

95-881

Web Application Development

HW 3

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Lab: HW3 Web page

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```
<div>
  <h1>Number of Trees You Could Save</h1>
  <p>Calculate the number of trees saved from the use of eBooks verses traditional books.</p>

  <p>How many pages does the book have?</p>
  <input id="pagesPerBook">
  <br>
  <p>How many copies of the book would you need?</p>
  <input id="copiesOfBook">
  <br>
  <button onclick="calculateTreesSaved()">Calculate Trees Saved</button>
  <p id="result"></p>
</div>
```

This is the HTML for the calculator. There are two input fields, one for the number of pages the book has and one for the number of copies of the book the user needs. There is a button that the user will click after they have typed the numbers into the corresponding input fields. The button has an event associated with it, **onclick**, which will trigger the function **calculateTreesSaved()**. This means that the function will run when the button is clicked. There is an empty paragraph tag that will store the result of this calculation below the button.

```
<script>
  function calculateTreesSaved() {
    // Average estimate: 1 tree produces about 8,333 sheets of paper.
    const sheetsPerTree = 8333;
    const pagesPerBook = parseInt(document.getElementById('pagesPerBook').value);
    const copiesOfBook = parseInt(document.getElementById('copiesOfBook').value);

    const sheetsSaved = pagesPerBook * copiesOfBook;
    const treesSaved = (sheetsSaved / sheetsPerTree).toFixed(2);

    document.getElementById('result').textContent = `You would save ${treesSaved} tree(s)!`;
  }
</script>
```

Within the script tags is the code for the function **calculateTreesSaved()** that will run every time the button is clicked. I estimated that 1 tree produces about 8,333 sheets of paper, so that is the constant I used as the number of sheets per tree.

This function creates that variable, as well as variables that store the numbers the user typed in. It does this by searching the document for the IDs **pagesPerBook** and **copiesOfBook**, which refer to the HTML input elements that have that ID. It grabs the value of these inputs and stores it in the variables **pagesPerBook** and **copiesOfBook**, making sure they are of int data type.

Two more variables are created: one for the number of sheets saved (calculated by multiplying **pagesPerBook** and **copiesOfBook**) and then determining the number of trees saved by dividing the sheets saved by the constant 8333, which is the estimated number of sheets per tree. This is rounded to two places after the decimal point.

Lastly, the function changes the text content of the empty paragraph tag of the HTML to reflect the result of the calculation. It searches the document for the ID **result** to do so.