Table of Contents :

List of classes and interfaces:

Package : animations

Name	Type	Description
Animation	Interface	In charge of game-specific logic and stopping conditions
AnimationRunner	Class	Takes an Animation object and runs it.
CountdownAnimation	Class	CountdownAnimation from 3 to 1, which will show up at the beginning of each turn.
HighScoresAnimation	Class	HighScoresAnimation - animation represent high score table.
KeyPressStoppableAnimation	Class	KeyPressStoppableAnimation decorator-class that will wrap an existing animation and add a "waiting-for-key" behavior to it.
LoseScreen	Class	LoseScreen - end screen showing message+ scores.
Menu<T>	Interface	menu of game .
MenuAnimation	Class	MenuAnimation animation represent menu.
PauseScreen	Class	PauseScreen -display a screen with the message paused - press space to continue until a key is pressed.

Package: behavior

Name	Type	Description
BallRemover	Class	BallRemover- that will be in charge of removing balls, and updating an available balls counter.
BlockRemover	Class	BlockRemover is in charge of removing blocks from the gameLevel, as well as keeping count of the number of blocks that remain
Collidable	Interface	...gs that can be collided with.
GameFlow	Class	...rge of creating the different levels, ...n one level to the next.
HitListener	Interface	...tified objects by hit event.
HitNotifier	Interface	HitNotifier interface indicate that objects that implement it send notifications when they are being hit.

ScoreTrackingListener	Class	ScoreTrackingListener- in charge of scoring some points whenever the ball hits a block.
Velocity	Class	Velocity class -Velocity specifies the change in position on the `x` and the `y` axes.

Package: elements

Name	Type	Description
Alien	Class	Alien object - extend block with movement.
Aliens	Class	Aliens - list of aliens which controls its movement and can choose random alien for shooting a bullet.
Ball	Class	Ball- object with size (radius), color, and location (a Point).
Block	Class	Block object in game - can be hitted.
BlockCreator	Interface	BlockCreator- interface for object that can create block.
Counter	Class	Counter - used for counting things.
GameEnvironment	Class	GameEnvironment - keeps collection if collidable and sarch for collisions.
LevelIndicator	Class	LevelIndicator- present level string.
LivesIndicator	Class	LivesIndicator - sprite that indicate the number of lives.
MenuSelection	Class	MenuSelection - represent selection choice .
Paddle	Class	Paddle is the player in the game. It is a rectangle that is controlled by the arrow keys, and moves according to the player key presses.
ScoreIndicator	Class	ScoreIndicator- in charge of displaying the current score.
SpriteCollection	Class	SpriteCollection- collection of sprites.

Package: game

Name	Type	Description
Ass7Game	Class	Ass7Game - class for running the game.
GameParams	Class	GameParams -save basic parametes of the game and allows access to all project.

Package: geometry

Name	Type	Description
DrawingObjects	Class	DrawingObjects - draw lines, middle point and intersection points .
Line.	Class	Line. connects two points -- a start point and an end

		point. Lines have lengths, and may intersect with other lines. It can also tell if it is the same as another line segment.
Point	Class	Point. Class for point object.
PointQueries	Class	PointQueries- class for queries on Point .
Rectangle	Class	Rectangle - has width, height and upper point left.

Package: gui

Name	Type	Description
CollisionInfo	Class	CollisionInfo- keeping the information about the collision.
GameLevel	Class	GameLevel -class that holds the sprites and the collidables, and in charge of the animation.
Sprite	Interface	Sprite is a game object that can be drawn to the screen (and which is not just a background image).

Package: level

Name	Type	Description
LevelInformation	Class	LevelInformation- keeping level information details.
LevelInformationCreator	Class	LevelInformationCreator -class that creates level information.
LevelInformationDetails	Interface	LevelInformationDetails interface specifies the information required to fully describe a level.

Package: scores

Name	Type	Description
DialogUser	Class	DialogUser - in charge of get user name.
HighScoresTable	Class	HighScoresTable - manages a table of size high-scores
ScoreInfo	Class	ScoreInfo- holds name and score information

Package: task

Name	Type	Description
GameFlowTask	Class	GameFlowTask - task for running GameFlowTask.
QuitTask	Class	QuitTask - task for running QuitTask.

ShowHighScoresTask	Class	ShowHighScoresTask - task for running highScoresAnimation.
task	Interface	A task is something that needs to happen, or something that we can run() and return a value.

Brief description:

a. The Aliens formation - I created two classes – alien and aliens.
Alien- extends block with an addition of new feature: the alien is moving each time timePassed method is been called.
Aliens – class which manages all the aliens in the game. Its concept is similar to SpriteCollection. The class holds list of aliens which controls its movement and can choose random alien for shooting a bullet.

b. The shields – the shields are simply small blocks with one hit till its destroyed, it has listeners to ball remover and block remover.

c. Shots by aliens – aliens class implements a method which gives position of random alien (the aliens that can shoot a bullet being choose from smaller list which contains the lowest alien in each column) . In game level I implemented method shootBulletByAlien that create a ball with given position, on doOneFrame method I count the time elapsed and shoot a bullet every 0.5 seconds.

d. Shots by player - game level class implement a method shootBulletByUser that create new ball in middle of the spaceship. On doOneFrame method I check if space key is pressed and if time elapse is at least 0.35 a bullet is being shoot from the spaceship.