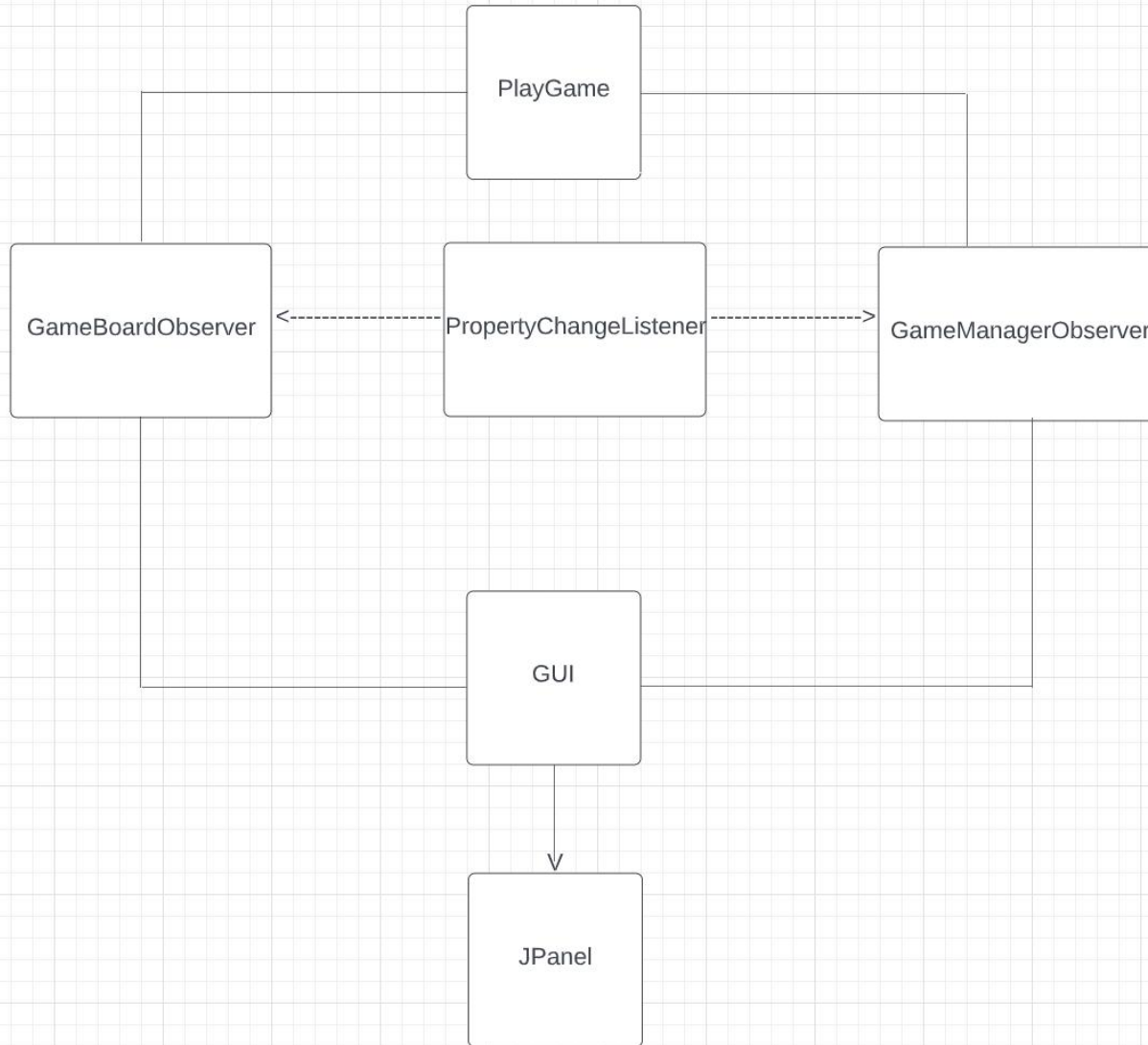


Observer Design Pattern



```

class PlayGame {
    -logger: Logger
    -manager: gameManager
    -board: GameBoard
    -running: boolean

    +PlayGame(Login.UserAccount user)
    +isRunning(): boolean
    +stopRunning(): void
    +selectOption(String input): int
    +runGame(): void
    +getGameBoardDimensions: Dimension
    +getObstacleList(): List<Obstacle>
    +getManager: GameManager
  }
  
```

```

class GameBoardObserver {
    -userInter: GUI
    -height: int

    +GameBoardObserver(GUI g, int height)
    +propertyChange(PropertyChangeEvent evt): void
    +removereward(Object reward): void
    +removeFirstReward(Object r):void
    +addReward(Object r):void
    +addObstacle(Object obstacle):void
  }
  
```

```

class GameManagerObserver {
    -play: PlayGame
    -width: int
    -height: int

    +GameManagerObserver(PlayGame playgame)
    +propertyChange(PropertyChangeEvent evt):void
    +startGUI(): void
    +movePlayer(Object newValue, Object oldValue):void
    +getGUI: GUI
  }
  
```

```

class GUI {
    -player:Rectangle
    -obstacles:List<Rectangle>
    -goldenApples:List<Rectangle>
    -poisonApples:List<Rectangle>
    -width: int
    -height: int
    -frame:JFrame

    +GUI(Rectangle player, Listener myListener, int width, int height)
    +frameSetu(): void
    +frameVisisble():void
    +close():void
    +moveGamePlayer(int y):void
    +paintComponent():void
    +paintObstacle():void
    +paintPoisonApple():void
    +paintGoldenApple():void
    +moveAllLeft():void
    +removeFirstGoldenApple():void
    +removeFirstGoldenApple():void
    +removeGoldApple(int x,int y):void
    +addPosionApple(int x, in y, int width, int height):void
    +addGoldenApple(int x, int y, int width, int height):void
    +addObstacle(int x, int topHeight, int bottomHeight, int width):void
    +removeObstacle():void
  }
  
```