

Course: ENSF 409

Student Name: Antonio Santos

Lab number: Lab 4

Exercise 2

```
Adding Rectangle, Circle, and Prism objects to the list...
```

```
Showing information about objects added to the list:
```

```
Shape name: C1
Origin: X-coordinate: 13.0
Y-coordinate: 14.0
Green point
Radius: 15.0
```

```
Shape name: C2
Origin: X-coordinate: 33.0
Y-coordinate: 34.0
Yellow point
Radius: 35.0
```

```
Shape name: P1
Origin: X-coordinate: 43.0
Y-coordinate: 44.0
White point
Width: 46.0
Length: 45.0
Height: 47.0
```

```
Shape name: P2
Origin: X-coordinate: 53.0
Y-coordinate: 54.0
Gray point
Width: 56.0
Length: 55.0
Height: 57.0
```

```
Shape name: R1
Origin: X-coordinate: 3.0
Y-coordinate: 4.0
Black point
Width: 6.0
Length: 5.0
```

```
Shape name: R2
Origin: X-coordinate: 23.0
Y-coordinate: 24.0
Black point
Width: 26.0
Length: 25.0
```

```
Showing area, perimeter, and volume of objects in the list:
```

```
The area, perimeter, and volume of C1 are: 706.86, 94.25, 0.00.
The area, perimeter, and volume of C2 are: 3848.45, 219.91, 0.00.
The area, perimeter, and volume of P1 are: 12694.00, 182.00, 97290.00.
The area, perimeter, and volume of P2 are: 18814.00, 222.00, 175560.00.
The area, perimeter, and volume of R1 are: 30.00, 22.00, 0.00.
The area, perimeter, and volume of R2 are: 650.00, 102.00, 0.00.
```

Exercise 3

Human vs Random

```
Please enter the name of the 'X' player: a

What type of player is a?
1: Human
2: Random Player
3: Blocking Player
4: Smart Player
Please enter a number in the range 1-4: 1

Please enter the name of the 'O' player: b

What type of player is b?
1: Human
2: Random Player
3: Blocking Player
4: Smart Player
Please enter a number in the range 1-4: 2

|col 0|col 1|col 2|
+-----+-----+-----+
row 0 |   |   |   |
|   |   |   |
+-----+-----+-----+
row 1 |   |   |   |
|   |   |   |
+-----+-----+-----+
row 2 |   |   |   |
|   |   |   |
+-----+-----+-----+
```

```
a, what row would you like your next X be placed in?0

a, what column would you like your next X be placed in?0
|col 0|col 1|col 2|
+-----+-----+-----+
row 0 | X |   |   |
|   |   |   |
+-----+-----+-----+
row 1 |   |   |   |
|   |   |   |
+-----+-----+-----+
row 2 |   |   |   |
|   |   |   |
+-----+-----+-----+

b will now make a move
|col 0|col 1|col 2|
+-----+-----+-----+
row 0 | X |   |   |
|   |   |   |
+-----+-----+-----+
row 1 |   |   |   |
|   |   |   |
+-----+-----+-----+
row 2 |   |   |   |
|   |   |   |
+-----+-----+-----+
```

```
a, what row would you like your next X be placed in?1

a, what column would you like your next X be placed in?1
|col 0|col 1|col 2|
+-----+-----+-----+
row 0 | X |   |   |
|   |   |   |
+-----+-----+-----+
row 1 |   | X |   |
|   |   |   |
+-----+-----+-----+
row 2 |   | O |   |
|   |   |   |
+-----+-----+-----+

b will now make a move
|col 0|col 1|col 2|
+-----+-----+-----+
row 0 | X |   | O |
|   |   |   |
+-----+-----+-----+
row 1 |   | X |   |
|   |   |   |
+-----+-----+-----+
row 2 |   | O |   |
|   |   |   |
+-----+-----+-----+
```

```
a, what row would you like your next X be placed in?2

a, what column would you like your next X be placed in?2
|col 0|col 1|col 2|
+-----+-----+-----+
row 0 | X |   | O |
|   |   |   |
+-----+-----+-----+
row 1 |   | X |   |
|   |   |   |
+-----+-----+-----+
row 2 |   | O | X |
|   |   |   |
+-----+-----+-----+

GAME OVER: a is the winner.
Game ended...
```

Human vs Blocking

Please enter the name of the 'X' player: a

What type of player is a?

- 1: Human
- 2: Random Player
- 3: Blocking Player
- 4: Smart Player

Please enter a number in the range 1-4: 1

Please enter the name of the 'O' player: b

What type of player is b?

- 1: Human
- 2: Random Player
- 3: Blocking Player
- 4: Smart Player

Please enter a number in the range 1-4: 3

	col 0	col 1	col 2
row 0			
row 1			
row 2			

a, what row would you like your next X be placed in?0

a, what column would you like your next X be placed in?0

	col 0	col 1	col 2
row 0	X		
row 1			
row 2			

b will now make a move

	col 0	col 1	col 2
row 0	X	O	
row 1			
row 2			

a, what row would you like your next X be placed in?1

a, what column would you like your next X be placed in?1

	col 0	col 1	col 2
row 0	X	O	
row 1		X	
row 2			

b will now make a move

	col 0	col 1	col 2
row 0	X	O	
row 1		X	
row 2			O

a, what row would you like your next X be placed in?1

a, what column would you like your next X be placed in?0

	col 0	col 1	col 2
row 0	X	O	
row 1	X	X	
row 2			O

b will now make a move

	col 0	col 1	col 2
row 0	X	O	
row 1	X	X	O
row 2			O

```

a, what row would you like your next X be placed in?0

a, what column would you like your next X be placed in?2
|col 0|col 1|col 2
+-----+-----+-----+
|      |      |      |      |
row 0 |  X  |  O  |  X  |
|      |      |      |      |
+-----+-----+-----+
|      |      |      |      |
row 1 |  X  |  X  |  O  |
|      |      |      |      |
+-----+-----+-----+
|      |      |      |      |
row 2 |      |      |  O  |
|      |      |      |      |
+-----+-----+-----+

b will now make a move
|col 0|col 1|col 2
+-----+-----+-----+
|      |      |      |      |
row 0 |  X  |  O  |  X  |
|      |      |      |      |
+-----+-----+-----+
|      |      |      |      |
row 1 |  X  |  X  |  O  |
|      |      |      |      |
+-----+-----+-----+
|      |      |      |      |
row 2 |  O  |      |  O  |
|      |      |      |      |
+-----+-----+-----+

```

```

a, what row would you like your next X be placed in?2

a, what column would you like your next X be placed in?1
|col 0|col 1|col 2
+-----+-----+-----+
|      |      |      |      |
row 0 |  X  |  O  |  X  |
|      |      |      |      |
+-----+-----+-----+
|      |      |      |      |
row 1 |  X  |  X  |  O  |
|      |      |      |      |
+-----+-----+-----+
|      |      |      |      |
row 2 |  O  |  X  |  O  |
|      |      |      |      |
+-----+-----+-----+

GAME OVER: game ended in a tie
Game ended...

```

Human vs Smart

Please enter the name of the 'X' player: a

What type of player is a?

- 1: Human
- 2: Random Player
- 3: Blocking Player
- 4: Smart Player

Please enter a number in the range 1-4: 1

Please enter the name of the 'O' player: b

What type of player is b?

- 1: Human
- 2: Random Player
- 3: Blocking Player
- 4: Smart Player

Please enter a number in the range 1-4: 4

	col 0	col 1	col 2
row 0			
row 1			
row 2			

a, what row would you like your next X be placed in?0

a, what column would you like your next X be placed in?0

	col 0	col 1	col 2
row 0	X		
row 1			
row 2			

b will now make a move

	col 0	col 1	col 2
row 0	X		
row 1			O
row 2			

a, what row would you like your next X be placed in?2

a, what column would you like your next X be placed in?0

	col 0	col 1	col 2
row 0	X		
row 1			O
row 2	X		

b will now make a move

	col 0	col 1	col 2
row 0	X		
row 1	O		O
row 2	X		

a, what row would you like your next X be placed in?0

a, what column would you like your next X be placed in?1

	col 0	col 1	col 2
row 0	X	X	
row 1	O		O
row 2	X		

b will now make a move

	col 0	col 1	col 2
row 0	X	X	
row 1	O	O	O
row 2	X		

GAME OVER: b is the winner.
Game ended...