Main Class(To be complied):

/Main/Boot.java hold the main method and primarily needs to be complied(all classes do require specific compilation however)

Interface Inheritance:

The Game's collision detection class(/Game/CollisionDetection.java) is an interface and is utilised in the Cluster class to check collisions between bullets and enemies in a cluster, and the player. Was intended for use in a Special Enemies class for enemies that would move towards the player directly(A chase algorithm) that was unimplemented(got too bloated and made the game too difficult).

Class Inheritance:

- **MapObject(/Game/MapObject.java) (Abstract):**
  - Player(/Game/Player.java): Inherits methods and variables from the class for specific use by the Player object, overrides the draw method to allow drawing at an angle.
  - Enemy(/Game/Enemy.java):Inherits methods and variables from the class for specific use by a Enemy object.
  - Cluster(/Game/Cluster.java): Inherits methods and variables from the class for specific use by a Cluster of enemies treated as a unit.
  - Bullet(/Projectiles/Bullets.java):Inherits methods and variables from the class for specific use by the bullets fired by the player on the screen, overrides the draw method to allow drawing at an angle.

- **Level(/levelManagement/Level.java) (Abstract):**
  - Menus(/Menus/*.java): All the menus used in the game utilise methods and variables held in the Level.java class as well as a shard background image that has its scrolling speed dynamically set by each menu or level specifically.
  - Levels(/gameLevels/*.java): All levels in the game utilise methods and varibles inherited from the Level abstract class.
  - Transition(/levelManagement/Transition.java): Inherits methods and variables but only to set a custom background scrolling speed all else is untouched.

Additional work:

- Player ship levels up and changes when they kill enemies, each ship has a different firing rate, and bullet damage, when a bullet strikes an enemy it isnt removed immediately if it has more damage than the enemy has health allowing bullets to "pierce" through enemies and damage/destroy multiple enemies before disappearing and fly at different speeds at different levels.
- Game can detect multiple types of collisions automatically(between rectangular hitboxes, two circular hitboxes, a circle and a rectangle hitbox etc).
- Pause Menu, game can at any moment during gameplay be paused and resumed.
- There is a transition screen between levels
- Bullets and Player image draws at an angle based on the player(Without using stdDraw)
- Player can fire multiple bullets(at the final level)
- Advanced graphics.
- A scrolling(non animated .gif) background that can and does scroll at different speeds for different levels
- Enemies are grouped together in clusters that move as a unit to simplify collisions and make gameplay and enemy generation more interesting.
- Player has lives
- Sounds(for bullets fired and background music).

External Libraries:

- No external libraries were used. Only the java standard libraries.

Class Diagrams(by package):