**Answer the following questions on Matrix**

**Set 3**

Assume the following statements when answering the following questions.

Location loc1 = new Location(4, 3);

Location loc2 = new Location(3, 4);

1.How would you access the row value for loc1?

loc.getrow();

2.What is the value of b after the following statement is executed?

boolean b = loc1.equals(loc2);

False

3.What is the value of loc3 after the following statement is executed?

Location loc3 = loc2.getAdjacentLocation(Location.SOUTH);

(4,4)

4.What is the value of dir after the following statement is executed?

int dir = loc1.getDirectionToward(new Location(6, 5));

(6,5)

1. How does the getAdjacentLocation method know which adjacent location to return?

会依据给的位置返回相邻位置。

****Set 4****

1. How can you obtain a count of the objects in a grid? How can you obtain a count of the empty locations in a bounded grid?

Grid<Actor> gr = getGrid();

Colum =getNumCols();

Row =getNumRows();

ArrayList<Location> getOccupiedLocations();

Empty = Colum\*Row - getOccupiedLocation.size();

1. How can you check if location (10,10) is in a grid?

gr.isValid(new Location(10,10))

如果在grid里会返回true

1. Grid contains method declarations, but no code is supplied in the methods. Why? Where can you find the implementations of these methods?

Grid是一个接口，很多类都需要一些共同的操作，所以将这些操作封装成了一个接口。

1. All methods that return multiple objects return them in an ArrayList. Do you think it would be a better design to return the objects in an array? Explain your answer.

List是变长的，而使用数组则需要定长，list更好一点

**Set 5**

Name three properties of every actor.

Direaction ,color,Location

When an actor is constructed, what is its direction and color?

Notth, Blue

Why do you think that the Actor class was created as a class instead of an interface?

因为接口不能实现具体的method，但actor是需要实现一些操作的，所以只能实现成类。

Can an actor put itself into a grid twice without first removing itself? Can an actor remove itself from a grid twice? Can an actor be placed into a grid, remove itself, and then put itself back? Try it out. What happens?

不能，只能put和remove一次，会发生异常

可以，put以后可以remove，再put back

How can an actor turn 90 degrees to the right?

setDirection(getDirection() + 90);

**Set 6**

1. Which statement(s) in the canMove method ensures that a bug does not try to move out of its grid?

if(!gr.isValid(next))

return false;

1. Which statement(s) in the canMove method determines that a bug will not walk into a rock?

Actor neighbor = gr.get(next);

return (neighbor == null) || (neighbor instanceof Flower);

1. Which methods of the Grid interface are invoked by the canMove method and why?

isValid and get.

1. Which method of the Location class is invoked by the canMove method and why?

getAdjacentLocation. 用于获得临近位置，只有附近的位置有效才能move

1. Which methods inherited from the Actor class are invoked in the canMove method?

getLocation, getDirection, getGrid

1. What happens in the move method when the location immediately in front of the bug is out of the grid?

Bug会remove

1. Is the variable loc needed in the move method, or could it be avoided by calling getLocation() multiple times?

Yes

1. Why do you think the flowers that are dropped by a bug have the same color as the bug?

因为flower在被定义的时候用了bug的color

1. When a bug removes itself from the grid, will it place a flower into its previous location?

当调用removeSelfFromGrid(); 会的

10.Which statement(s) in the move method places the flower into the grid at the bug’s previous location?

Flower flower = new Flower(getColor());

flower.putSelfInGrid(gr, loc);

1. If a bug needs to turn 180 degrees, how many times should it call the turn method?

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