**GridWorld Case Study: Part 1**

**Question Set 1**

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

No, it does not always move locations. If there is something in its way, (ie. A rock) then instead of going forward, it will start turning right in 45 degree turns until its path is clear.

1. In what direction does the bug move?

The bug moves in whatever direction it is facing, unless there is an object in its path.

1. What does the bug do if it does not move?

If the bug doesn’t/cant move, it will turn 45 degrees to the right and keep turning until its path is clear.

1. What does the bug leave behind when it moves?

The bug leaves behind flowers that match the bug’s color.

1. What happens when the bug is at the edge of the grid?

When the bug comes across the edge of the grid, it turns so that its facing parallel with the edge and continues moving.

1. What happens when a bug has a rick in the location immediately in front of it?

Like explained in other answers, if the bug cannot move, it will turn 45 degrees to the right until it has a clear path.

1. Does a flower move?

No, flowers do not move.

1. What behavior does a flower have?

A flower changed color every turn, getting darker and darker until a bug goes over it again and changes the color back.

1. Does a rick move or have any behavior?

No, rocks do not move or have any behavior.

1. Can more than one actor be in the same location in the grid at the same time?

No, each grid location can only have one actor on the grid.

**Exercises**

1. Test the setDirection method with the following inputs and complete the table.

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

1. Move a bug using moveTo method.

The moveTo method allows the user to move a bug to anywhere on the grid, as long as its inside the boundaries. You set an X and a Y position and it moves accordingly.

1. Change the color of a big, a flower, and a rock.

To change the color of any actor, all you have to do its right click it and select the setColor method. You thenn pick a color from the pull down menu.

1. Move a rock ontop of a bug.

When you move a rock on top of a bug using the moveTo method, the rock replaces the bug in that grid location.