Public / Non-Confidential

Chromium GSoC 2025 Project Proposal

Debug WebUI For Tabstrip states

Mentors: Shibalik Mohapatra, Darryl James

Project Overview

Tabstrip state and session states for browsers are complicated and rely on correct ordering of tabs in the tabstrip model, groups and sessions to restore tabs in the right position and selection state. As a result this has resulted in numerous bugs and it is often a pain point to figure out if it is a tabstrip model issue or a client issue. A webUI that captures the live state of the backend of the browser and tabstrip models will be really helpful in finding issues and edgecases.

Goals

- Create a WebUI chrome page similar to chrome://tab-search.top-chrome/
- Create a visual representation of the tabstrip collection tree from the model.
- Add additional group related metadata for group collections.
- Add selection model visual representation.
- Add session information from session restore.

Non-goals

- Take any actions from the webUI (It is a read only)
- Fix any bugs that expose a wrong model state.

Team

Desktop Top Chrome

Technical Details

Platforms	Windows, macOS, Linux, ChromeOS
Technology stack	C++,HTML, JS and CSS (WebUI)
Code affected	• chrome/browser/ui/tabs/ • chrome/browser/resources/tab_search/ • chrome/browser/sessions/
Starter bugs	• WebUITabStrip: On theme changes, the strip's thumbnails are not refreshed. • Regression : Unable to merge detached tab into existing window that has print... • Migrate CrShortcutInput to use Key instead of KeyCodes
Difficulty level	Moderate
Size	Medium (175 hours)
Project duration	18 weeks
GCP required	Yes
Test devices	No
Tryjob access	No
GOMA access	No
Number of contributors	1

For Contributors

Requirements

- Familiarity with HTML, CSS and JS
- Proficiency in C++ codebases and concepts.

Expectations

- Google Docs for documenting work throughout GSoC and weekly summaries.
- Mentor Meetings: Weekly 1:1 meetings with a mentor to discuss progress, tasks, and technical topics.
- Communication:
    - Technical Discussions: Gerrit issue tracker.
    - Other Communication: Email or Google Chat.
- Time Commitment: Approximately 10 hours per week (may vary). Please reach out if this differs significantly from your expectations.
- PST timezone.

FAQs

Q: I am interested in this project, what should I do now?
A: Hello! For those interested in this project there are quite a few ways to get started.

The whole goal of this part of GSoC is to come up with a proposal to solve the problem outlined in the Overview section above. To do that, we suggest spending some time familiarizing yourself with the code base in some form (in no particular order):

1) Attempting to solve some of the starter bugs
2) Creating a mental model by looking through the code and diagramming how some of the systems work together
3) Building chromium locally (if you are able to - the project is very large)
4) Creating a high-level design / solution to the problem

We don't recommend doing all of the bullet points to completion. Just enough to become familiar with chromium and its processes.

Additional starting links:

1) How to build Chromium
2) tab_strip_model.h
3) tab_colleciton.h

Q: Would I need to build Chromium for that?
A: Yes

Q: Where can I ask questions?

A: Please ask us questions about any part of the project here! Don't be afraid to ask!

Q. How can I reproduce the WebUI starter bug:
A. You can use the command line flags --enable-features=WebUITabStrip --top-chrome-touch-ui=enabled on linux.