

I. BoxBug

A) Using BlueJ open from the G drive in the BlueJ folder in the GridWorld folder **ch2lab1**

Save onto your H drive

B) Notice that the BoxBug class file is possibly striped. If it is that means it is not compiled yet.

C) Right Click on the BoxBug class then select **compile**

D) Right Click on the BoxBug class then select **Open Editor**.

Look at the code and answer the following

1) What are the two instance fields? 1) _____

2) How many constructor are there? 2) _____

3) What class does the class BoxBug inherit from? 3) _____

4) Is the BoxBug act method the same code as the Bug act method? (yes/no) 4) _____

(Note: The code for the Bug class is found in the actor folder found in the gridworld folder found in the info folder.)

5) Where is the actual code located for the methods canMove, move, and turn? 5) _____

E) Right Click on the BoxBugRunner class file then select **Open Editor**.

1) What are the three object references that are created?

1) _____

2) What are the two classes used to create the object references in #1)?

2) _____

3) What are the three methods?

3) _____

4) How many steps will the alice bug move in each direction? (i.e. how long is each side of the square minus 1) 4) _____

5) At what location will alice be placed? 5) _____

6) How many steps will the bobby bug move in each direction? (i.e. how long is each side of the square minus 1) 6) _____

7) At what location will bobby be placed? 7) _____

over

F) Run BoxBugRunner and answer the following based on the BoxBug code

1) What is the role of the instance variable `sideLength` ?

2) What is the role of the instance variable `steps` ?

3) If one of the turns in Boxbug is commented out what will the path of the new boxBug look like if in an unbounded grid?

(*Note: Now uncomment out the turn method if you actually did comment it out.)

4) So, why is the `turn()` method called twice when `steps` becomes equal to `sideLength`?

5) a) After a BoxBug is constructed, will the size of its square pattern always be the same (i.e. can the client code change it)? (yes/no) 5a) _____

6) There are three times (situations) when the value of `steps` is zero. What are they?

a) _____

b) _____

c) _____

G) Modify BoxBugRunner:

- 1) Create another BoxBug on the screen at location (1, 1) that traces out a 2X2 square.
- 2) In BoxBugRunner delete the **new** `Location(#, #)` from in front of `alice` and `bobby`.

Run the program a few times and observe what happens.

3) Now create another BoxBug at a random location that is BLUE and traces out a 3X3 square.

Save the project as `GWch2lab1g`

When perfect, show your teacher the coding and output (run).

(teacher signature)

Turn in this sheet to be graded!