

Fundamentals of HTML

Internet Programming I: Lab I



Addis Ababa Science and Technology University
Department of Software Engineering

Chere Lema and Biruk Gebru | 2014EC

Purpose of This Lab



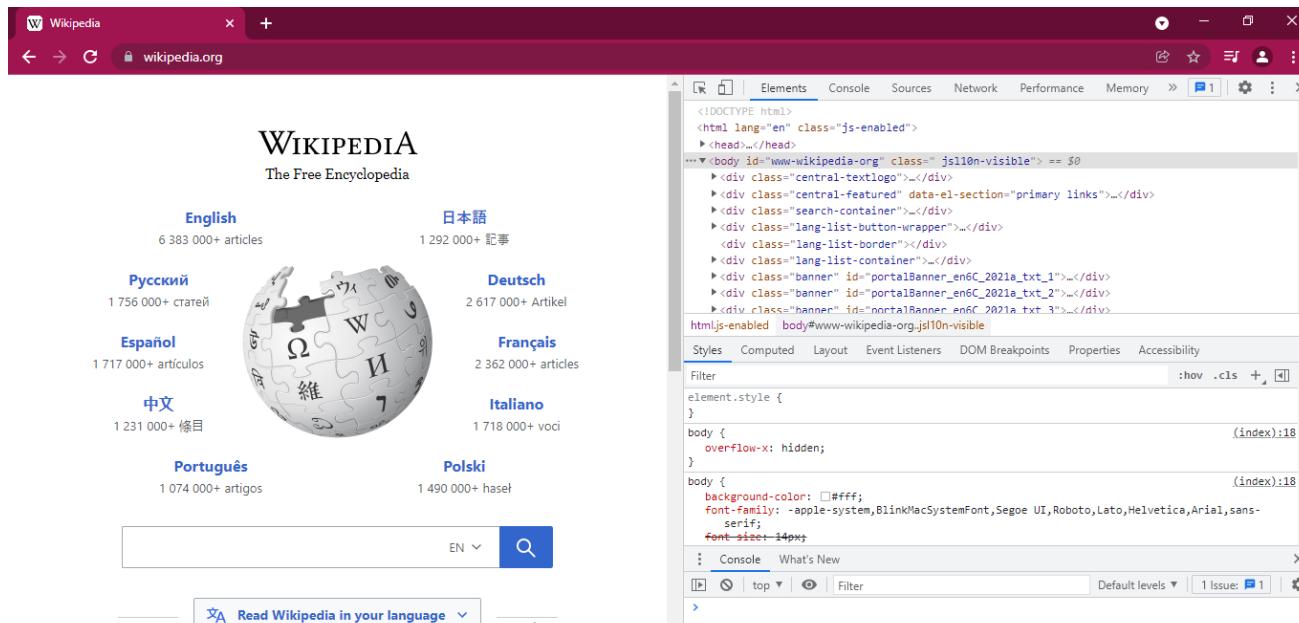
- The purpose of this lab is to:
 - Introduce with Developers Tool using different Internet browsers
 - Practice writing basic web pages with HTML
 - Start developing course project
- **Before this Lab !!**
 - Be familiar with basics of Internet Programming and HTML
 - Refer-back lecture one and two materials

1. Developers Tool



Opening developers tools:

- F12, Ctrl + Shift + I, right click and inspect or using browsers settings (differs from browser to browser) can open developer tools
- E.g. chrome DevTools – Wikipedia.org



1. Developers Tool cont'd



The screenshot shows the Wikipedia homepage in English. The Chrome DevTools 'Elements' panel is open, displaying the DOM tree. A red arrow points from a button on the page to its corresponding entry in the DOM tree. The DOM entry is a `<button>` element with the following attributes: `id="js-l10n-language-button"`, `class="lang-list-button"`, and `data-el-section="search">...</form>`. The button's innerHTML is `Read Wiki in Amharic`. The 'Styles' panel shows the default styles for the button, including `visibility: visible;` and `visibility: hidden;`.

HTML and DOM view:

- Allows you to see the DOM as it was rendered
- You can make changes to the HTML and DOM see output live (but not sent to the server)

1. Developers Tool cont'd

A screenshot of a web browser showing the Wikipedia homepage. The browser's developer tools are open on the right side, displaying the 'Elements' panel. A red arrow points from the 'div.central-textlogo' element in the DOM tree to the 'div.central-textlogo' element on the page. A red box with the text 'Inspect elements using selector' is overlaid on the developer tools. The Wikipedia page shows the logo, the text 'The Free Encyclopedia', and a search bar. The developer tools show the HTML structure of the page, including the 'div.central-textlogo' element. The 'Styles' panel shows the default styles for the element, such as 'background-color: #ffff;' and 'font-family: -apple-system, BlinkMacSystemFont, Segoe UI, Roboto, Lato, Helvetica, Arial, sans-serif;'. The 'Console' panel is also visible at the bottom of the developer tools.

What are browser developer tool x Wikipedia x Web development tools - Wikiped x +

wikipedia.org

WIKIPEDIA
The Free Encyclopedia

日本語
1 292 000+ 記事

Deutsch
2 617 000+ Artikel

Français
2 362 000+ articles

Italiano
1 718 000+ voci

Português
1 074 000+ artigos

Polski
1 490 000+ hasel

中文
1 231 000+ 條目

Read Wikipedia in your language

Inspect elements using selector

Elements Console Sources Network Performance Memory

```
<!DOCTYPE html>
<html lang="en" class="js-enabled">
<head>
  <body id="www-wikipedia-org" class="js110n-visible"> == $0
    <div class="central-textlogo">...</div>
    <div class="central-featured" data-el-section="primary links">...</div>
    <div class="lang-container">...</div>
    <div class="lang-button-wrapper">...</div>
    <div class="lang-button">...</div>
    <div class="lang-button">...</div>
    <div class="banner">...</div>
    <div class="banner">...</div>
  </body>
</html>
```

html.js-enabled body#www-wikipedia-org.js110n-visible

Styles Computed Layout Accessibility

Filter

element.style { }

body { overflow-x: hidden; }

body { background-color: #ffff; font-family: -apple-system, BlinkMacSystemFont, Segoe UI, Roboto, Lato, Helvetica, Arial, sans-serif; font-size: 14px; }

Console What's New Issues

top Filter Default levels 1 Issue: 1

1. Developers Tool cont'd

A screenshot of a web browser showing the Wikipedia homepage. The browser's address bar shows "wikipedia.org". The page displays the Wikipedia logo and links to various language versions. Overlaid on the right side of the browser window is the Chrome DevTools interface. The "Sources" tab is selected, showing a tree structure of the page's assets, including images and JavaScript files. A red arrow points from the "Sources" tab to a text box on the right. The text box contains the text "Web page assets and resources: Web development tools also allow developers to inspect resources that are loaded and available on the web page in a tree-structure listing, and the appearance of style sheets can be tested in real time".

WIKIPEDIA
The Free Encyclopedia

English
6 383 000+ articles

日本語
1 292 000+ 記事

Русский
1 756 000+ статей

Deutsch
2 617 000+ Artikel

Español
1 717 000+ artículos

Français
2 362 000+ articles

中文
1 231 000+ 條目

Italiano
1 718 000+ voci

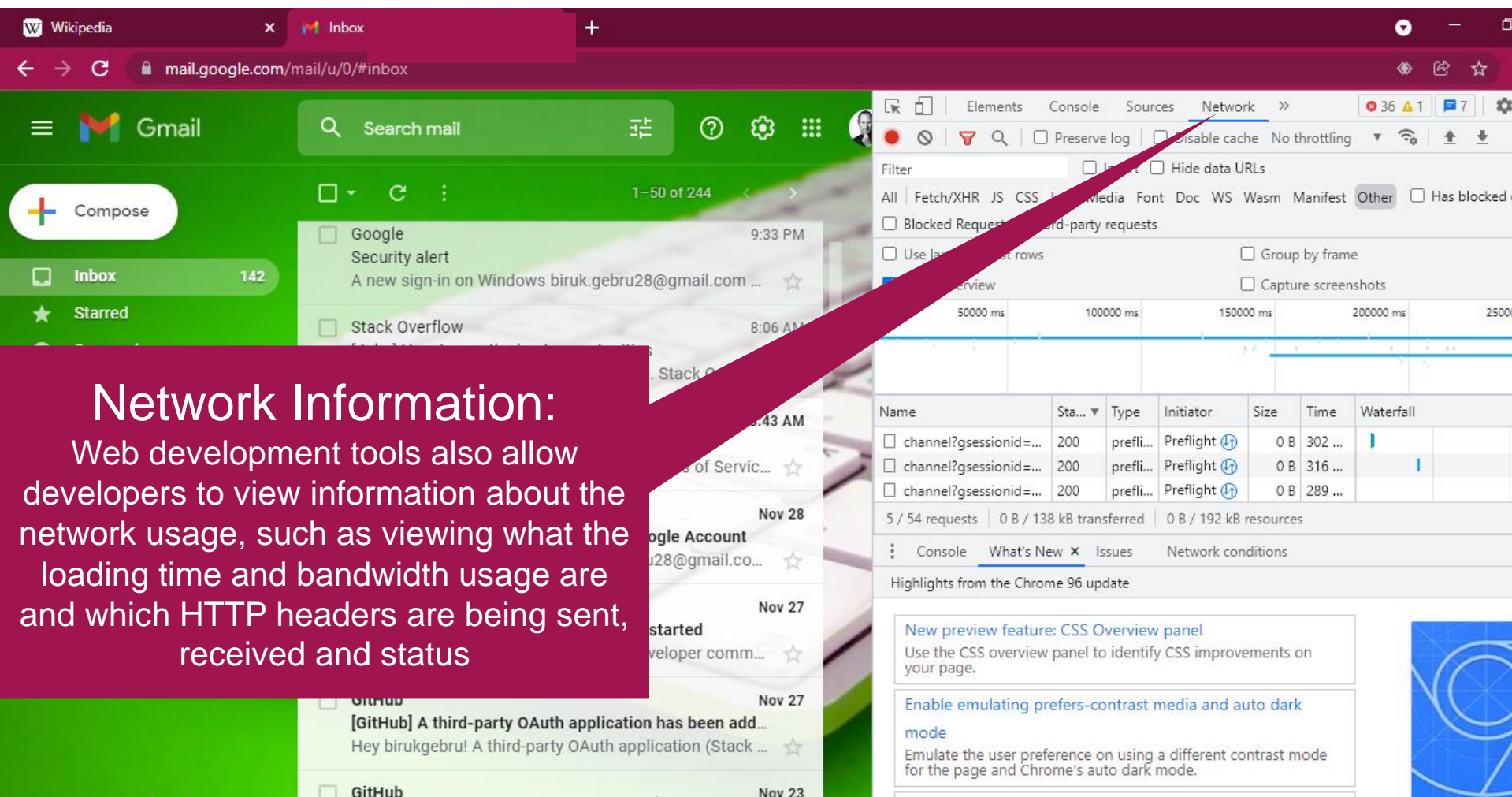
Português
1 074 000+ artigos

Polski
1 490 000+ hasel

Read Wikipedia in your language

Web page assets and resources:
Web development tools also allow developers to inspect resources that are loaded and available on the web page in a tree-structure listing, and the appearance of style sheets can be tested in real time

1. Developers Tool cont'd



Network Information:

Web development tools also allow developers to view information about the network usage, such as viewing what the loading time and bandwidth usage are and which HTTP headers are being sent, received and status

| Name | Sta... | Type | Initiator | Size | Time | Waterfall |
|------------------------|--------|-----------|-----------|------|---------|-----------|
| channel?gsessionid=... | 200 | prefli... | Preflight | 0 B | 302 ... | |
| channel?gsessionid=... | 200 | prefli... | Preflight | 0 B | 316 ... | |
| channel?gsessionid=... | 200 | prefli... | Preflight | 0 B | 289 ... | |

5 / 54 requests | 0 B / 138 kB transferred | 0 B / 192 kB resources

Console | What's New | Issues | Network conditions

Highlights from the Chrome 96 update

- [New preview feature: CSS Overview panel](#)
Use the CSS overview panel to identify CSS improvements on your page.
- [Enable emulating prefers-contrast media and auto dark mode](#)
Emulate the user preference on using a different contrast mode for the page and Chrome's auto dark mode.

1. Developers Tool cont'd

A screenshot of the Chrome DevTools Performance tab. The top part shows a timeline of events for the page load, with a red arrow pointing to a specific event. The bottom part shows a detailed view of the selected event, including a circular progress indicator and a breakdown of time spent on different tasks. The timeline shows various threads like JS Heap, Documents, Nodes, Listeners, and GPU Memory. The detailed view shows a total time of 2304 ms, with a breakdown of 0 ms for System, 2304 ms for Idle, and 2304 ms for Total. The page being loaded is wikipedia.org.

Profiling and auditing:

- Allows to capture information about the performance of a web page or web application
- Auditing features may provide developers suggestions, after analyzing a page, for optimizations to decrease page load time and increase responsiveness
- Also provide a record of the time it takes to render the page, memory usage, and the types of events which are taking place

1. Developers Tool cont'd



Console:

The consoles allow developers to type in JavaScript commands and call functions, or view errors that may have been encountered during the execution of a script

Performance Tab Data:

| Task | Duration (ms) |
|--------------|---------------|
| Scripting | 1675 |
| Rendering | 23 |
| Painting | 2 |
| System | 370 |
| Idle | 7916 |
| Total | 9986 |

Error Message:

```
Unchecked runtime.lastError: Could not establish connection. Receiving end does not exist.
```

1. Developers Tool cont'd



A screenshot of the Chrome DevTools interface. The top bar shows the browser tabs: 'Wikipedia' and 'Inbox (142) - biruk.gebru28@gmail.com'. The address bar shows 'wikipedia.org'. The DevTools panel is open, showing the 'Elements' tab. The 'Responsive' design tool is active, displaying a list of mobile devices on the left: Moto G4, Galaxy S5, Pixel 2, Pixel 2 XL, iPhone 5/SE, iPhone 6/7/8, iPhone 6/7/8 Plus, iPhone X, iPad, iPad Pro, Surface Duo, Galaxy Fold, Nest Hub, and Nest Hub Max. The main content area shows the Wikipedia homepage, which is scaled to fit the selected device's viewport. The 'Elements' panel on the right shows the HTML structure of the page, including the header, search bar, and language selection buttons. A red callout box points to the language selection buttons in the HTML. The callout box contains the text: 'Device Tool Bar: Helps to simulate mobile devices. These features include: Simulating a mobile viewport. Throttling the network. Throttling the CPU'. The bottom of the image shows the date '11/29/2021' and the text 'AASU | Dept. of SWENG - 2014EC'.



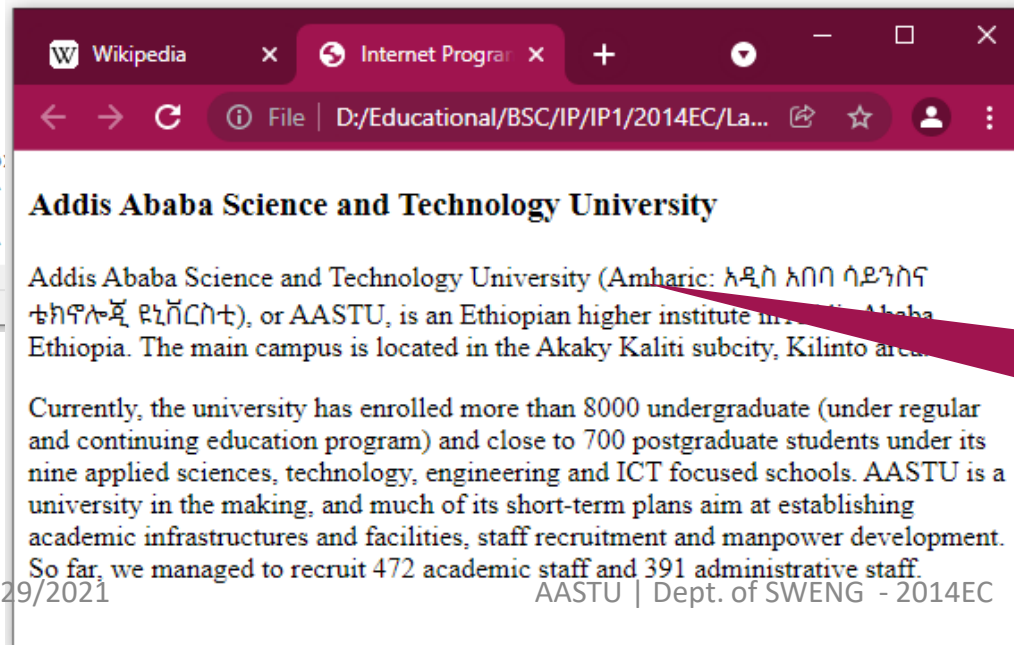
2. Write Basic Webpage

```
basic - Notepad
File Edit Format View Help
<!DOCTYPE html>
<html lang="en">

<head>
  <title>Internet Programming Lab I</title>
</head>

<body>
  <h3>Addis Ababa Science and Technology University</h3>
  <p>
    Addis Ababa Science and Technology University (Amharic: አዲስ አበባ ሳይንስና ቴክኖሎጂ ዩኒቨርሲቲ), or AASTU, is an Ethiopian
    higher institute in Addis Ababa, Ethiopia. The main campus is located in the Akaky Kaliti subcity, Kilinto
    area.
  </p>
  <p>
    Currently, the university has enrolled more than 8000 undergraduate (under regular
    and continuing education program) and close to 700 postgraduate students under its
    nine applied sciences, technology, engineering and ICT focused schools. AASTU is a
    university in the making, and much of its short-term plans aim at establishing
    academic infrastructures and facilities, staff recruitment and manpower development.
    So far, we managed to recruit 472 academic staff and 391 administrative staff.
  </p>
</body>
</html>
```

1. Open Notepad
2. Write an HTML code
3. Save the file using any name with **.htm** or **.html** file extension
4. Open this file with any Internet browser

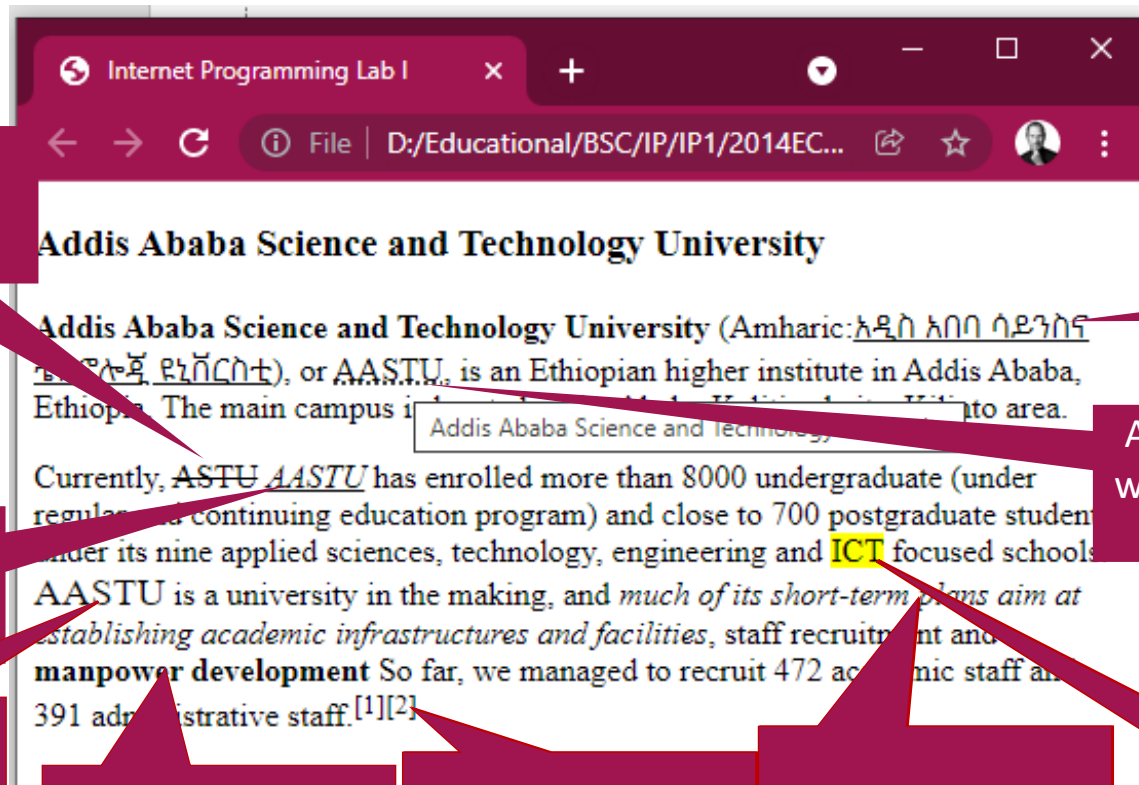


You should see this output page title on the top bar

3. Exercise



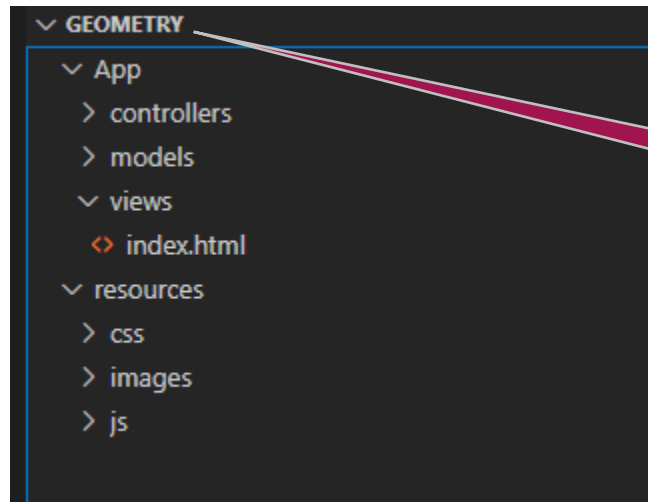
- Apply HTML text formatting without the use of CSS, formatting must include both **physical** and **logical** tags
 - E.g. check the screenshot below



4. Project Kick-Off



- Create a folder for your project
 - Explore a good folder structure to organize your project files/pages and assets
 - E.g.



Project
name

- Create “index.html” file in your project folder and start landing page of your project
- Add company/application name
- Add navigation menu
- Add other HTML elements required in your project from what you know so far