The Answer Of Part1

Set 1  
1. Does the bug always move to a new location? Explain.

Answer: No, becauser the bug can out move out of the grid when it is at an edge of the grid.  
2. In which direction does the bug move?

Answer: The initial direction is north.  
3. What does the bug do if it does not move?

Answer: It turns itself to change its direction/  
4. What does a bug leave behind when it moves?

Answer: It leaves a flower.  
5. What happens when the bug is at an edge of the grid? (Consider whether the bug  
 is facing the edge as well as whether the bug is facing some other direction when  
 answering this question.)

Answer: It turns itself to the right so that it can go on moving when it faces the edge. When it is facing some other direction, it will turn to the direction which uses less angle.  
6. What happens when a bug has a rock in the location immediately in front of it?

Answer: The bug turn to the direction with less angle until it can go on moving.  
7. Does a flower move?

Answer: No.  
8. What behavior does a flower have?

Answer: Becoming darker.  
9. Does a rock move or have any other behavior?

Answer: No.  
10. Can more than one actor (bug, flower, rock) be in the same location in the grid at  
the same time?

Answer: Yes.

#### Exercises

By clicking on a cell containing a bug, flower, or rock, do the following.

1. Test the setDirection method with the following inputs and complete the table, giving the compass direction each input represents.

|  |  |
| --- | --- |
| Degrees | Compass Direction |
| 0 | North |
| 45 | Northeast |
| 90 | East |
| 135 | Southeast |
| 180 | South |
| 225 | Southwest |
| 270 | West |
| 315 | Northwest |
| 360 | North |

2. Move a bug to a different location using the moveTo method. In which directions can you move it? How far can you move it? What happens if you try to move the bug outside the grid?

Answer: The bug can be moved in any direction if there exists postion and it can be moved at most 10 steps. When I try to move the bug outside the grid, an error will happen and a window appears with the error information.  
3. Change the color of a bug, a flower, and a rock. Which method did you use?

Answer: setClolor(java.awt.color).  
4. Move a rock on top of a bug and then move the rock again. What happened to the bug?

Answer: The bug disappeared.