|  |  |
| --- | --- |
| **AP Computer Science GridWorld Case Study (GWCS)** | |
| **GridWorld Lab 03**  **1-Day Minor Assignment** | **Using Control Structures with GridWorld** |

|  |
| --- |
| **Lab Objectives** |
| Gain better understanding of Control Structures. | |

|  |
| --- |
| **Lab Prerequisites** |
| **Completed ExpoJava Chapter 05 and completed GridWorld Lab 02.** | |

|  |  |
| --- | --- |
| **Lab Sequence of Steps** | |
| **#** | **Actions** | | **Comments** |
| **01** | **Create a Project Name and Location for GridWorldLab03**  You will now repeat steps performed in **GridWorld Lab 01**.  When you are done, your screen should resemble **Figure 01**.  **Figure 01** | | The only difference is that now you will use the **GridWorldLab03** folder.  This is the first assignment where you will be entering Java programming code into a GridWorld program. |

|  |  |  |
| --- | --- | --- |
| **02** | **Starting File**  The file that you are provided with contains the following code  in the **main** method:  **ActorWorld world = new ActorWorld();**  **Bug barry = new Bug();**  **world.add(new Location(9,0), barry);**  **world.show();**  This creates a single bug object, called **barry**, and places him in the grid at the bottom left corner (row **9**, column **0**).  The output is shown on the right. |  |
| **03a** | **Graded Assignment – 80 Point Version**  The 80 point version requires you to cover the entire grid with flowers.  This means the bug object needs to travel up and down the grid  in the pattern demonstrated by **Figure 02**.  **Figure 02**      This does not mean you are using 100+ **move** and **turn** commands.  You need to use *control structures* as demonstrated in chapter 5. |  |
| **03b** | **Graded Assignment – 100 Point Version**  In the 100 point version, the bug still moves and turns the same way and still covers the screen in flowers. The difference is now the flowers will not all be the same color. Flowers in even numbered columns will be red. Flowers in odd numbered columns will be blue. |  |
| **03c** | **Graded Assignment – 110 Point Version**  The 110 point version adds these 3 requirements:   1. You may only use 4 **for** loops. 2. Your program must be less than 80 lines long. 3. You may only put one command on each line. | *Output is the same as*  *the 100 point version.* |