**2.1 Class GameContactListener implements ContactListener**

2.1.1 Field

|  |  |
| --- | --- |
| - Array<Body> bodiesToRemove |  |
| - Penball game |  |

2.1.2 Constructor

|  |  |
| --- | --- |
| + GameContactListener(Penball game) |  |

2.1.3 Method

|  |  |
| --- | --- |
| + void beginContact(Contact c) |  |
| + void endContact(Contact c) |  |
| + void postSolve(Contact c, ContactImpulse ci) |  |
| + void preSolve(Contact c, Manifold m) |  |
| + Array<Body> getBodiesToRemove() |  |

**2.2 Class GameManager**

2.2.1 Field

|  |  |
| --- | --- |
| - Penball game |  |
| - int currentLevel |  |
| - int enemiesInStage |  |
| - int score |  |
| - World world |  |
| - PlayerStats stats |  |
| + Array<Entity> enemies |  |
| + Player player |  |

2.2.2 Constructor

|  |  |
| --- | --- |
| + GameManager(Penball game) |  |

2.2.3 Method

|  |  |
| --- | --- |
| + void setWorld(World world) |  |
| + World getWorld() |  |
| + void createLevel() |  |
| + void createNormalLevel() |  |
| + void createBossLevel() |  |
| + void enemyDies(String type) |  |
| + int getCurrentLevel() |  |
| + void nextLevel() |  |
| + int getEnemiesInStage() |  |
| + int getScore() |  |
| + int getPlayerHealth() |  |
| + int getPlayerAttack() |  |
| + void setPlayerHealth(int health) |  |
| + void setPlayerAttack(int attack) |  |

**2.3 Class Launcher**

2.3.1 Method

|  |  |
| --- | --- |
| + void main(String[] args) |  |

**2.4 Class Penball extends Game**

2.4.1 Field

|  |  |
| --- | --- |
| + final boolean DEBUG |  |
| + final int WIDTH |  |
| + final int HEIGHT |  |
| + PlayerStats stats |  |
| + SpriteBatch batch |  |
| + BitmapFont font |  |
| + BitmapFont font2; |  |
| + GameManager manager; |  |

2.4.2 Method

|  |  |
| --- | --- |
| + void create() |  |
| + void render() |  |
| + void dispose() |  |

**2.5 Class PlayerStats**

2.5.1 Field

|  |  |
| --- | --- |
| # int health |  |
| # int attack |  |

2.5.2 Constructor

|  |  |
| --- | --- |
| + PlayerStats() |  |

2.5.3 Method

|  |  |
| --- | --- |
| + int getPlayerHealth() |  |
| + int getPlayerAttack() |  |
| + void setPlayerHealth(int health) |  |
| + void setPlayerAttack(int attack) |  |

**2.6 Class Utills**

2.6.1 Method

|  |  |
| --- | --- |
| + void positionCheck(Entity entity) |  |
| + int randomNum(int low, int high) |  |

**2.7 Class Vars**

2.7.1 Field

|  |  |
| --- | --- |
| + final short BIT\_PLAYER |  |
| + final short BIT\_ENEMY |  |
| + final short BIT\_WALL |  |
| + final short BIT\_BULLET |  |

**2.8 Class Boss extends Character**

2.8.1 Field

|  |  |
| --- | --- |
| # GameManager manager |  |
| # int delayCount |  |
| # int delayShoot |  |

2.8.2 Constructor

|  |  |
| --- | --- |
| + Boss(GameManager manager, float x, float y, int level) |  |

2.8.3 Method

|  |  |
| --- | --- |
| + void render(SpriteBatch batch) |  |
| + void shoot() |  |

**2.9 Class Bullet extends Entity**

2.9.1 Field

|  |  |
| --- | --- |
| # int attack |  |

2.9.2 Constructor

|  |  |
| --- | --- |
| + Bullet(World world, Texture texture, float x, float y, int attack) |  |

2.9.3 Method

|  |  |
| --- | --- |
| + int getAttack() |  |
| + void shot() |  |

**2.10 Class Character extends Entity**

2.10.1 Field

|  |  |
| --- | --- |
| # int health |  |
| # int attack |  |

2.10.2 Constructor

|  |  |
| --- | --- |
| + Character(World world, Texture texture, float x, float y, String type) |  |

2.10.3 Method

|  |  |
| --- | --- |
| + boolean takeDamage(int damage) |  |
| + void render(SpriteBatch batch) |  |
| + int getHealth() |  |
| + int getAttack() |  |

**2.11 Class Enemy extends Character**

2.11.1 Field

|  |  |
| --- | --- |
| # GameManager manager |  |
| # int delayCount |  |
| # int delayShoot |  |

2.11.2 Constructor

|  |  |
| --- | --- |
| + Enemy(GameManager manager, Texture texture, float x, float y, int level) |  |

2.11.3 Method

|  |  |
| --- | --- |
| + void render(SpriteBatch batch) |  |
| + void shoot() |  |

**2.12 Class Enemy extends Character**

2.12.1 Constructor

|  |  |
| --- | --- |
| + Enemy01(GameManager manager, float x, float y, int level) |  |

**2.13 Class Entity**

2.13.1 Field

|  |  |
| --- | --- |
| - int size |  |
| # String type |  |
| # World world |  |
| # Sprite sprite |  |
| # boolean isRemoved |  |
| + Body body |  |

2.13.2 Constructor

|  |  |
| --- | --- |
| + Entity(World world, Texture texture, float x, float y, String type, int size) |  |

2.13.3 Method

|  |  |
| --- | --- |
| + void createSprite(float x, float y) |  |
| + void render(SpriteBatch batch) |  |
| + float getX() |  |
| + float getY() |  |
| + Vector2 getPosition() |  |
| + float getRatation() |  |
| + void linearCheck() |  |
| + void stopMovement() |  |
| + String getType() |  |

**2.14 Class Fox extends Enemy**

2.14.1 Constructor

|  |  |
| --- | --- |
| + Fox(GameManager manager, float x, float y, int level) |  |

**2.15 Class Player extends Character**

2.15.1 Constructor

|  |  |
| --- | --- |
| + Player(GameManager manager, float x, float y) |  |

2.15.2 Method

|  |  |
| --- | --- |
| + boolean stateCheck() |  |

**2.16 Class PolarBear extends Enemy**

2.16.1 Constructor

|  |  |
| --- | --- |
| + PolarBear(GameManager manager, float x, float y, int level) |  |

**2.17 Class GameOver implements Screen**

2.17.1 Field

|  |  |
| --- | --- |
| - Penball game |  |
| - OrthographicCamera camera |  |
| - Viewport viewport |  |

2.17.2 Constructor

|  |  |
| --- | --- |
| + GameOver(Penball game) |  |

2.17.3 Method

|  |  |
| --- | --- |
| + void render(float arg0) |  |
| + void resize(int arg0, int arg1) |  |

**2.18 Class HighScore implements Screen**

2.18.1 Field

|  |  |
| --- | --- |
| - Penball game |  |
| - OrthographicCamera camera |  |
| - Viewport viewport |  |
| - int delay |  |
| - Texture screen |  |
| - String score |  |

2.18.2 Constructor

|  |  |
| --- | --- |
| + HighScore(Penball game) |  |

2.18.3 Method

|  |  |
| --- | --- |
| + void render(float arg0) |  |
| + void resize(int arg0, int arg1) |  |
| + void dispose() |  |

**2.19 Class MainMenu implements Screen**

2.19.1 Field

|  |  |
| --- | --- |
| - Penball game |  |
| - OrthographicCamera camera |  |
| - Viewport viewport |  |
| - Texture screen |  |
| - Texture playButton |  |
| - Texture highscoreButton |  |
| - Texture exitButton |  |
| - int delay |  |

2.19.2 Constructor

|  |  |
| --- | --- |
| + MainMenu(Penball game) |  |

2.19.3 Method

|  |  |
| --- | --- |
| + void render(float arg0) |  |
| + void resize(int arg0, int arg1) |  |
| + void dispose() |  |

**2.20 Class Stage01 implements Screen**

2.20.1 Field

|  |  |
| --- | --- |
| + final int SCALE |  |
| - Penball game |  |
| - World world |  |
| - Box2DDebugRenderer debugRenderer |  |
| - OrthographicCamera camera |  |
| - Viewport viewport |  |
| - GameContactListener contactListener |  |
| - Texture map |  |
| - Player player |  |
| - Sound dead |  |
| - Sound release |  |
| - boolean touchCheck |  |
| - float xPos |  |
| - float yPos |  |
| - int delay |  |

2.20.2 Constructor

|  |  |
| --- | --- |
| + Stage01(Penball game) |  |

2.20.3 Method

|  |  |
| --- | --- |
| + void render(float arg0) |  |
| + void resize(int arg0, int arg1) |  |
| + void dispose() |  |
| + void toNextLevel() |  |