**Supreme Checkers**

**Overview**

* A networked Unity-2D Checkers game for Drexel's **SE-181:** *Intro to Software Engineering*.
* [**Click Here to Get Started**](https://github.com/overlord-supreme/checkers/wiki/getting-started)
* In general, check the [**Wiki**](https://github.com/overlord-supreme/checkers/wiki) if you have a question, or refer to one of the developers on **[Discord]** (contact peter201943#8017 for access)
* [This project can be accessed on *GitHub*, where it is hosted along with its *Issues* (Bug Trackers), *Releases* (Builds), *Wiki* (Discussion/Knowledge), and other features](https://github.com/overlord-supreme/checkers)

**File Structure**

* This is a conglomerate of separate concerns:
  + Documentation
  + Third Party Libraries
  + Learning
* As such, the **root** file structure reflects this:
  + The **Game Files** are stored in [**Unity**](https://github.com/overlord-supreme/checkers/tree/master/Unity)
  + The **Document Source Code** is stored in [**docs**](https://github.com/overlord-supreme/checkers/tree/master/docs)
  + The **Rendered Documents** are in [**gen**](https://github.com/overlord-supreme/checkers/tree/master/gen)
  + The **Code Coverage** is in [**CodeReport**](https://github.com/overlord-supreme/checkers/tree/master/CodeReport)
  + Within [**Unity/Assets**](https://github.com/overlord-supreme/checkers/tree/master/Unity/Assets), there are **two** folders
    - The **Checkers Game** in [**Checkers**](https://github.com/overlord-supreme/checkers/tree/master/Unity/Assets/Checkers)
    - The **Networking Tutorial** in [**RW**](https://github.com/overlord-supreme/checkers/tree/master/Unity/Assets/RW)
    - The Network Tutorial, out of a lack of time, is also where the **Networking Libraries** are located:
      * The **Core Networking** in [**Unity/Assets/RW/Photon/PhotonUnityNetworking**](https://github.com/overlord-supreme/checkers/tree/master/Unity/Assets/RW/Photon/PhotonUnityNetworking) (*BIG* folder, lots of useful scripts)
      * The **Realtime Networking** in [**Unity/Assets/RW/Photon/PhotonRealtime**](https://github.com/overlord-supreme/checkers/tree/master/Unity/Assets/RW/Photon/PhotonRealtime)
* There are some miscellanious folders that need to be cleaned up:
  + [**Unity/Assets/Photon**](https://github.com/overlord-supreme/checkers/tree/master/Unity/Assets/Photon)**:** Empty, nothing important in here
  + [**Unity/Assets/StreamingAssets**](https://github.com/overlord-supreme/checkers/tree/master/Unity/Assets/StreamingAssets)**:** Again, nothing important
  + **Most of** [**Unity/Assets/RW**](https://github.com/overlord-supreme/checkers/tree/master/Unity/Assets/RW)**:** There are many files in here belonging to the *Tutorial*, that are not needed for the *Checkers* game

**Game File Structure**

* Each of the *Elements* of the game (*Board*, *Piece*, *Player*, *Game*, *Tests*) gets its own folder, where a *script* and/or *scene*/*prefab* is stored
* A better understanding of each class can be had by visiting the comments in the source code
* The *Elements* are:
  + [**Board**](https://github.com/overlord-supreme/checkers/tree/master/Unity/Assets/Checkers/Board)
    - A *Prefab* and a *Script*
    - The *Prefab* contains an 8x8 3D Grid of Cubes with Tile components attached to make the "board"
    - The *Script* Handles almost everything, from *Cell Highlighting*, to *Networking*, to *Turn Control*, and so on
    - Potentially too *Big*
    - Also contains the *non-GameObject* **Space** class, which has various stats for a cell/tile/grid/square/space on the board
  + [**Game**](https://github.com/overlord-supreme/checkers/tree/master/Unity/Assets/Checkers/Game)
    - Just a *Scene* with an instance of **Board** and many **Pieces**
    - Is the **"Main Scene"** that gets loaded *after* the **Launcher**
  + [**Piece**](https://github.com/overlord-supreme/checkers/tree/master/Unity/Assets/Checkers/Piece)
    - Nothing?
  + [**Player**](https://github.com/overlord-supreme/checkers/tree/master/Unity/Assets/Checkers/Player)
    - Mostly stats, such as whether the player is the *"Current"* Player
  + [**Tests**](https://github.com/overlord-supreme/checkers/tree/master/Unity/Assets/Checkers/Tests)
    - The *Unit*, *Integration*, and other Tests required by the course
  + [**Launcher**](https://github.com/overlord-supreme/checkers/blob/master/Unity/Assets/Checkers/Launcher.unity)
    - Taken from the *Tutorial*, is a simple matchmaking menu
    - This should be the **"First Scene"** that gets loaded on opening the app

**Testing**

* Unity has a built-in testing framework that uses "Assembly Definition Files" to *"see"* other scripts
* These are .json files that must be added to whatever directories with scripts in them that you want to be able to test
* An .asmdef file exists in the major script locations:
  + [Unity/Assets/Checkers/Board/Board.asmdef](https://github.com/overlord-supreme/checkers/blob/master/Unity/Assets/Checkers/Board/Board.asmdef)
  + [Unity/Assets/Checkers/Piece/Piece.asmdef](https://github.com/overlord-supreme/checkers/blob/master/Unity/Assets/Checkers/Piece/Piece.asmdef)
  + [Unity/Assets/Checkers/Player/Player.asmdef](https://github.com/overlord-supreme/checkers/blob/master/Unity/Assets/Checkers/Player/Player.asmdef)
  + [Unity/Assets/RW/Scripts/RW.asmdef](https://github.com/overlord-supreme/checkers/blob/master/Unity/Assets/RW/Scripts/RW.asmdef)
* We assume that the included *Photon* libraries work, and so no .asmdef files have been created for them
* For more on testing inside *Unity*, [visit these pages on the wiki](https://github.com/overlord-supreme/checkers/wiki/unit-test-games)
* There are **two** kinds of tests:
  + **EditMode**
    - These are tests that run in the *editor*, and *not* during *play*
    - Similar to **Unit Tests**, these tests **cannot** access the *Scene*, but run faster and at any time
    - Better to test the individual methods of a class
  + **PlayMode**
    - These are tests that run *in game*, and *not* *in editor*
    - Similar to **Integration Tests**, these tests can access the **Scene** and talk to other **GameObjects**
    - Better to test the behavior of multiple GameObjects interacting with each other
* The Tests should be located in [Unity/Assets/Checkers/Tests/](https://github.com/overlord-supreme/checkers/tree/master/Unity/Assets/Checkers/Tests)
  + There are **two** subfolders, labelled [PlayMode](https://github.com/overlord-supreme/checkers/tree/master/Unity/Assets/Checkers/Tests/PlayMode) and [EditMode](https://github.com/overlord-supreme/checkers/tree/master/Unity/Assets/Checkers/Tests/EditMode)
  + There is an example test in each folder
* For Code Coverage/Static Analysis, we used [**Roslyn**](https://github.com/dotnet/roslyn) with [**Visual Studio**](https://visualstudio.microsoft.com/)

**Coding**

* Each of the scripts has some documentation
* Please add your notes to them as you write them out, what issues you are having, etc

**Issues**

* If you have the time, please add any persistent issues to the [*Github Issues Tracker*](https://github.com/overlord-supreme/checkers/issues)
* Otherwise, note the issue in the script location of the problem, eg on a **Method** or on a **Class** as a *comment*\*

**Branches**

* (last updated 2020-11-30T09:25:00-05)
* **master:** The current branch
* **Sound-Highlight:** Code Improvements, but broken
* **TurnFixes:** Move fixes, integrated

**Releases**

[**Version 1.0.0**](https://github.com/overlord-supreme/checkers/commit/1e4f3fb41d439980f801182d9a7f9da6739acc14)

Logic and networking code for game reached completion point.

[**Version 1.0.1**](https://github.com/overlord-supreme/checkers/commit/0143b7c58fa4d270b07c0e51a4a4e0453dde3562)

Functionality for the sound and credits were added.

[**Version 1.0.2**](https://github.com/overlord-supreme/checkers/commit/9c29ad27663d046658a8a1547e3f86d3ae9bd97a)

Code and sounds credits added to project. As well the functionality for implementing sounds were added.

[**Version 1.0.3**](https://github.com/overlord-supreme/checkers/commit/f294755c8f1cfeef8f70d538bfe62dc606695989)

Piece path highlighting was added to the game.

[**Version 1.0.4**](https://github.com/overlord-supreme/checkers/commit/6751a233b74b06ce2213f8a09c42f8e2342aa376)

Process of adding in unit tests was began.

[**Version 1.0.5**](https://github.com/overlord-supreme/checkers/commit/acab0972bc7b98b9b97c5539584c0c0296571b47)

Added in the rest of the unit tests to the project.

[**Version 1.0.6**](https://github.com/overlord-supreme/checkers/commit/1925bbdd4dc5a7e8a4b29b03624f0e404dc23c11)

Fixed logic issues with jumps.

[**Version 1.0.7 - Final Release**](https://github.com/overlord-supreme/checkers/commit/a786c306f9f0188e589d5cb3c8fdc63d9e8cc184)

Implemented final missing UI items