

field(main)

+size: Integer

+w: Integer

+h: Integer

+spawnspd: Integer

+fireSpd: Integer

+miniSpawnspd: Integer

+miniLaserFireSpd: Integer

+miniMissileFireSpd: Integer

+powerUpSpawnDur: Integer

+waveChange: Integer

+playerBulletsDir: PVector

+pos: PVector

+dir: PVector

+playerBulletsDir: PVector

+playerBullets: ArrayList<PVector>

+player: entity

+survived: Integer

+enemyposList: ArrayList<PVector>

+enemyList: ArrayList<Enemy>

+bloomposList: ArrayList<PVector>

+bloomList: ArrayList<Enemy>

+enemyBullets: ArrayList<PVector>

+bloomBullets: ArrayList<PVector>

+enemyBulletsDirs: ArrayList<PVector>

+miniBossposList: ArrayList<PVector>

+miniBossList: ArrayList<Enemy>

+missiles: ArrayList<PVector>

+stepCount: ArrayList<Integer>

+lasers: ArrayList<PVector>

+powerUpSpawn: boolean

+powerUps: ArrayList<PVector>

+powerUpType: ArrayList<String>

+spedUp: boolean

+speedUpDuration: Integer

+powerUpStart: Integer

+healed: boolean

+timeSlow: boolean

+timeSlowDuration: Integer

+bossActive: boolean

+bossSpawnTime: Integer

+bossSpawnDur: Integer

+bossSpawnInterval: Integer

+beegBoss: Enemy

+bossLoc: PVector

+theBigCrab: Enemy

+bossHP: ArrayList<PVector>

setup()

draw()

grid()

keyPressed()

drawPlayer()

updatePlayer()

createPlayerBullet()

updatePlayerBullets()

playerIsHit()

gameOver()

collisionCheck()

timerCheckCrab()

spawnBoss()

drawBoss()

bossGrid()

drawTheBigCrab()

bigCrabPatternA()

bigCrabPatternB()

bigCrabPatternC()

hpBarDecrease()

bossSpawnTime(): Integer

createBasics()

drawEnemies()

createBloomShooters()

updateEnemies()

createEnemyBullet()

createBulletBloom()

```
classDiagram
    class entity {
        +size Integer
        +durability Integer
        +type String
        +spd Double
        +xcord Integer
        +ycord Integer
    }
    class Enemy {
    }
    class Player {
    }
    class EnemyBullet {
        +dir PVector
    }
    entity <|-- Enemy
    entity <|-- Player
```

The diagram illustrates the class structure of the game. The **entity** class is the base class, containing attributes for size, durability, type, speed, coordinates, and position. It has two subclasses: **Enemy** and **Player**. The **EnemyBullet** class is a separate class that inherits from **entity** and has a **dir** attribute representing its direction.

```
createBulletBloom()  
updateEnemyBullets()  
updateBloomBullets()  
createMiniBosses()  
drawMiniBoss()  
updateMinis()  
createMiniLaser()  
createMissiles(Integer)  
updateMissiles()  
enemyDamaged(enemy: Enemy): Enemy  
spawnPowerUp()  
drawPowerUp()  
getPowerUpStart(): Integer  
collisionCheckPowerUp()
```