

JUNGKOOK CHESS 1.0

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Glossary

- **Check**
 - The king is in danger of being captured but there are one turn moves that can be made to move the king out of danger
- **Check mate**
 - The king is in danger of being captured and there are no one turn moves that can be made that prevents the king from being captured on the next opponent turn. Game ends.
- **Legal move**
 - Each piece cannot jump over a piece (with the exception of a knight) and the king must never be placed in check for over a turn.
- **Castling**
 - *special move* in a situation where the three conditions are met:
 - 1) the king has not made its first move
 - 2) the rook in question has not made its first move
 - 3) the spaces in between the king and rook are not occupied by any pieces
 - 4) king does not move through a space or land in a space that is already checked
 - Then the king is permitted to move two spaces towards the rook and the rook can be placed on the space next to the king that is facing the opposite side with respect to the rook's corner
- **En Passant**
 - *Special move* in a situation where the opponent pawn has moved two spaces forward and sits directly besides the user's pawn
 - Then at the user's turn immediately after that move, the user can choose to capture the pawn and move 1 space diagonally to where the pawn captured would have been if it moved 1 space. If the user does not choose to act on this, the pawn is safe from being captured in this way
- **King**
 - Big boy
 - Can only move one space in any direction (with exception of castling)
- **Bishop**
 - Moves diagonally in any direction for any amount of spaces.
- **Knight**
 - Moves any combination of 2 spaces horizontally and 3 spaces vertically OR 3 spaces horizontally and 2 spaces vertically
- **Pawn**
 - Moves 1 space forwards, is allowed to move 2 spaces forwards for the first move
 - Is allowed to move 1 space diagonally to capture an opponent's piece that is in the diagonally adjacent space; can be promoted if reaches the end of the board.
- **Queen**
 - Moves horizontally, vertically, diagonally any amount of spaces
- **Rook**
 - Moves only horizontally or vertically any amount of spaces

- **Stalemate**
 - A draw - neither White or Black can make a legal move

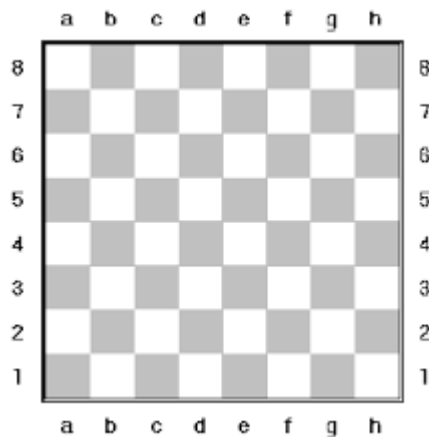
Introduction

BTS chess is a fun twist on the standard chess game. Our program allows the user to toggle a mode where Jungkook from BTS will help you make some Dynamite! moves to beat the opponent!

1.1 Usage Scenario

This chess game will be played on a graphical user interface. The user will be able to click on chess pieces and the location to which they want to move their selected piece.

Screenshot:



1.2 Goals:

- Successfully create and execute a fun graphical user interface chess game
- Implement a functional chess program that will execute without errors
- Create an algorithm that will generate all the possible moves the computer can choose and select the best move
- Produce a beginner friendly option that displays all the possible legal moves the selected piece can make
- Successfully terminate the game when either the user or computer has won or user wants to end game

1.3 Main Features:

- Graphical user interface
- Highlights possible legal moves for selected chess piece
- Outputs a formatted log of moves made in the previous game
- Accommodation for special moves like castling
- Jungkook mode™ featuring Jungkook from BTS as an AI assistant - helping you make moves to dominate the competition

Installation

2.1 System Requirements:

For Windows:

1. Ensure the computer is capable of running a terminal through a ssh client (ex. Putty). Ensure the computer is compatible with Linux OS (CentOS-7-x86_64).
2. Access the EECS Linux servers and run a terminal.

For Macs:

1. Open the “Terminal” program on your Mac.
2. Access the EECS server using the New Remote Connection.

2.2 Setup and configuration

1. Connect to EECS server
2. Copy the game files from the main server to your current directory by typing in the following command: `cp BTSCheck`
3. Unzip and extract the game files
4. Navigate inside the game folder by typing in the following command:
`cd BTSCheck`
5. Run the following commands:
`make BTSCheck`
`./BTSCheck`

2.3 Uninstalling

1. Navigate to the folder where BTS Chess was installed, then type in the following command to delete the files:
`rm BTSCheck`

Chess Program Functions and Features

Note: some functions may be missing or not meet all the requirements of the program direction documentation so we need to check that as well

3.1) Jungkook mode™

- User input: In the start menu, click the button on the top left corner that says “Jungkook mode” It should be activated by default..



- *jungkook mode on*
- Click the button to deactivate. The button should look like this.



- The terminal should output this message.
- `Jungkook mode de-activated!`

3.2) Quit

- Clicking the “Quit” button will close the program



3.3) Move History


- While in play, the user can print a menu of the move history of the game.
- Click the button that says “Moves”



- The terminal will print the following message:

```
MoveHistory.txt has been opened!
```

Example Game

 MoveHistory - Notepad

File Edit Format View Help

GAME LOG

Played: 4/3/22 7:21 PM PST

Outcome: White Win

MOVES

W: e6

B: e4

W: d5|

....

3.4) Opponents

- Players can choose to play against another Human or an A.I in the Start Menu



User input:

The user input will be done by clicking on the desired chess piece icon. Then the user will select the desired position of the piece by clicking on the board space. If the user wants to change the selected piece, then the user can click the piece again to deselect and choose another piece.

Program output

Refer to the screenshots below

Screenshots

Jungkook Chess Game



Moves

Quit

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Console

```
You moved Knight1 to b3  
[BTS] Jungkook: Wow! That move was smooth like butter!
```

*Start Menu

*final product may differ from illustrations



Jungkook Mode ☒



Jungkook Chess Game

Play against Computer

Play against Human

Back matter

4.1 Troubleshooting

- Refer to the following error messages below.
- If all else fails, restart the program by pressing CTRL + C in the command line and then typing the following commands in the terminal:

-

```
make BTSCheck
./BTSCheck
```

4.2 Error Messages

- **“Invalid move”** : this occurs when a player attempts to move a piece incorrectly or when moving to an invalid position.
- **“Unknown command”** : this occurs when a player attempts to input an invalid command.
- **“Invalid selection”** : this occurs when a player enters a value that is out of bounds.
- **“Empty space”** : this occurs when a player attempts to choose a space that is empty.
- **“Unable to move”** : this occurs when a player attempts to move a piece that cannot move (ex: will put the king in check, or is blocked by other pieces)
- **“Wrong team”** : this occurs when a player attempts to move the opponent's pieces.

4.3 Copyright

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4.4 Contact information

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4.5 Legal license

BTS Chess is not affiliated with Big Hit Entertainment or .

4.6 Disclaimer of warranty:

BTS chess does not take any responsibility for any loss of memory, files, or computer malfunction during the game operation. Please save a backup copy of all your desktop files before running this program.

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