

**MICHIGAN STATE**  

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**U N I V E R S I T Y**

# Project Plan

## Improvements to Firefox's about:preferences

### The Capstone Experience

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*From Students...  
...to Professionals*

# Functional Specifications

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- Reorganization & UX Improvements
  - Reorganize content to more relevant sections
  - Clean up inconsistent styling within Preferences
- Keyword Search Functionality
  - Filter Preferences content based on keyword search
  - Hide and show relevant sections for fast and efficient preference search



# Design Specifications

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- Reorganization & UX Improvements
  - Tab reorganization
    - Fewer categories
  - Preferences Improvements
- Search Functionality
  - Placed on every page
  - Node traversal
  - Page scraping



# Screen Mockup: Tab Reorganization (Before)

<b>General</b> Startup Downloads Tabs	<b>Search</b> Default Search Engine One-click Search Engine	<b>Content</b> DRM Content Notifications Pop-ups Fonts & Colors Languages	<b>Application</b> File Type Handler Link Type Handler
<b>Security</b> Security Options Forms & Passwords	<b>Privacy</b> Use Tracking Protection Private Browsing History + Cookies Location bar	<b>Sync</b> Sync Options	<b>Advanced</b> Accessibility Browsing & Check Spelling <b>Data Choices</b> Reports <b>Network</b> Connection Cached Web Content Offline Web Content <b>Update</b> Firefox Updates Automatically Update <b>Certificates</b> Certificates



# Screen Mockup: Tab Reorganization (After)

## General

Browser

Startup

Search Engines

Tabs

Accessibility

Language

Fonts & Colours

Browsing

## Downloads & links

Downloads

File Type Handler

Link Type Handler

## Privacy & Security

History

Forms & Passwords

Private Browsing

Tracking Protection

Pop-ups

Notifications

Location bar

Security Options

Certificates

DRM Content

Connection

## Firefox Account

Sync Options

## Updates

Firefox Updates

Automatically Update

Reports (Data Choices)



# Screen Mockup: Preferences UI/UX Improvements, Example (After)

**History**

Firefox will:

Always use private browsing mode

Remember my browsing and download history

Remember search and form history

Accept cookies from sites

Accept third-party cookies:

Keep until:

Clear history when Firefox closes

[Exceptions...](#)

[Show Cookies...](#)

[Settings...](#)

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**Cached Web Content**

Your web content cache is currently using 350 MB of disk space [Clear Now](#)

Override automatic cache management

Limit cache to  MB of space

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**Offline Web Content and User Data**

Your application cache is currently using 0 bytes of disk space [Clear Now](#)

Tell me when a website asks to store data for offline use [Exceptions...](#)

The following websites are allowed to store data for offline use:

<a href="http://color.adobe.com">http://color.adobe.com</a>	0 bytes
<a href="https://color.adobe.com">https://color.adobe.com</a>	0 bytes

[Remove...](#)



# Screen Mockup: Preferences UI/UX Improvements, Example (After)

**History**

Clear your recent history Clear...

Remember my browsing and download history

Allow storing cookies and site data: Exceptions...

Always

Except for 3rd-party cookies

Except for non-visited 3rd-party cookies

Cookies and site data are currently 30 MB of disk space [Learn more](#) Settings...

Clear history when Firefox closes Settings...

**Forms & Passwords**

Remember search and form history

Remember logins and passwords for sites Manage...

Use a master password Change master password...

**Private Browsing**

Always use private browsing mode



# Screen Mockup: Search Functionality

The screenshot shows the 'General' settings page in Firefox. On the left is a dark sidebar with icons and labels for 'General', 'Search', 'Content', 'Applications', 'Privacy', 'Security', 'Sync', and 'Advanced'. The 'General' section is active. At the top right of the main content area is a search bar with the placeholder text 'Search' and a magnifying glass icon, followed by a question mark icon. Below this is a section titled 'Startup'. It contains a checked checkbox for 'Always check if Firefox is your default browser'. Underneath, it says 'Firefox is not your default browser' with a 'Make Default' button to the right. Below that is a dropdown menu for 'When Firefox starts:' currently set to 'Show my home page'. Underneath the dropdown is a text input field for 'Home Page:' containing 'Mozilla Firefox Start Page'. At the bottom of this section are three buttons: 'Use Current Page', 'Use Bookmark...', and 'Restore to Default'.

The screenshot shows the 'Content' settings page in Firefox. The sidebar on the left is the same as in the previous screenshot, but the 'Content' option is highlighted. The main content area has a search bar at the top right with 'Search' and a magnifying glass icon, and a question mark icon. Below is a section titled 'DRM content' with a checked checkbox for 'Play DRM content' and a 'Learn more' link to the right. Below that is a section titled 'Notifications'. It starts with the text 'Choose which sites are allowed to send you notifications' followed by a 'Learn more' link and a 'Choose...' button. Below this is an unchecked checkbox for 'Do not disturb me' with the text 'No notification will be shown until you restart Firefox' underneath. At the bottom is a section titled 'Pop-ups'.



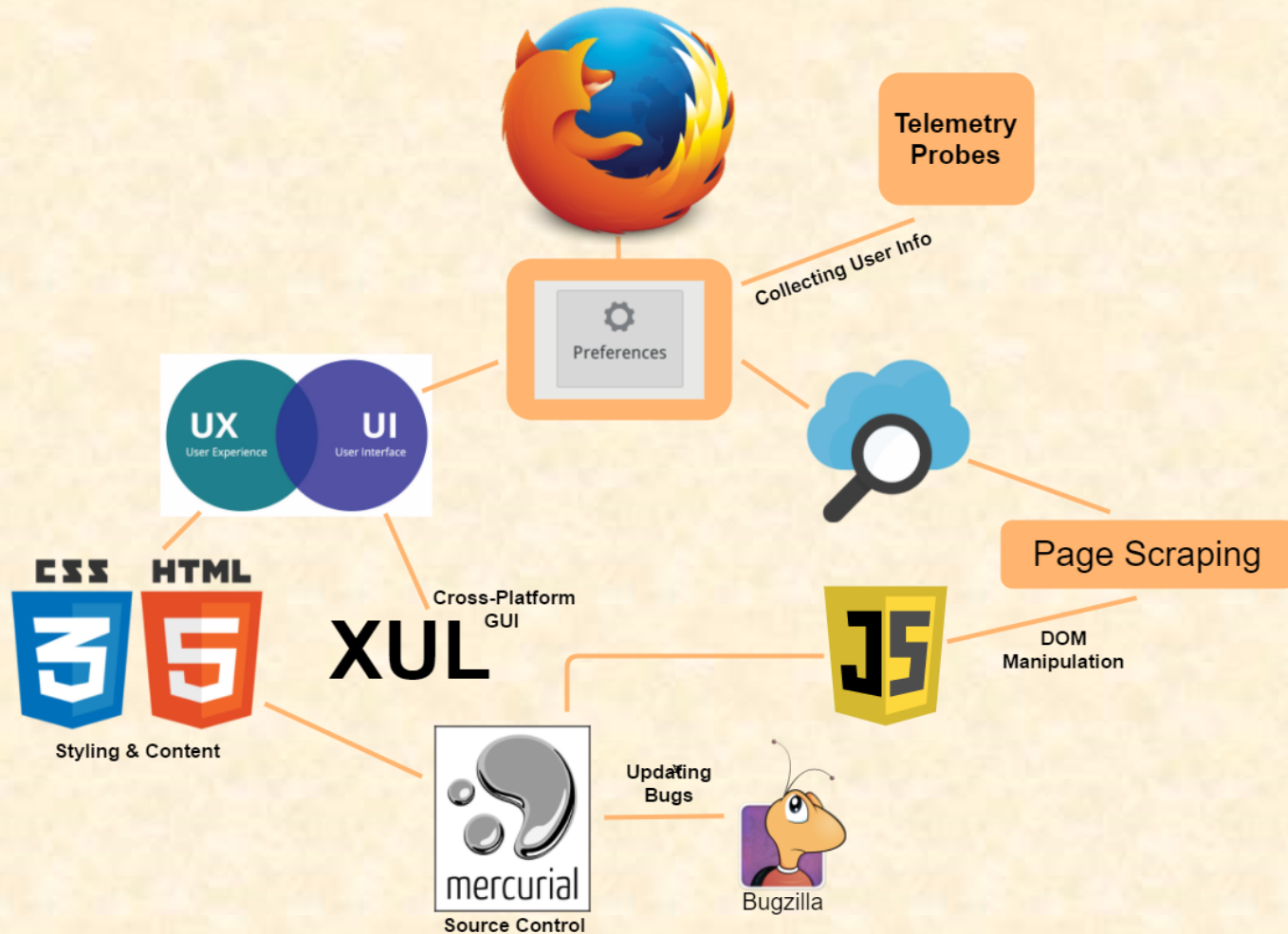


# Technical Specifications

- UI/UX Modification
  - XUL, CSS, XHTML content modification
- Search Feature
  - Page Scraping using Javascript
- Telemetry
  - Collect user info through Javascript/C++ Telemetry Probes
  - Learn about user behavior
- Development Tools
  - Bugzilla
  - Mercurial Source Control
  - Firefox Developer Tool



# System Architecture



# System Components

- Hardware Platforms
  - Mac (macOS)
  - PC (windows, linux)
- Software Platforms / Technologies
  - Firefox, Nightly and others
  - Mercurial (Code Base)
  - Bugzilla
  - Text editors (VS Code, Vim, Emacs, Sublime)
  - IRCCloud, Fb messengers, Slack



# Testing

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- Unit Testing
- Manual Testing
- Firefox build in Debugger tool
- Cross platform testing



# Risks

- Firefox Code base
  - Multiple versions of Firefox, crucial and important to edit correct components and section of code
  - Understanding bugs, Working with clients and testing code in multiple platforms
- Ambiguous bug descriptions
  - Unclear descriptions on what the bug is and how to fix it
  - Communication with clients, contacting reported teams
- Code quality and process specifications
  - Strick coding and process standards to follow
  - Following documentation, communication with clients and constant revision of code and feedback
- Search Algorithm
  - Finding content from about:preferences through keywords, descriptions and other identifiers
  - Working with clients, researching on HTML search methods and lastly looking at examples from of search algorithms written in Firefox



# Questions?

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