Module Internal Specfication for Group 15 - FlightShootingGame

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Contents

1 Module Hierarchy

Level 1	Level 2
~~Hardware-Hiding Module~~	
Behaviour Hiding Module	Boss Module Bullet Module Smart_Bullet Module Enemy Module, Player Module Gift Module Music Module
Software Decision Module	

Table 1: Module Hierarchy

2 MIS of Boss Module

2.1 Interface Syntax

2.1.1 Exported Access Programs

Name	In	Out	Exceptions
Constructor	Integer, Integer, Integer	Boss Object	-
draw	-	GUI	-
move	-	-	-
show_up	-	-	-ObjectIsShowingUp
check_death	integer, integer	integer	-
reset	integer	-	-

2.2 Interface Semantics

2.2.1 State Variables

state: int - the state of the object that determine the behaviour of the object.
life: int - the life point of the object.
x: int - the x value of the position of the object.
y: int - the y value of the position of the object.
direction: int - the direction of the object's movement.

2.2.2 Environmental Variables

Not Applicable

2.2.3 Assumptions

$0 \leq x \leq 115$
$0 \leq y \leq 185$
$state \in \{0, 1\}$

2.2.4 Access Program Semantics

draw():
Input: none
Output: graphics on screen.
Exceptions: none.

move():
Input: none
Transition: get the data from the object and move its position.
Exceptions: none.

show_up():
Input: none
Transition: change the state of the object to 1 if it is initially 0.
Output: the transition of the object's state.
Exceptions: ~~none~~ ObjectIsShowingUp

check_death(life, point):
Input: life point, score point
Transition: if the life point of the object is 0, then reset it to 'life' and then return score 'point'.
Output: Transition of object's position.
Exceptions: none.

reset(life):
Input: life, the life point that is to be set.
Transition: None
Output: The None.
Exceptions: none.

3 MIS of Bullet Module

3.1 Interface Syntax

3.1.1 Exported Access Programs

Name	In	Out	Exceptions
Constructor	integer, integer, integer, integer, integer, integer, integer	bullet object	-
move	-	-	-
draw	-	GUI	-
reset	integer, integer	-	-

3.2 Interface Semantics

3.2.1 State Variables

x: int - x value of the object.
y: int - y value of the object.

3.2.2 Environmental Variables

3.2.3 Assumptions

Variables should be set before trying to access them

3.2.4 Access Program Semantics

move():
Input: none
Transition: change the position of the bullet.
Exception: none

draw():
Input: none
Output: graph on the screen.
Exception: none

reset(x, y):
Transition: change the position of the object to x and y.
Exception: none

4 MIS of Smart_Bullet Module

4.1 Interface Syntax

4.1.1 Exported Access Programs

Name	In	Out	Exceptions
constructor	integer, integer, integer, integer, integer, integer	smart_bullet object	-
move	-	-	-
draw	-	GUI	-
aim	player	-	Invalid Input
reset	integer, integer	-	-

4.2 Interface Semantics

4.2.1 State Variables

x: int - the x value of the object position.
y: int - the y value of the object position.
speed_x: int - the x component of its speed.
speed_y: int - the y component of its speed.

4.2.2 Environmental Variables

Not applicable.

4.2.3 Assumptions

All variables are set when the object is constructed.

4.2.4 Access Program Semantics

move():
Input: no inputs
Transition: change the position of the object.
Exception - None

draw():
Input: none
Output: graph on the screen.
Exception: none

aim(player):
Input: player - the player object.
Transition - updates the direction of the speed by change the value of x_speed and y_speed.
Exception - None

reset(x, y):
Transition: change the position of the object to x and y.
Exception: none

5 MIS of Player Module

5.1 Interface Syntax

5.1.1 Exported Access Programs

Name	In	Out	Exceptions
draw	-	GUI	-
reset	integer	-	-
death	-	-	-

5.2 Interface Semantics

5.2.1 State Variables

x: int - the x value of the object position.
y: int - the y value of the object position.
speed_x: int - the x component of its speed.
speed_y: int - the y component of its speed.

5.2.2 Environmental Variables

Not Applicable

5.2.3 Assumptions

All variables are set when the object is constructed.

5.2.4 Access Program Semantics

draw():
Input: none
Output: graph on the screen.
Exception: none

reset(life):
Input: a integer, life
Transition: change the life value of object to the input value and change the rest to their initial value.
Output: none
Exception: none

death():
Input: none
Transition: change the life value of the object to 0.
Output: none
Exception: none

6 MIS of Enemy Module

6.1 Interface Syntax

6.1.1 Exported Access Programs

Name	In	Out	Exceptions
move	-	-	-
reset	-	-	-
check_death	-	integer	-
not_collidable	-	-	-

6.2 Interface Semantics

6.2.1 State Variables

x: int - the x value of the object position.
y: int - the y value of the object position.
speed: int - the y component of object speed.

6.2.2 Environmental Variables

Not Applicable

6.2.3 Assumptions

All variables are set when the object is constructed.

6.2.4 Access Program Semantics

move():
Input: none
Transition: updates object position
Output: none
Exception - none

draw():
Input: none
Output: graph on the screen.
Exception: none

reset():
Input: none
Transition: set the values of the object to its initial values.
Output: none
Exception: none

check_death():
Input: none
Output: 0 if the life value is less than 0;
100 if the life value is not less than 0.
Exception: none

not_collidable():
Input: none
Transition: change the x and y values both to -1000.
Output: none

7 MIS of Gift Module

7.1 Interface Syntax

7.1.1 Exported Access Programs

Name	In	Out	Exceptions
Pmove	integer	-	Invalid Input
draw	-	GUI	-
reset	-	-	-

7.2 Interface Semantics

7.2.1 State Variables

X: int - x value of left corner of the gift
Y: int - y value of left corner of the gift
type: int - type of the gift
width: int - width of the gift
height: int - height of the gift
life: int - life of the player

7.2.2 Environmental Variables

Not Applicable

7.2.3 Assumptions

Variables should be set before trying to access them

7.2.4 Access Program Semantics

move(score):
Input: Integer of player score value
Transition: Whenever player score increases 1500, a gift would drop from top and move only in y direction.
Output: none
Exception: none

draw(): Input: none
Transition: graph on the screen
Output: none Exception: none

reset():
Input: none
Transition: Change the position of the object to x and y, and change life to 1.
Output: none
Exception: none

8 MIS of Music Module

8.1 Interface Syntax

8.1.1 Exported Access Programs

Name	In	Out	Exceptions
landpage_music	-	-	-
game_music	-	-	-
end_music	-	-	-
gift_music	-	-	-
shoot_music	-	-	-
damage_music	-	-	-
stop_music	-	-	-

8.2 Interface Semantics

8.2.1 State Variables

N/A

8.2.2 Environmental Variables

Not Applicable

8.2.3 Assumptions

Melodies should be initialized before trying to access them

8.2.4 Access Program Semantics

landpage_music()
Input: none
Transition: Play melody 0 and 1 on track 0, play melody 2 and 3 on track 1, and play melody 4 on track 2.
Output: none
Exception: none

game_music(): Input: none
Transition: Play melody 2 and 3 on track 1.
Output: none Exception: none

end_music():
Input: none
Transition: Play melody 4 on track 2.
Output: none
Exception: none

gift_music():
Input: none
Transition: Play melody 6 on track 2.
Output: none
Exception: none

shoot_music():
Input: none
Transition: Play melody 5 on track 0.
Output: none
Exception: none

damage_music():
Input: none
Transition: Play melody 7 on track 1.
Output: none
Exception: none

stop_music():
Input: none
Transition: Stop melodies on all tracks from 0 to 2.
Output: none
Exception: none

9 Major Revision History

November 7, 2018 - Rough draft of sections
November 8, 2018 - Revised sections
November 9, 2018 - Revision 0 complete
December 5, 2018 - Revision 1 complete