts the user.
3. **Multiple Pieces:** Each piece can be seen in the screenshots. I ran multiple tests to make sure each piece worked correctly and at different positions on the board.
4. **Printing Upgrade:** A better board can be seen in the screenshots.

GUI Application Challenges:

1. **Error Checking:** All error checking is handled in the model layer, so this carried over from the last section.
2. **Multiple Pieces:** Each piece can be seen in the screenshots. Again, I tested multiple positions per piece, especially boundary cases.
3. **Center Button Text:** Using Visual Studio's auto generation of gui component handlers, I created a listener for the combo box changes. When a new piece is selected, the board is cleared, both at the gui level and the model level. Then, inside the btn click listener, when a square is selected, the current entry in the combo box is passed to the board's markLegalMoves() function. It is also used in the updateBtnBoard() function to populate the selected button with that piece name.

ANIMAL CLASSES

Program Output

See video:
https://www.loom.com/share/4a6b5c799d8b4b57ba612ae977c8d4e5