

Assignment 5

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Report

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My Implementation

I classified the ants into following two categories per problem need, one responsible for gathering food nutrients and other responsible for killing bugs.

1. **Eaters: focus on food**
2. **Warriors: focus on combat**

Their characteristics are set accordingly, for example the attack modifier and energy modifier are set to maximum for the **Warriors**.

The **wait()** function is implemented in a such a way that for the caste **Eaters**, when they have nothing to do , they keep on moving and turning randomly. On the other hand the **Warriors** go back to the anthill in case of inactivity.

In case of tiredness, the tired ants are sent back to the anthill to rest until any new target is spotted.

The tick method checks if the ant has not walked a long way, if the answer is true, then the ant is returned to the anthill. This method comes into play when an event comes to an end.

And I am using a formula

```
public override void Tick()
{
    if (Range - WalkedRange - 20 < DistanceToAnthill)
    {
        this.GoBackToAnthill();
    }
}
```

}

Eaters

If the **Eaters** have no current target they go to collect sugar. If fruit is spotted its marked and then collected by the ants. After the collection of the sugar and fruits they are transported to the anthill by the ants. This all is done with the help of markers and trails.

Warriors

The combat function is given the high priority in my ant program and 80% of the ants are given this role.

Whenever any bug is seen by the ants with the help of **spotsEnemy(bug) method**, the warriors immediately launch an attack and terminate the enemy bug. The **smellfriend()** function also comes into play, which allows ants to smell the markers of their own caste and marshal combat troops to launch stronger attacks against the enemy.

The solution for ants under attack, if attacked ants are in good enough number to can fight, the ants fight back the attacking bugs. For Example, the number can be greater than 4.