

# Release Notes

*s-Birds Avengers*

## Release Features

### Features marketing

The original version of s-birds Avengers bot is located inside the /src/ab/demo directory named as s\_birds\_avengers.java. This java file uses /src/ab/Heuristic/HeuristicEngine.java file and other helper classes given by the default bot in aibirds.org.

The original version of s-Birds Avengers (version 1.0) bot, sent in the Angry Birds AI competition, has the capability of studying the structure given to the bot and identifying the pivotal block or point to hit in order to cause maximum destruction with number of attempts. The key features defining the bot are as follows:

### Classification of Structure

The basic idea is to classify any structure as either of the two following types:

1. **Top-Down:** The structure is classified as top-down structure if it is a structure which requires toppling down effect i.e. making an impact on the upper part of the structure resulting in the destruction at the bottom as a consequence of the impact.
2. **Bottom-Up:** The structure is classified as bottom-up if it is structure which requires impacting the structure at the bottom part and bringing the entire structure down because of this impact.

This classification is done on the basis of following important factors:

- **Penetration factor:** It determines ability of the bird to penetrate into the structure.
- **Displacement factor:** It determines the tendency of the structure to displace on the impact with the bird.
- **Downward factor:** it determines the effect on the pigs in the structure upon the impact with the bird.
- **Support factor:** It determines the support each block in the structure provide to the pigs in the structure.

Based on the experimentation and observation, the contribution of each of the above factor in determination of structure as bottom-up or top-down is calculated. Every factor is associated with a coefficient whose value is calculated, based on the experimentation.

### Online learning of coefficients

Apart from experimental value of coefficients, this version of code also includes online learning of coefficient values of the determining factors. This learning of coefficients is on the basis of the structures previously played by the bot during the competition.

## Enhancements

Our version 1.0 of s-Birds Avengers was very much naive version. On observing the code thoroughly, we found some features missing. So we added following features in our version 1.1 of s-birds Avengers

### Enhancement #1

*Tap-time on significant point of the trajectory according to the bird's type and structure.*

### Enhancement #2

*Strategy for white bird was missing in v1.0, it was implemented in v1.1*

*(for more detail take a look at our paper)*

## Fixes

### Fix #1

*Divide by Zero error fixed, occurring for some special values of Parameter's Coefficient in finalizing the final target block.*

### Fix #2

*Sorting of final target block list is fixed, previously it was not in correct order because of some error in parameter.*

### Fix #3

*Naming convention is improved and readability is improved*

## Known Issues and Problems

*[This section covers issues and problems that are known about, but have a workaround. Often, this is where you include information about issues with operating systems, firewall configuration, or anti-virus programs.]*

### Issue #1

*sub structure*

*tnt*

### Workaround

*[Describe the workaround and any steps needed.]*

#### **[Example:]**

[Product] requires Adobe Reader 8 or later to open the PDF files included in the software. Go to <http://get.adobe.com/reader/> to get the latest version of Adobe Reader.