

Experiment 15

CSCI-230 Web Scripting

Fall 2024

Part I

Inside the **experiments** directory in your repository create a *subdirectory* named **e15**.

Inside the **e15** directory create 15.html, 15.css, and 15.js.

In **csci230/index.html** add a link to **csci230/experiments/e15/15.html**.

Part II

Disable (do not uninstall) the Live Server extension created by Ritwick Dey in VSCode. Install and enable the Live Preview extension by Microsoft.

Open the settings for the Live Preview extension. Scroll to the Live Preview: Http Headers section and click *Edit in settings.json*.

Edit the "livePreview.httpHeaders" property so that it includes "**Cross-Origin-Embedder-Policy**" and "**Cross-Origin-Opener-Policy**" properties. Note: do not remove any properties that already exist in the object.

```
"livePreview.httpHeaders": {  
    "Accept-Ranges": "bytes",  
    "Cross-Origin-Embedder-Policy": "require-corp",  
    "Cross-Origin-Opener-Policy": "same-origin"  
}
```

Part III

Create a file named **dedicated.js** and in it, do the following:

- Declare a variable named **arr** and set it to **undefined**.
- Register an event listener for the "**message**" event. When a message event is received by the worker, the worker checks to see if the **arr** variable is **undefined**. If it is **undefined** then the **arr** variable is set equal to a new instance of **Uint8Array** which is constructed using the data passed to the worker.

- After **arr** is set, the worker begins to compute **n!** for all **n >= 0**. Each time the worker has computed **n!** for some value of **n**, the worker places the computed value in the **arr** at index **0** and posts a null message.

Part IV

In 15.js do the following:

- Initialize a **SharedArrayBuffer**
- Create a instance of **Uint8Array** passing the **SharedArrayBuffer** to the constructor
- Initialize a **Worker** using the worker script in **dedicated.js**
- Add an event listener for the "**message**" event. When a message event is received, append the value that is at index 0 in the **Uint8Array** to a list of values in the **15.html**.
- Pass the **SharedArrayBuffer** to the worker.