1. **Instructions for playing the game:**
   1. How to win:
      1. Defeat all the enemy space ships in all 6 levels without losing your current life.
         1. Destroy an enemy space ship by taking away all of its hit points.
         2. You will complete a level when you defeat all of the enemies in that level without losing your life. If you defeat all of the enemies, but then you are hit by a laser/bomb, the level will start over and you will lose a life.
   2. Gameplay:
      1. Hitting an enemy with one laser will take away one of its hit points.
         1. Different enemies have a different total number of hit points.
      2. If you are hit by a laser or an enemy reaches the bottom of the screen where your space ship is, you will lose a life.
      3. You have a specified number of lives per level, if you run out of lives, you lose.
   3. Moving:
      1. Move the Millennium Falcon left and right by pressing on the left and right arrow keys respectively. Pressing both arrow keys at once will cause the ship to stop moving. The Millennium Falcon cannot move up or down, just left and right.
   4. Shooting:
      1. Fire lasers from the Millennium Falcon by pressing the space bar. One press of the space bar will simultaneously fire two lasers parallel to each other.
      2. The Millennium Falcon will fire as quickly as you can press the space bar.
   5. Levels of Difficulty:
      1. There are four levels of difficulty:
         1. Youngling (Beginner) – the player has 10 lives per level
         2. Padawan (Intermediate) – the player has 6 lives per level
         3. Jedi Knight (Advanced) – the player has 3 lives per level
         4. Jedi Master (Never tell me the odds) – the player has 1 life
   6. Cheating:
      1. There are a couple options for cheating:
         1. No cheating – Normal gameplay
         2. Cheating – Allows you to play with cheats
      2. There are three specific ways you can cheat:
         1. Automatic Fire – No need to press the space bar, the Millennium Falcon will automatically fire as fast as it can
         2. Invincible Shielding – Your shields are invincible and no lasers or bombs will ever hurt you; however, if an enemy invades, you will still lose a life
         3. Automatic Fire and Invincible Shielding – Play through the game like a boss (this is Professor Harbert mode)
   7. Before you start a game:
      1. Nothing has to be done before you can start a game
         1. You can however test out how the Millennium Falcon moves and fires before you start playing a game
      2. You can change settings before you start playing the game, but once you start playing, you must quit the current game in order to change settings again
   8. To change settings:
      1. Click on settings before you start a game, change settings, and click OK.
   9. To start a game:
      1. Click on start
   10. While playing a game:
       1. Your number of lives left and the number of enemies you have destroyed will appear on the left hand side of the screen
       2. You may pause and later resume a game at any time by clicking pause/resume
       3. You may quit the game at any time by clicking quit
   11. Special note to professor Harbert:
       1. In order to completely play through a game and win (for grading purposes), you will want to use both cheats available to you. The first three levels are relatively simple, but we did not make this game easy to win. It is possible to win the game on the hardest difficulty without cheats, but John has only almost done it once…
2. **List of incomplete functionality or known problems/bugs:**
   1. We believe we have met all the functional requirements of the game and we could not find any problems/bugs with the functionality of the game, so hopefully you do not find and problems either.
   2. We do want to mention however, that we have an obvious design flaw that we realized we had too late into the design process.
      1. We did not include any classes to contain the lasers or to contain the enemies; the game has direct access to all of the lasers and all of the enemies.
      2. It may not be too difficult to add classes in order to group the lasers’ functionality together and the enemies’ functionality together, but unfortunately we have to work on other projects now and we realized the issue too late.
      3. We do not believe that this design issue affects efficiency too much; however, it most likely affects maintainability.
   3. The good news is that we believe we have utilized inheritance properly. We may be using a lot of it, but we only use it where it makes sense and where it helps us to group data and functionality together.
      1. Because of the way we used inheritance, we were able to:
         1. Add four additional levels
         2. Have several types of enemy lasers/bombs
         3. Have three types of aliens
         4. Have two different alien bosses
      2. It would also not be difficult for us to add more levels/enemies later if we wanted to, so hopefully this will help us retain some of our maintainability score.
3. **Extra details that probably will not get us any extra credit:**
   1. We wanted to make our game aesthetically appealing to some extent and we wanted to make our game based on Star Wars.
   2. All of our images have transparent backgrounds and we wanted the collisions to look a little bit nicer, so we implemented the logic to perform a per pixel collision detection.
      1. A collision only happens when both of the intersecting rectangles are not transparent
   3. The algorithm is documented in our source code in the SpaceShip class