F74044070 Project3 Report

*UML Diagram

MainWindow: inherit QMainWindow
-scene: QGraphicsScene *
-world: b2World *
-itemList: QList<GameItem *>
-timer: QTimer
+mushroom: Bird *
+goomBa: FloppyBird *
+kirby: SprintBird *
+turtle: StrikeBird *
+fist: Bird *
+BirdList: QList<GameItem *>
+bgm: QMediaPlayer
+wood: Barrier *
+wood2: Barrier *
+hori_wood: Barrier *
+lbj: Bird *
+x_cor: float
+y_cor: float
+mousePosition: b2Vec2
+mousePressed: bool
+basePt_x: float
+basePt_y: float
+forceVector: b2Vec2
+score: QLabel *
+scoreNum: int
+scoreStart: bool
+isConnected: bool
+click: int
+cnt: int
+enemyExist: bool

MainWindow
+<<explicit>> MainWindow(QWidget *parent = 0): void
+~MainWindow()
+showEvent(QShowEvent *): void
+eventFilter(QObject *,event: QObject): bool
+closeEvent(QCloseEvent *): void
+keyPressEvent(event: QKeyEvent *): void
+resetBirds(): void
+resetBarriers_n_Enemy(): void
+scoreIncrement(): void
+<<signals>>quitGame(): void
-<<slots>>tick(): void
-<<slots>>QUITSLOT(): void
-<<slots>>resetGame(): void
-<<slots>>closeGame(): void

GameItem: inherit QObject
+g_body: b2Body *
+g_pixmap: QGraphicsPixmapItem
+g_size: QSizeF
+g_world: b2World *
+g_worldsize: static QSizeF
+g_windowsize: static QSizeF
+GameItem(world: b2World *)
+~GameItem()
+setGlobalSize(worldsize:QSizeF, windowsize: QSizeF): static void
+<<slots>>paint(): void

Barrier: inherit GameItem
+Barrier(x: float, y: float, w: float, h: float, timer: QTimer *, pixmap: QPixmap, world: b2World *, scene: QGraphicsScene *)

Bird: inherit GameItem

+Bird(x: float, y: float, radius: float, timer: QTimer *, pixmap: QPixmap, world: b2World *, scene: QGraphicsScene *)

+setLinearVelocity(velocity: b2Vec2):void

+birdFunction(): virtual void

FloppyBird: inherit GameItem

+FloppyBird(x: float, y: float, radius: float, timer: QTimer *, pixmap: QPixmap, world: b2World *, scene: QGraphicsScene *)

+setLinearVelocity(velocity: b2Vec2):void

+birdFunction(): virtual void

SprintBird: inherit GameItem

+SprintBird(x: float, y: float, radius: float, timer: QTimer *, pixmap: QPixmap, world: b2World *, scene: QGraphicsScene *)

+setLinearVelocity(velocity: b2Vec2):void

+birdFunction(): virtual void

StrikeBird: inherit GameItem

+StrikeBird(x: float, y: float, radius: float, timer: QTimer *, pixmap: QPixmap, world: b2World *, scene: QGraphicsScene *)
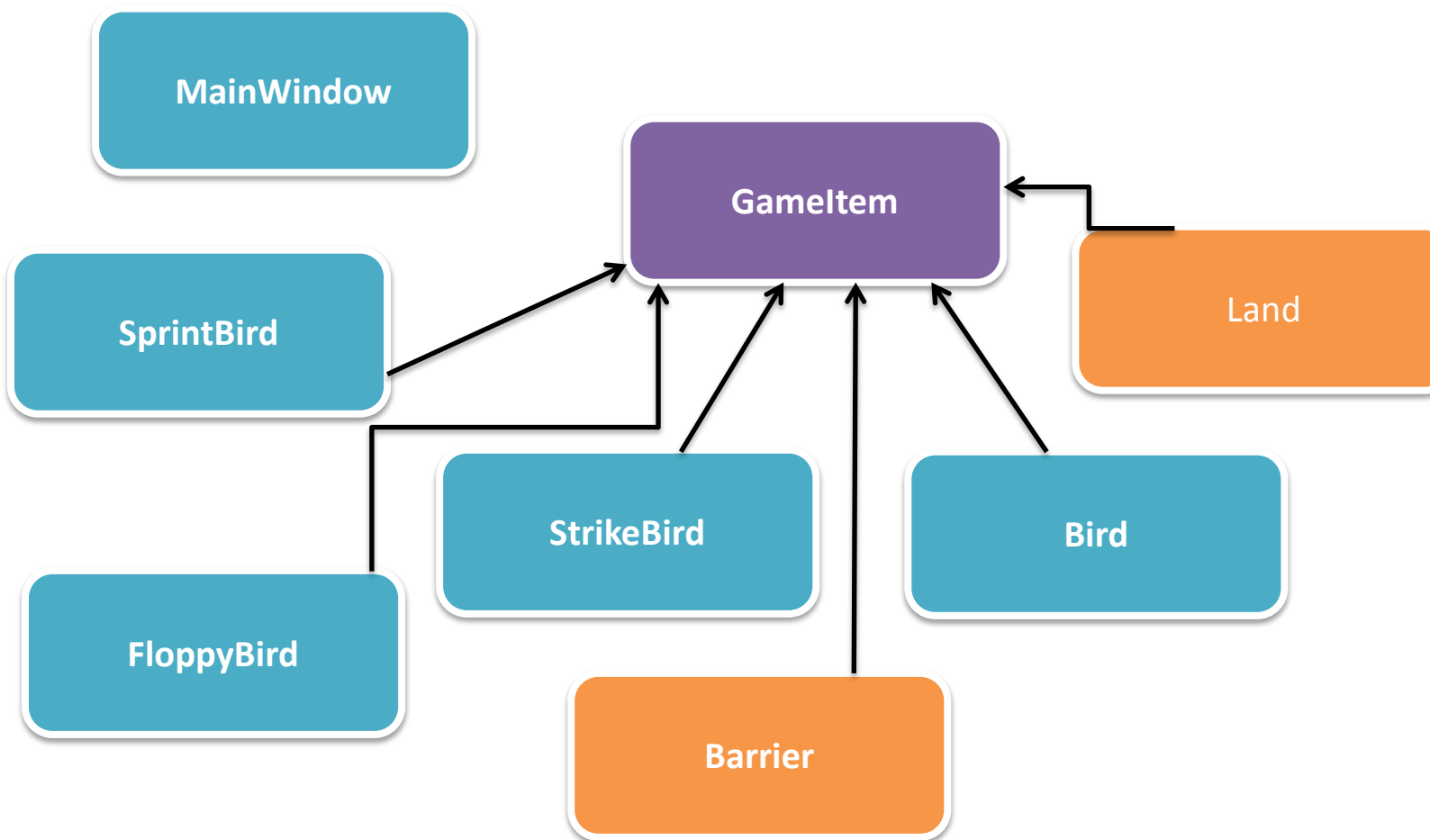
+setLinearVelocity(velocity: b2Vec2):void

+birdFunction(): virtual void

Land: inherit GameItem

+Land(x: float, y: float, w: float, h: float, timer: QTimer *, pixmap: QPixmap, world: b2World *, scene:
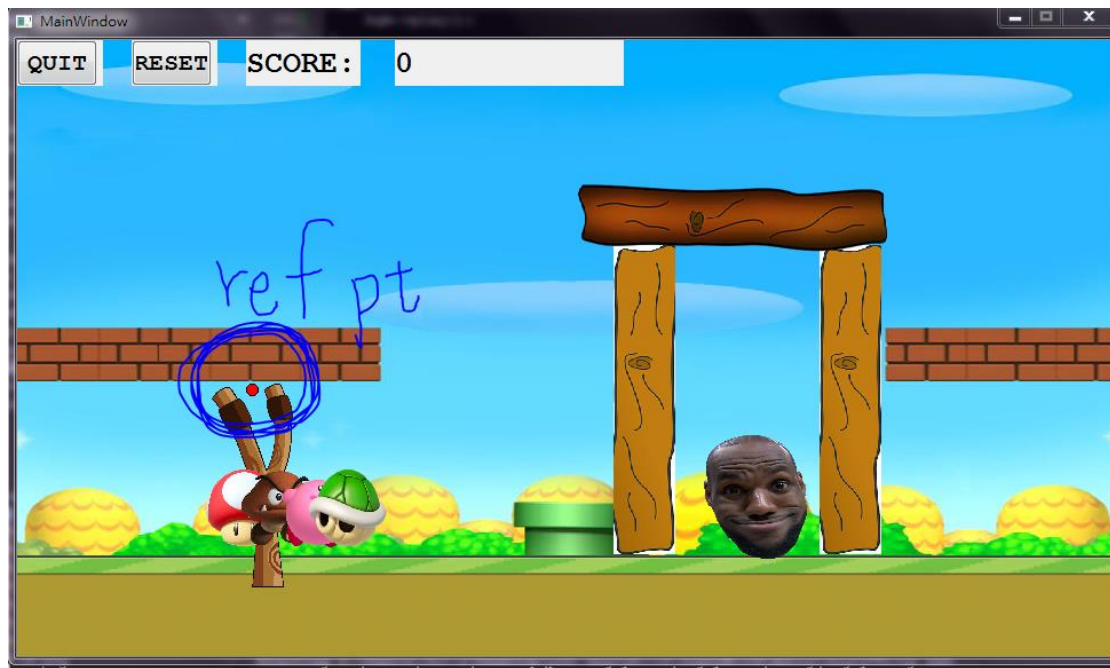
QGraphicsScene *)

*Inheritance Relationship

MainWindow

GameItem

Land

SprintBird

FloppyBird

StrikeBird

Bird

Barrier

How To Play

Gameplay:

As you can see, I placed a red dot in the middle of the screen, which represents the reference point (6.0,9.0). I drag the characters to the left of the sling shot, and record the point by the time I release my mouse, and multiply (reference point – release point) by k, the spring constant, to get the elastic force. (Formula: F = k*deltax) *The goal is to reach 600 points, and eliminate the enemy on the right.

Character Speial Skills: (Hit SPACEBAR to activate ability)

MUSHROOM

Normal, no ability, simply launch it to hit the enemy.

GOOMBA

It has the ability of floppy bird, when I hit space bar, it

launches midair with a smaller speed.

KIRBY

When I hit space bar midair, Kirby sprints down towards

the enemy with high speed.

TURTLE

It summons the "FIST OF GOD" when I hit space bar, and

creates a disaster.