# Worker Class

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| **Properties** | **Description** |
| Carrying [integer] | The amount of food the ant is carrying. |
| carringThreshold [integer] | The threshold above which the ant will return to the nest and deposit food, if it cannot see any more. |

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| **Method** | **Parameters** | **Description** |
| canCarry | N/A | Determines if an ant can carry food or not. |
| depositeFood | N/A | Navigates towards the nest, stands on top of it and drops food. |
| dropFood | N/A | Drops a single piece of food |
| useFood | N/A | Determines the best use for food i.e. eat the food or carry the food. |
| doTask | N/A | Performs the actions required to complete the current goal. |
| updateGoal | N/A | Determines the current goal of the ant. |
| updateHealth | N/A | Updates the ant’s health. |
| draw | N/A | Draws the ant |
| update | N/A | Runs through a complete update of the ant. Also determine if ant has died or not. |

# Soldier class

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| **Properties** | **Description** |
| targetAnt [Ant object] | The ant the soldier is targeting. |

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| **Method** | **Parameters** | **Description** |
| nearSoldiers | N/A | Determin if the ant is near another friendly soldier ant or not |
| pickTarget | N/A | Pick a target ant from the ants in current view. |
| follow | N/A | Follow an ant which is in view. |
| attak | N/A | Attack an ant i.e. reduce its health. |
| updateHeatlh | N/A | Update the ant’s health. |
| guardNest | N/A | Control ants logic when guarding the nest. Ant should stand still somewhere close to the nest which where it is not in view of other friendly solidier ants. |
| guardPheromones | N/A | Controls ants logic when guarding pheromones. Ant should walk normally around, following friendly pheromone trials if it finds them. |
| guardFood | N/A | Controls ants logic when guarding a food source. Ant should first walk around until it finds food, then ant should stop near food. |
| doTask | N/A | Perform the actions required to complete the current goal. If the ant has the following goals, perform these actions.   * Guard Nest – guardnest * Guard pheromones – guardPheromones * Guard food – guardFood * Attack – follow ant and attack if close |
| updateGoal | N/A | Determine the current goal of the ant.   * If no goal – Give ant a random goal * If guard nest – guard nest * If guard pheromones – guard pheromones * If guard food – guard food |
| draw | N/A | Draw the ant |
| update | N/A | Run through a complete update cycle of the ant. This includes:   * Updating the ants health * Scan and smell surroundings * Pick a target * Do task and update goal * Move ant and add it to the map |

# Queen class

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| **Procedure** | **Parameters** | **Description** |
| doTask | N/A | Decide what actions need to be done to achieve the current goal. |
| updateGoal | N/A | Determine the current goal of the ant. |
| pickDirection | N/A | Pick the direction the ant will go in, to make the nest. |
| createNest | N/A | Create a new nest in the ant’s current location, and kill the queen ant. |
| draw | N/A | Draw the ant |
| update | N/A | Run through the ants update cycle. |

# Species class

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| **Properties** | **Description** |
| pheromoneConcentration [number] | The concentration of pheromones produced by the ant. |
| reproductionRate [number] | The rate at which new ants are reproduced. Used by nest to determine when to create new ants. |
| colour [string] | The colour |
| id [integer] |  |
| ants [Array of Ant objects] |  |
| nests [Array of Nest objects] |  |
| chars.speed [number] |  |
| chars.anteenaSize [speed] |  |
| chars.jawStrength [number] |  |
| chars.jawSize [number] |  |
| chars.stingSize [number] |  |
| chars.eyeSight [integer] |  |
| chars.eyeAngle [number] |  |
| chars.antennaAngle [number] |  |