

PHASER 3 TOUGH CHESS AI

Version 1.0.0

Table of Contents

1. Motivation for the game
2. Game Screenshots
3. Relevant background information
4. Software, libraries and tools
5. User Interface
6. Theme Modification or Re-Skinning
7. Target devices and Platforms supported
8. Development environment setup
9. Deployment on server
10. Project structure
11. Architecture
12. References
13. Assets Included
14. Contact Us

INTRODUCTION

MOTIVATION FOR THE GAME

Board games are the most played games in the world. Chess is the king of the board games. It has many characters and concepts. Because of the technology one can play it with the computer.

This made me think about a robust chess AI which is hard to beat and by the same time one can learn about chess at top levels.

GAME SCREENSHOTS



RELEVANT BACKGROUND INFORMATION

This game expects a player to have the knowledge of chess pieces and their movements across the chess board.

SOFTWARE, LIBRARIES AND TOOLS

This is a hybrid application developed using robust technology i.e. HTML5 JavaScript which can run in any platform with very little effort. The engine is developed in JavaScript and the frontend user interface i.e. the game is written in [Phaser 3](#) library.

The development environment uses npm(Node Package Manager), VSCode IDE, Webpack packaging tool, Adobe Photoshop.

USER INTERFACE

Adobe Photoshop is being used to create the graphic elements. All PSD source files are included in the project folder so that one can reskin the game easily.

THEME MODIFICATION OR RE-SKINNING

To modify the theme or design, we have added the individual images which can be recreated and generated the sprite sheet again by using any of the given links above.

TARGET DEVICES AND PLATFORMS SUPPORTED

Currently this is a browser based application. This can be run in any browser starting from IE, FF, Chrome, Safari, Opera, etc on any platform and device.

DEVELOPMENT ENVIRONMENT SETUP

To setup the development environment locally, please follow the below steps

1. Front-end

For front end of this game, we use Phaser 3 framework. The game logic is written in js/index.js file.

2. Chess Engine – js/worker.js

This is a JavaScript chess engine which is written with JavaScript bitwise operators. You will never need to modify the code inside the engine. It provides all features to UI layer and to understand how it is implemented you may go through the engine code.

3. Unzip the files, from the location of package.json, right click and open integrated terminal in Visual Studio Code or in window address bar, delete the file path and type cmd which opens command line terminal, install all packages for front end by running command `npm i`.

4. Then run `npm start` in command line, You are ready to see the app in localhost:3000. If you need to change the port got Webpack.common.js file and modify

```
devServer: {  
  
  hot: true,
```

port: 3000

}

5. Webpack is used to build the project.
6. Phaser 3 is loaded using npm, you can also include the package directly if needed.
7. To make the game engine secure one must obfuscate the worker.js manually using any online obfuscator. As it is copied to dist using a Webpack plugin, it need some workaround to obfuscate using Webpack which I could not find yet.

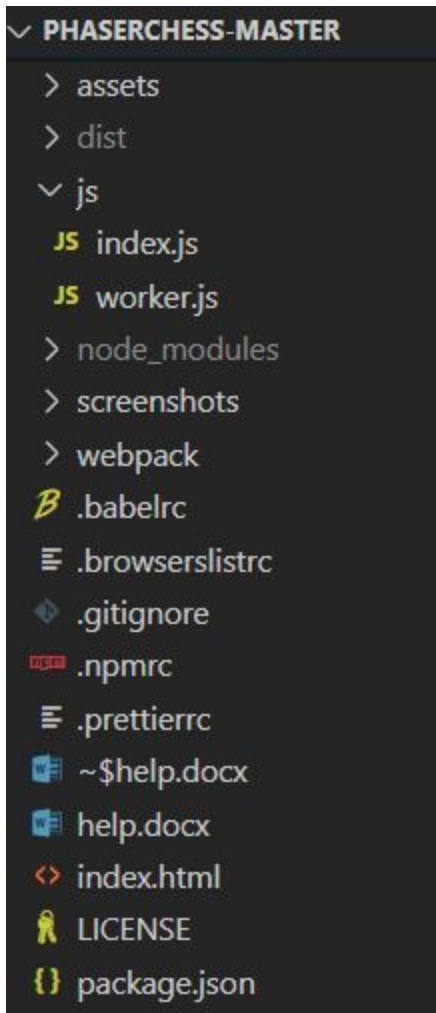
DEPLOYMENT ON SERVER

Once your development is ready, you then need to take it online by hosting your application online on a server. To do this please follow the following steps,

1. Run `npm run build` command from the package.json file location from your terminal.
2. The dist folder is being generated
3. Obfuscate the worker.js file using any online obfuscator
4. Then this dist folder needs to be copied to your server.
5. No need to include any other source code on prod server.

PROJECT STRUCTURE

This is a straightforward game project. Which has below project structure.



ARCHITECTURE

The AI part is a web worker so that it's non blocking and separate execution so that it can run efficiently. It receives and sends messages to the front end to communicate.

REFERENCES

https://en.wikipedia.org/wiki/Glossary_of_chess

<https://www.chess.com/forum/view/general/300--chess-quotes>

ASSETS INCLUDED

The layered PSD, the game source, end to end help document for the developers.

CONTACT US

For any kind of further development please contact us at mitrabinda.jymba@gmail.com.