National University of Computer and Emerging Sciences
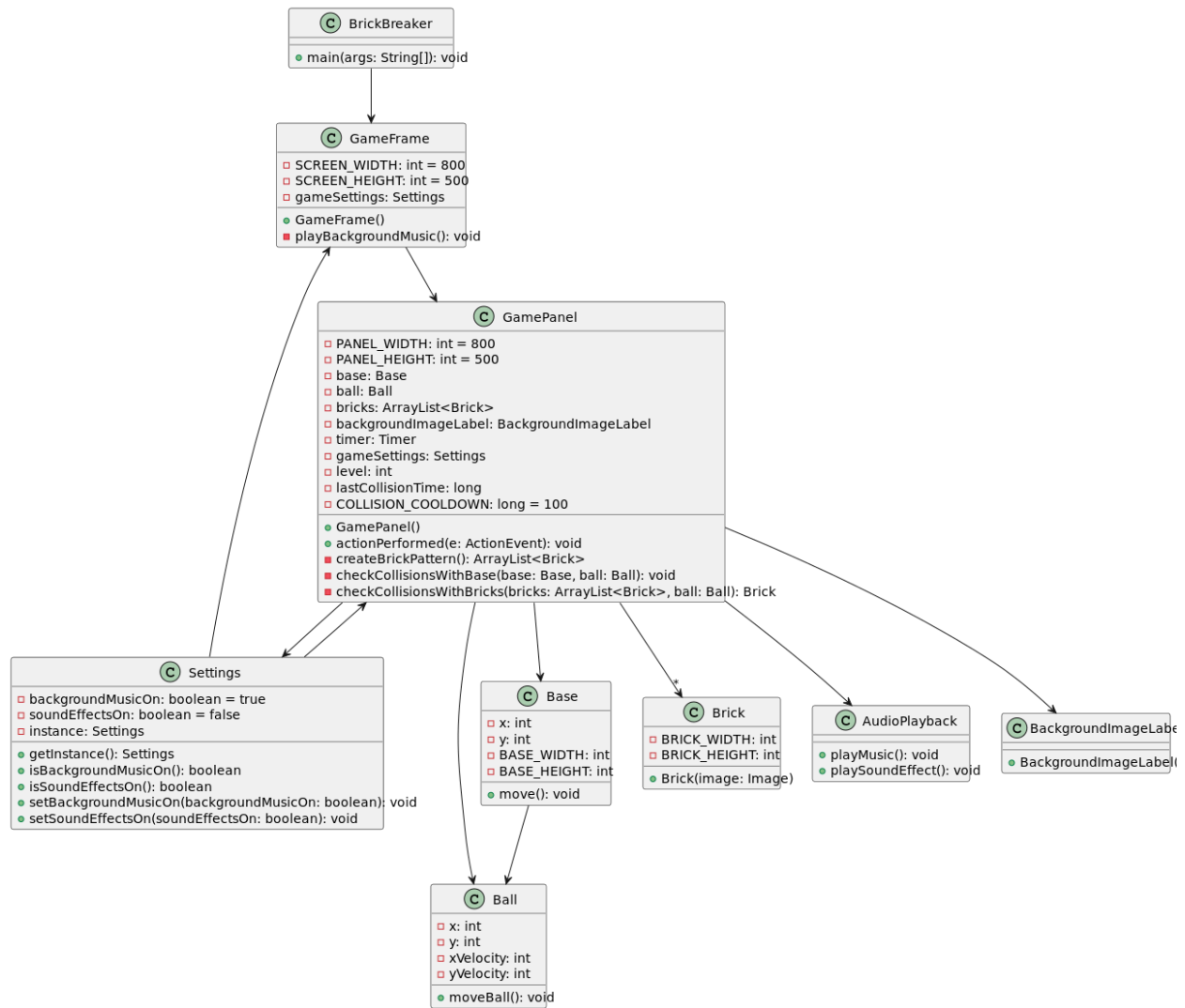

Assignment 2

Software Re-Engineering-BS(SE)-8A
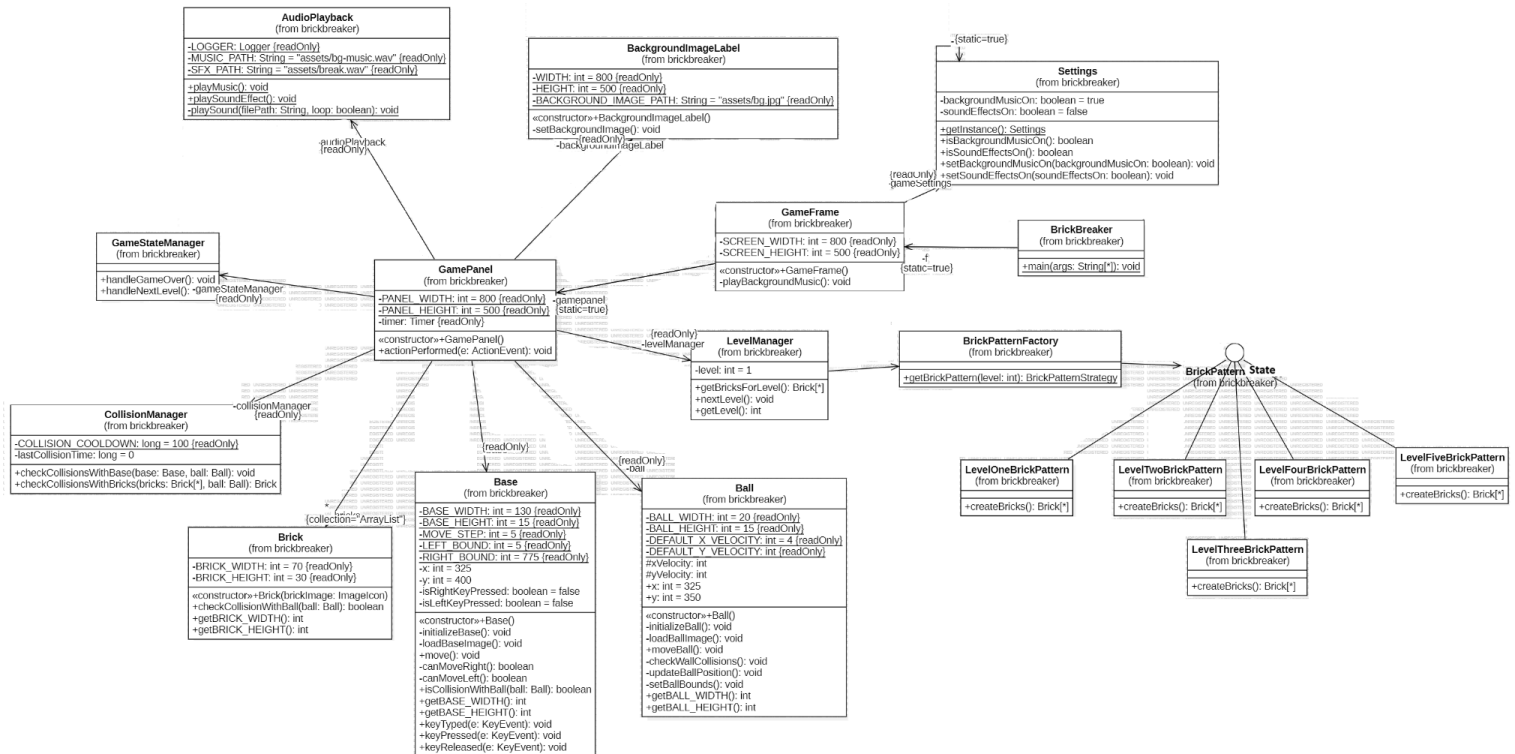
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1. Class Diagram Before Refactoring:

2. Class Diagram After Refactoring:

3. Refactorings Applied :

Class Name	Refactorings
Brick	**Move method** isCollisionWithBall() out of game panel
Ball	**Extracted method**: loadBallImage(), moveBall(), checkWallCollisions(), updateBallPosition()
BackgroundImageLabel	Introduced data members for hardcoded values (WIDTH and HEIGHT). **Extracted method:** setBackgroundImage()
GamePanel	**Replace Type Code with State**: levelManager Class introduced to manage levels instead of the level variable. **Replace Method with Method Object**: gameStateManager Class for handling game states like progressing to the next level or handling game over. collisionManager Class for handling collision logic abstraction. **Replace constructor with Factory**: BrickPatternFactory to create brick patterns based on the level. **Strategy Pattern**: Each level has its own class implementing BrickPatternStrategy, which has subclasses levelOneBrickPattern, LevelTwoBrickPattern… levelFiveBrickPattern.
Settings	none

Class Name	Refactorings
Base	**Extracted methods** canMoveLeft() ,canMoveRight() methods out of move().loadBaseImage() out of constructor **Move method** isCollisionWithBall() out of game panel
BrickBreaker	none
AudioPlayback	**Extracted method** (playSound() as common code)
.GameFrame	none

Table 1 : Refactorings Applied