

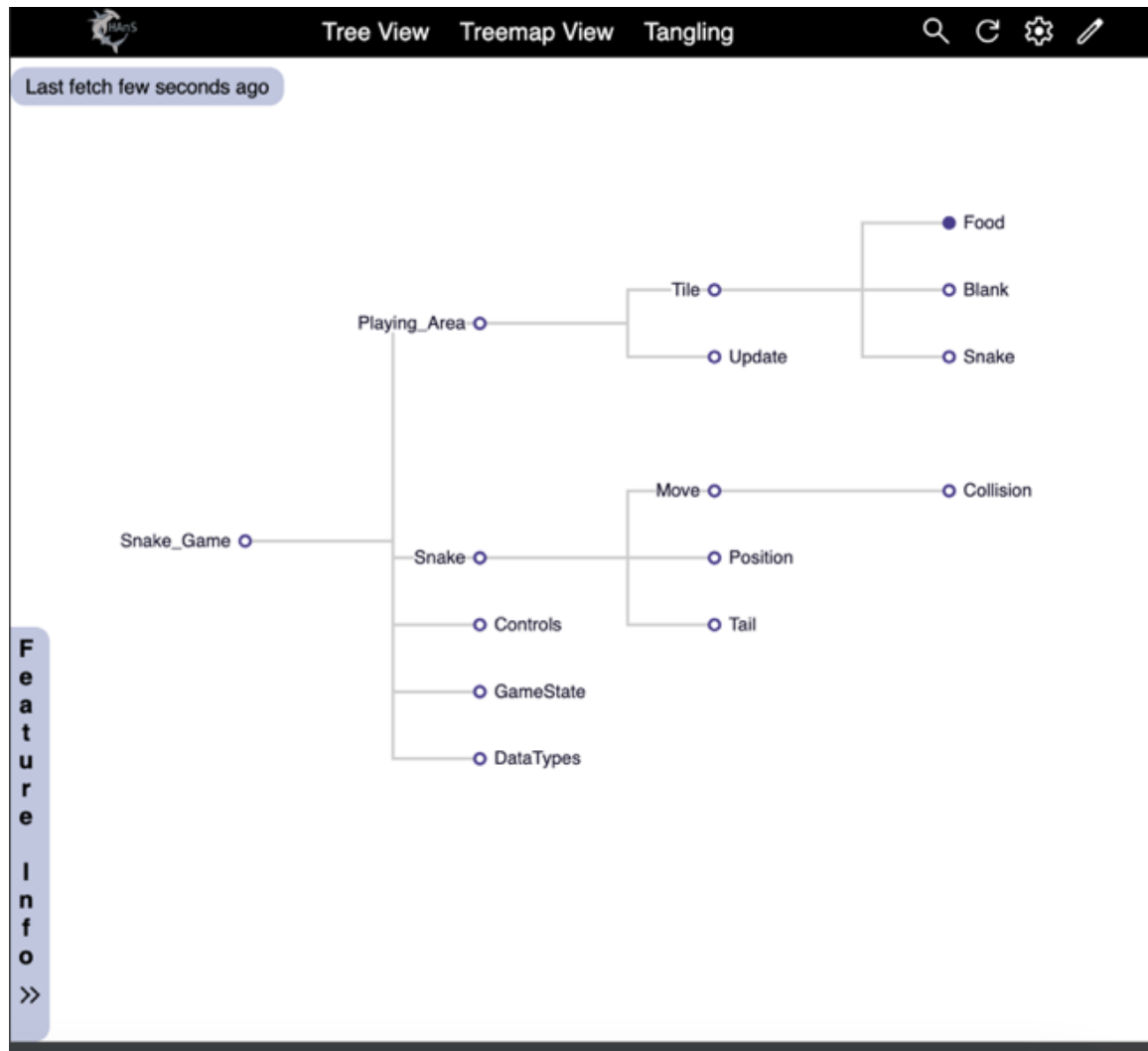
A Brief Introduction to HAnS-Viz Plugin

HAnS-Viz Overview

- It's a plugin developed for HAnS
- Visualizes feature metrics, such as tangling and scattering provided by HAnS
- Several feature-model visualizations, such as Tree View and Tree Map View



HAnS-Viz -Views



HAnS-Viz -My Task

Motivation:

- Projects increase in size and complexity over time
- This problem is addressed by the concept of feature-oriented software
- Organizes the evolution of software around features
- Utilizes feature traceability to track features history
- Git tracks code changes but lack support for tracking feature-level changes
- Needs tools between Git and IntelliJ to visualize the history of features within projects
- Without such a tool, developers have to manually track features history

The Task:

Extending HAnS and HAnS-Viz to support the visualization of features history, based on Git:

- Displaying a timeline of feature existence based on commits to assist developers in understanding features history
- Displaying deleted features to assist developers in finding features that have been removed from a project over time

Feature History View

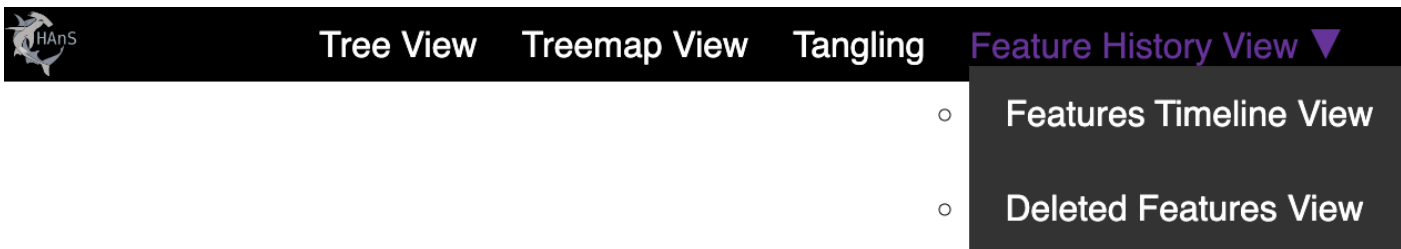
- A new window in the navigation bar called Feature History View
- Has two views, one for the timeline and one for the deleted features

Timeline:

- Feature names on x-axis
- Commit times on y-axis
- Scattering points on the chart that indicate when a particular feature existed at a specific commit time
- First data point indicate when the feature was first introduced, later data points indicate the feature has been modified

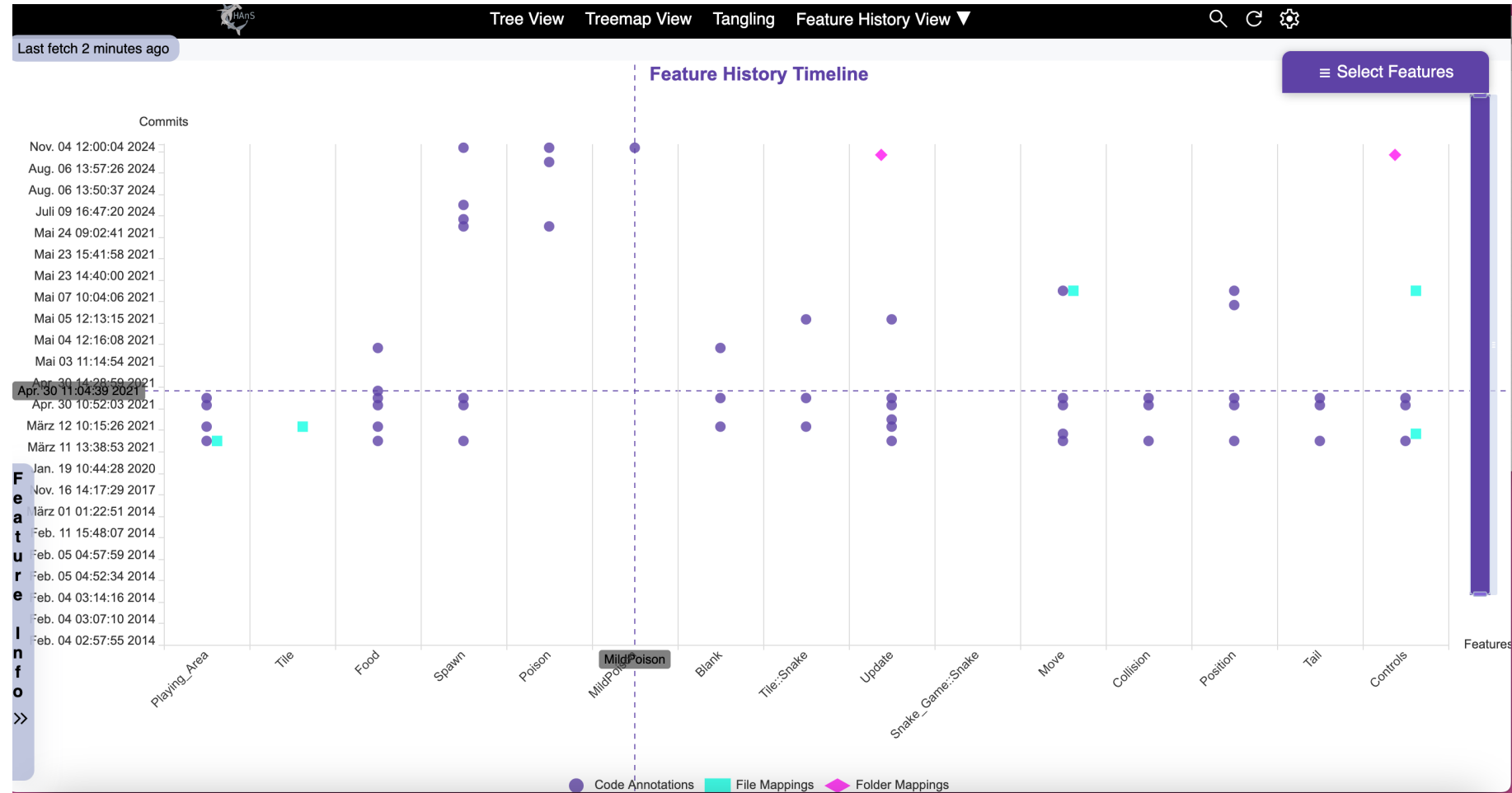
Deleted Features:

- Deleted features are mapped to the last commit times in which they were active before being removed from the feature model.



Feature Timeline View

- Displays three types of annotations
- You can hover over the data points to see more information
- You can click on the data points to copy the relevant commit hash
- Draggable bars alongside the axes to focus on a subset of data
- Displays the history of up to 15 features at a time



Deleted Features View

- This view allows you to track when each feature was last present in the codebase before deletion.
- Users can also click on the hash to copy it directly.



The screenshot shows a web application interface for tracking deleted features. At the top, there is a navigation bar with a logo on the left and several view options: 'Tree View', 'Treemap View', 'Tangling', and 'Feature History View' (which is selected and has a dropdown arrow). To the right of the view options are icons for search, refresh, and settings. Below the navigation bar is a table with three columns: 'Feature Name', 'Last Commit Time', and 'Commit Hash'. The 'Feature Name' column has a sub-header 'Last fetch 1 minute ago'. The table contains seven rows of data. Below the table, there is a large empty area. On the left side of this area, there is a vertical sidebar with the text 'Feature Info' and a double arrow icon at the bottom.

| Feature Name | Last Commit Time | Commit Hash |
|--------------|--------------------------------|-------------|
| TestFeature1 | Di. Aug. 06 13:57:26 MESZ 2024 | 2595fe3 |
| Head | Do. Mai 20 16:29:20 MESZ 2021 | 5da5951 |
| Snake | Mi. Mai 05 12:13:15 MESZ 2021 | 7e563b1 |
| Snake::Move | Mi. Mai 05 12:13:15 MESZ 2021 | 7e563b1 |
| Feature_B | Mi. Mai 05 12:13:15 MESZ 2021 | 7e563b1 |
| Feature_A | Mi. Mai 05 12:13:15 MESZ 2021 | 7e563b1 |
| Show | Fr. Mai 07 10:04:06 MESZ 2021 | 62f2fca |