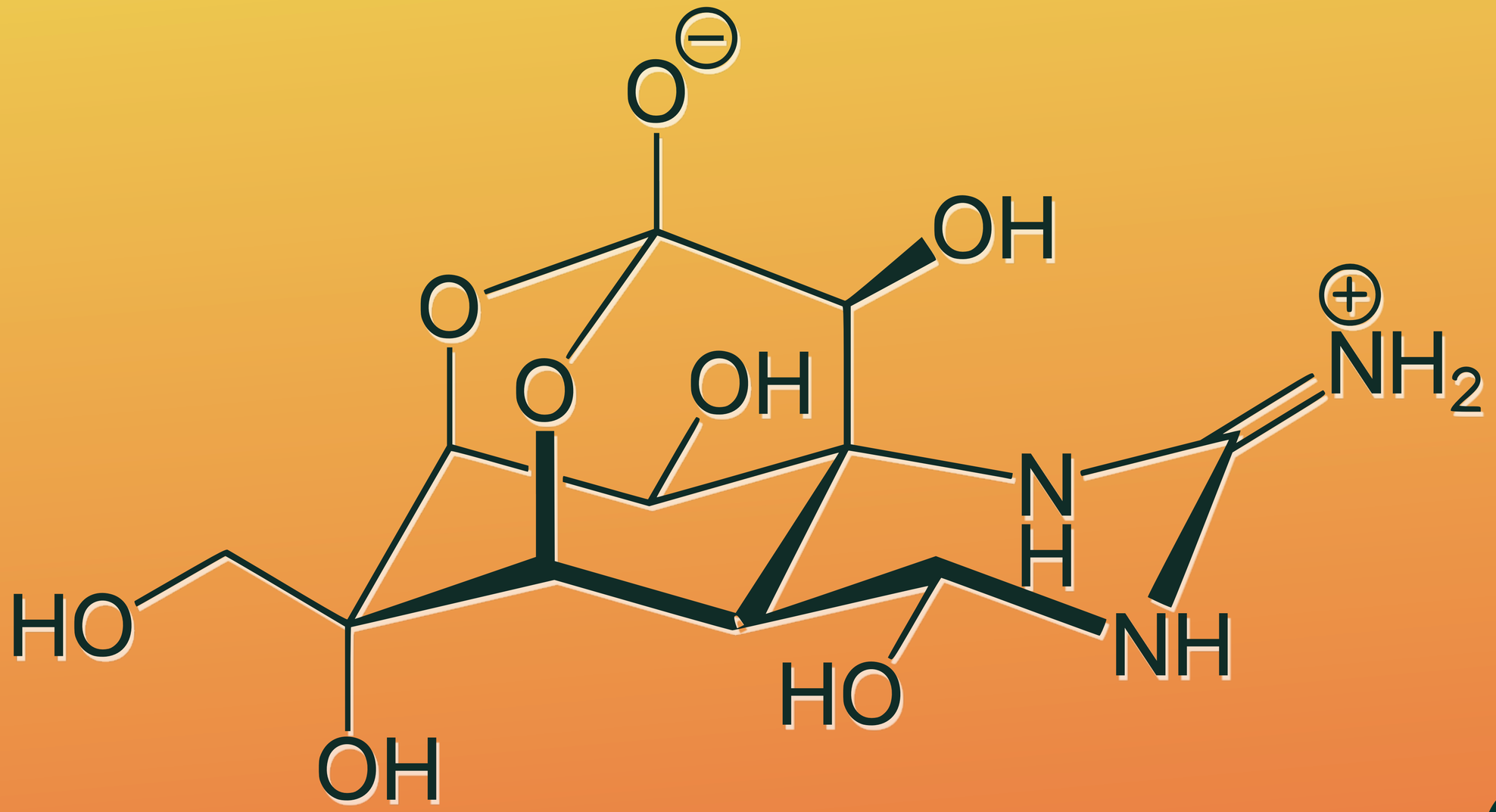
FUGU

POSSIBILITIES WITH WEB CAPABILITIES

rowdy.codes rowdyrabouw


rowdy.codes
rowdyrabouw



TETRODOTOXIN

PROJECT FUGU

Google Microsoft intel

developer.chrome.com/docs/capabilities

PROJECT FUGU

- Accelerometer API
- Ambient Light Sensor API
- Background Fetch API
- Background Sync API
- Badging API
- Clipboard API
- Compute Pressure API
- Contact Picker API
- Device Memory API
- Device Posture API
- EyeDropper API
- File Handling API
- File System Access API
- File System Observer API
- Font Access API
- Gamepad API
- Geolocation Sensor API
- Gravity Sensor API
- Idle Detection API
- Fullscreen API
- Magnetometer API
- Periodic Background Sync API
- Picture-in-Picture API
- Presentation API
- Screen Wake Lock API
- Shape Detection API
- Virtual Keyboard API
- Wake Lock API
- Web Audio API
- Web Bluetooth API
- Web MIDI API
- Web NFC API
- Web Serial API
- Web Share API
- Web Codecs API
- Web HID API
- Web GPU API
- Web USB API
- Web XR Device API
- Window Placement API

rowdy.codes rowdyrabouw

CLIPBOARD API

CLIPBOARD API

- copy text, images, or other data formats to and from the clipboard
- requires a user gesture; for example, a button click
- pasting requires explicit permission from the user

(); script.js

```
const copyTextToClipboard = async (text) => {
  await navigator.clipboard.writeText(text);
};
```

(); script.js

```
const copyTextToClipboard = async (text) => {
  await navigator.clipboard.writeText(text);
};

const readTextFromClipboard = async () => {
  const text = await navigator.clipboard.readText();
  return text;
};
```

(); script.js

```
const copyTextToClipboard = async (text) => {
  await navigator.clipboard.writeText(text);
};

const readTextFromClipboard = async () => {
  const text = await navigator.clipboard.readText();
  return text;
};

const copyPngImageToClipboard = async (imagePath) => {
  const response = await fetch(imagePath);
  const blob = await response.blob();
  const clipboardItem = new ClipboardItem({ "image/png": blob });
  await navigator.clipboard.write([clipboardItem]);
};
```

DEMO

CLIPBOARD API

rowdy.codes rowdyrabouw

FULLSCREEN API

FULLSCREEN API

- remove distractions like browser UI, so users can focus entirely on the content
- full document or a specific element can be displayed in full-screen mode
- requires a user gesture; for example, a button click

(); script.js

```
const openFullscreen = () => {
  document.documentElement.requestFullscreen();
};
```

(); script.js

```
const openFullscreen = () => {
  document.documentElement.requestFullscreen();
};

const exitFullscreen = () => {
  if (document.fullscreenElement) { // prevent error when not fullscreen
    document.exitFullscreen();
  }
};
```

(); script.js

```
const openFullscreen = () => {
  document.documentElement.requestFullscreen();
};

const exitFullscreen = () => {
  if (document.fullscreenElement) { // prevent error when not fullscreen
    document.exitFullscreen();
  }
};

const video = document.querySelector("#video");

const playVideoFullscreen = (video) => {
  video.requestFullscreen();
  video.play();
};

// user can also exit with Esc key or a button in the video player
```

DEMO

FULLSCREEN API

rowdy.codes rowdyrabouw

PICTURE-IN-PICTURE API

PICTURE-IN-PICTURE API

- enable a floating, always-on-top frame
- commonly used for video playback, experimental for other content
- requires a user gesture; for example, a button click

(); script.js × {}; style.css <> index.html (); pip.js

```
const video = document.querySelector("#video");

const toggleVideoPictureInPicture = (video) ⇒ {
  if (document.pictureInPictureEnabled) {
    if (document.pictureInPictureElement) {
      document.exitPictureInPicture();
    } else {
      video.requestPictureInPicture();
    }
  }
};
```

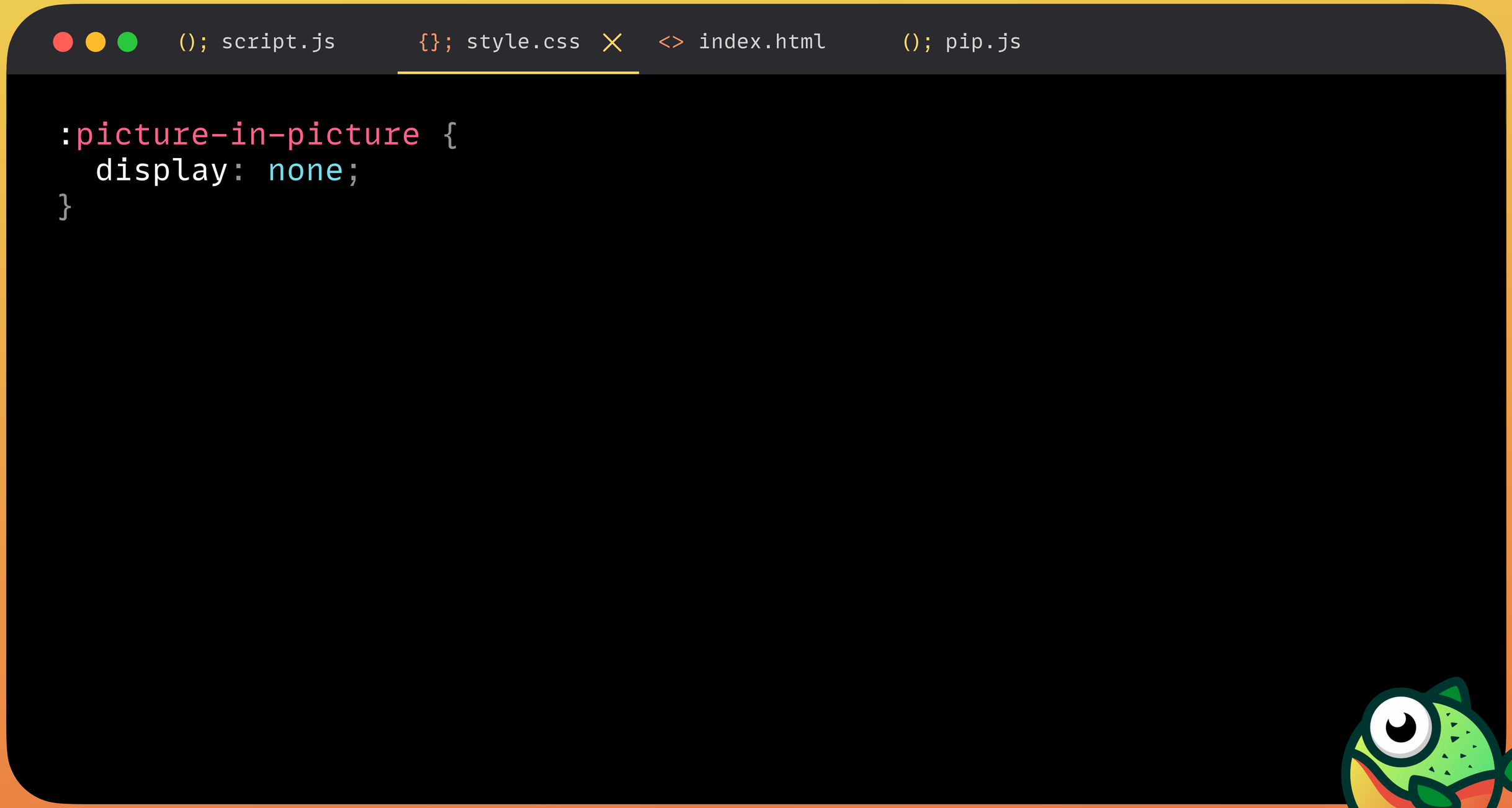
(); script.js {}; style.css <> index.html (); pip.js

```
const video = document.querySelector("#video");

const toggleVideoPictureInPicture = (video) ⇒ {
  if (document.pictureInPictureEnabled) {
    if (document.pictureInPictureElement) {
      document.exitPictureInPicture();
    } else {
      video.requestPictureInPicture();
    }
  }
};

const toggle = document.querySelector("#toggle");

if (!document.pictureInPictureEnabled) {
    toggle.style.display = "none";
}
```


(); script.js
{}; style.css
<> index.html
(); pip.js
:picture-in-picture {
display: none;
}

(); script.js {}; style.css <> index.html (); pip.js

```
<div id="pipContainer">
  <div id="pipContent">
    <h2>DocumentPictureInPicture</h2>
    <p>This interface allows you to create an always-on-top window.</p>
    <p>This is currently only supported in Chromium based browsers.</p>
  </div>
</div>
```

(); script.js {}; style.css <> index.html (); pip.js

```
const pipContainer = document.querySelector("#pipContainer");
const pipContent = document.querySelector("#pipContent");

const togglePipContent = async () => {




  const pipWindow = await window.documentPictureInPicture.requestWindow({
    width: 600, height: 400,
  });
  pipWindow.document.body.append(pipContent);



};
```

(); script.js {}; style.css <> index.html (); pip.js

```
const pipContainer = document.querySelector("#pipContainer");
const pipContent = document.querySelector("#pipContent");

const togglePipContent = async () ⇒ {




  const pipWindow = await window.documentPictureInPicture.requestWindow({
    width: 600, height: 400,
  });
  pipWindow.document.body.append(pipContent);

  pipWindow.addEventListener("pagehide", (event) ⇒ {
    pipContainer.append(pipContent);
  });
};
```

(); script.js {}; style.css <> index.html (); pip.js

```
const pipContainer = document.querySelector("#pipContainer");
const pipContent = document.querySelector("#pipContent");

const togglePipContent = async () ⇒ {
  if (window.documentPictureInPicture.window) {
    pipContainer.append(pipContent);
    window.documentPictureInPicture.window.close();
    return;
  }
  const pipWindow = await window.documentPictureInPicture.requestWindow({
    width: 600, height: 400,
  });
  pipWindow.document.body.append(pipContent);

  pipWindow.addEventListener("pagehide", (event) ⇒ {
    pipContainer.append(pipContent);
  });
};
```

DEMO

PICTURE-IN-PICTURE API

rowdy.codes rowdyrabouw

SCREEN WAKE LOCK API

SCREEN WAKE LOCK API

- prevent a device from dimming or locking the screen
- useful for video players, fitness trackers, or navigation apps
- can significantly drain the device's battery
- does **not** require a user gesture; for example, a button click

(); script.js

```
let wakelock = null;

const requestWakelock = async () ⇒ {
  // screen is currently the only type of wakelock available
  wakelock = await navigator.wakeLock.request("screen");
};
```

(); script.js

```
let wakelock = null;

const requestWakelock = async () ⇒ {
  // screen is currently the only type of wakelock available
  wakelock = await navigator.wakeLock.request("screen");
};

const releaseWakelock = async () ⇒ {
  if (wakelock !== null) {
    await wakelock.release();
  }
};
```

DEMO

SCREEN WAKE LOCK API

rowdy.codes rowdyrabouw

WEB SHARE API

WEB SHARE API

- share content directly with native sharing capabilities of the user's device
- sharing options depend on the apps installed on the user's device
- limitations on the types of content (audio, video, images, text and pdf)
- requires a user gesture; for example, a button click

(); script.js

```
const shareUrl = async () ⇒ {

  if (navigator.canShare) {

    await navigator.share({
      title: "Check out this website!", // may be ignored by the target
      text: "I found this website about project Fugu you should see.",
      url: "https://webcapabilities.nl",
    });

  }

};
```

(); script.js

```
const shareFile = async () => {

  if (navigator.canShare) {
    const file = new File(["Web Share API", "\n\nThe Web Share API allows
          web applications to share content directly with native sharing
          capabilities of the user's device."]

    );









  }

};
```

```
(); script.js
```

```
const shareFile = async () ⇒ {

  if (navigator.canShare) {
    const file = new File(["Web Share API", "\n\nThe Web Share API allows
          web applications to share content directly with native sharing
          capabilities of the user's device."], "fugu.txt"

    );









  }

};
```

(); script.js

```
const shareFile = async () => {

  if (navigator.canShare) {
    const file = new File(["Web Share API", "\n\nThe Web Share API allows
          web applications to share content directly with native sharing
          capabilities of the user's device."], "fugu.txt",
          { type: "text/plain"}
    );









  }

};
```

(); script.js

```
const shareFile = async () => {

  if (navigator.canShare) {
    const file = new File(["Web Share API", "\n\nThe Web Share API allows
          web applications to share content directly with native sharing
          capabilities of the user's device."], "fugu.txt",
          { type: "text/plain"}
    );

    await navigator.share({
      files: [file], // array of files to share
      title: "Web Share API",
      text: "Check out the information in this file!",
    });
  }

};
```

(); script.js

```
const shareFile = async () => {

  if (navigator.canShare) {
    const response = await fetch("fugu.pdf");
    const blob = await response.blob();
    const file = new File([blob], "fugu.pdf",
                                  { type: "application/pdf" });


    await navigator.share({
      files: [file], // array of files to share
      title: "Web Share API",
      text: "Check out the information in this file!",
    });
  }

};
```

DEMO

WEB SHARE API

rowdy.codes rowdyrabouw

WEB USB API

WEB USB API

- communicate directly with USB devices
- connecting requires explicit permission from the user
- requires a user gesture; for example, a button click

(); script.js

```
const connectAndsendDataToUsbDevice = async () => {
  // check if the Web USB API is supported
  if (navigator.usb) {




  }
}
```

(); script.js

```
const connectAndsendDataToUsbDevice = async () ⇒ {
  // check if the Web USB API is supported
  if (navigator.usb) {
    // select a USB device (hexidecimal values for vendorId and productId)
    const device = await navigator.usb.requestDevice(
        { filters: [{ vendorId: 0x0416, productId: 0x5011 }] });









  }
}
```

(); script.js

```
const connectAndsendDataToUsbDevice = async () ⇒ {
  // check if the Web USB API is supported
  if (navigator.usb) {
    // select a USB device (hexidecimal values for vendorId and productId)
    const device = await navigator.usb.requestDevice(
        { filters: [{ vendorId: 0x0416, productId: 0x5011 }] });
    // establish a connection with the USB device
    await device.open();









  }
}
```

(); script.js

```
const connectAndsendDataToUsbDevice = async () ⇒ {
  // check if the Web USB API is supported
  if (navigator.usb) {
    // select a USB device (hexidecimal values for vendorId and productId)
    const device = await navigator.usb.requestDevice(
        { filters: [{ vendorId: 0x0416, productId: 0x5011 }] });
    // establish a connection with the USB device
    await device.open();
    // select a configuration to prepare the device for communication
    await device.selectConfiguration(1);









  }
}
```

(); script.js

```
const connectAndsendDataToUsbDevice = async () => {
  // check if the Web USB API is supported
  if (navigator.usb) {
    // select a USB device (hexidecimal values for vendorId and productId)
    const device = await navigator.usb.requestDevice(
        { filters: [{ vendorId: 0x0416, productId: 0x5011 }] });
    // establish a connection with the USB device
    await device.open();
    // select a configuration to prepare the device for communication
    await device.selectConfiguration(1);
    // claim an interface to perform data transfers
    await device.claimInterface(0);




  }
}
```

(); script.js

```
const connectAndsendDataToUsbDevice = async () ⇒ {
  // check if the Web USB API is supported
  if (navigator.usb) {
    // select a USB device (hexidecimal values for vendorId and productId)
    const device = await navigator.usb.requestDevice(
        { filters: [{ vendorId: 0x0416, productId: 0x5011 }] });
    // establish a connection with the USB device
    await device.open();
    // select a configuration to prepare the device for communication
    await device.selectConfiguration(1);
    // claim an interface to perform data transfers
    await device.claimInterface(0);
    // send data to the device
    // the first parameter is the endpoint number
    // the second parameter is the data to be sent as a Uint8Array
    await device.transferOut(1, new Uint8Array([0x01, 0x02, 0x03]));
  }
}
```

DEMO

WEB USB API

rowdy.codes rowdyrabouw

WIN A FUGU DOG TOY

Send your best tech joke to my printer!

DEMO

WEB USB API

rowdy.codes rowdyrabouw

WEB HID API

WEB HID API

- communicate directly with Human Interface Devices (input and output)
- devices include keyboards, game controllers, headsets and braille readers
- connecting requires explicit permission from the user
- requires a user gesture; for example, a button click

(); script.js

```
let device;

const connectToDevice = async () ⇒ {
```

(); script.js

```
let device;

const connectToDevice = async () => {

  // check if the HID API is supported
  if (navigator.hid) {
```

(); script.js

```
let device;

const connectToDevice = async () => {

  // check if the HID API is supported
  if (navigator.hid) {

    // request access to devices
    const devices = await navigator.hid.requestDevice(
                                    { filters: [{ vendorId: 0x1234 }] });
```

(); script.js

```
let device;

const connectToDevice = async () ⇒ {

  // check if the HID API is supported
  if (navigator.hid) {

    // request access to devices
    const devices = await navigator.hid.requestDevice(
                                  { filters: [{ vendorId: 0x1234 }] });

    // select the first available device
    const device = devices[0];
```

(); script.js

```
let device;

const connectToDevice = async () => {

  // check if the HID API is supported
  if (navigator.hid) {

    // request access to devices
    const devices = await navigator.hid.requestDevice(
                                  { filters: [{ vendorId: 0x1234 }] });

    // select the first available device
    const device = devices[0];

    // connect to the device
    await device.open();
```

(); script.js

```
    // listen for input from the device
     device.addEventListener("inputreport", (event) => {
       console.info(`Received data: ${event.data}`);
     });
   }
};
```

(); script.js

```
    // listen for input from the device
     device.addEventListener("inputreport", (event) => {
       console.info(`Received data: ${event.data}`);
     });
  }
};

const writeToDevice = async () => {
  if (navigator.hid) {
    const data = new Uint8Array([0x01, 0x02, 0x03]);
    await device.sendReport(0x00, data);
  }
};
```

DEMO

WEB HID API

rowdy.codes rowdyrabouw


SHARE
OPTIONS

DEMO

WEB HID API

rowdy.codes rowdyrabouw

WEB BLUETOOTH API

WEB BLUETOOTH API

- communicate directly with Bluetooth Low Energy (BLE) devices
- devices include fitness trackers, heart rate monitors, and IoT devices
- connecting requires explicit permission from the user
- requires a user gesture; for example, a button click

```
(); script.js
```

```
const connectToHeartRateMonitor = async () => {

  // check if the Web Bluetooth API is supported
  if (navigator.bluetooth) {
```

(); script.js

```
const connectToHeartRateMonitor = async () ⇒ {

  // check if the Web Bluetooth API is supported
  if (navigator.bluetooth) {

    // request access to a device
    const device = await navigator.bluetooth.requestDevice({
      filters: [ { namePrefix: "Polar Sense" } ],
      optionalServices: ["heart_rate"],
    });
```

(); script.js

```
const connectToHeartRateMonitor = async () ⇒ {

  // check if the Web Bluetooth API is supported
  if (navigator.bluetooth) {

    // request access to a device
    const device = await navigator.bluetooth.requestDevice({
      filters: [ { namePrefix: "Polar Sense" } ],
      optionalServices: ["heart_rate"],
    });

    // connect to the device's Generic Attribute Profile (GATT)
    const server = await device.gatt.connect();
```

(); script.js

```
const connectToHeartRateMonitor = async () => {

  // check if the Web Bluetooth API is supported
  if (navigator.bluetooth) {

    // request access to a device
    const device = await navigator.bluetooth.requestDevice({
      filters: [ { namePrefix: "Polar Sense" } ],
      optionalServices: ["heart_rate"],
    });

    // connect to the device's Generic Attribute Profile (GATT)
    const server = await device.gatt.connect();

    // access the heart rate service
    const service = await server.getPrimaryService("heart_rate");
```

(); script.js

```
    // get the heart rate measurement characteristic
    const characteristic =
              await service.getCharacteristic("heart_rate_measurement");
  }
};
```

(); script.js

```
    // get the heart rate measurement characteristic
    const characteristic =
              await service.getCharacteristic("heart_rate_measurement");

    // enable notifications
    await characteristic.startNotifications();









  }
};
```

```
(); script.js
```

```
    // get the heart rate measurement characteristic
    const characteristic =
              await service.getCharacteristic("heart_rate_measurement");

    // enable notifications
    await characteristic.startNotifications();

    // listen for changes of the heart rate
    characteristic.addEventListener("characteristicvaluechanged",
                                                    (event) => {
      const value = event.target.value;
      const heartRate = value.getUint8(1);
      console.log(`Heart Rate: ${heartRate}`);

    });

  }
};
```


TAXI


SHARE
OPTIONS

DEMO

GAMEPAD API

WEB BLUETOOTH API

rowdy.codes rowdyrabouw

DĚKUJI MNOHOKRÁT

ROWDY.CODES/WEBEXPO