# Introduction

*Gnarley trees* is a project focused on visualization of various tree data structures. This web site contains visualizations of

- various **balanced trees** such as AVL tree, red-black tree, B-tree, splay tree, treap, skip list, or scapegoat tree,
- **priority queues** such as binary heap, leftist heap, skew heap, binomial heap, Fibonacci heap, or pairing heap,
- **union find** with various heuristics (union by rank, path compression, path halving, path splitting),
- and **string data structures** such as trie or suffix tree.

We believe that these visualizations can be used very efficiently as lecture aids. We also hope they will be useful for students for self-study, or simply for exploring various concepts and satisfying curiosity.

You can use these visualizations either **online** on this site or download a **standalone application**. (The `jar` file can be run using the command `java -jar gt.jar`)

## Requirements

To run the jar file and the applets on this page, you need the Java Runtime Environment.

## Feedback and bug reports

If you like our visualizations, please write us (to massage our egos). Even more importantly, write us if you have found a bug or have an idea for improvement.
**e-mail:** algvis@googlegroups.com

## Translations

Gnarley trees are currently available in English and in Slovak. If you would like to contribute a translation into another language, simply download this file, translate it, and send it to algvis@googlegroups.com.

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# Licence

Gnarley trees are an [open source](#), [free software](#), and are freely available under the [GNU General Public License, version 3](#). The source code is maintained [here](#).