JavaScript

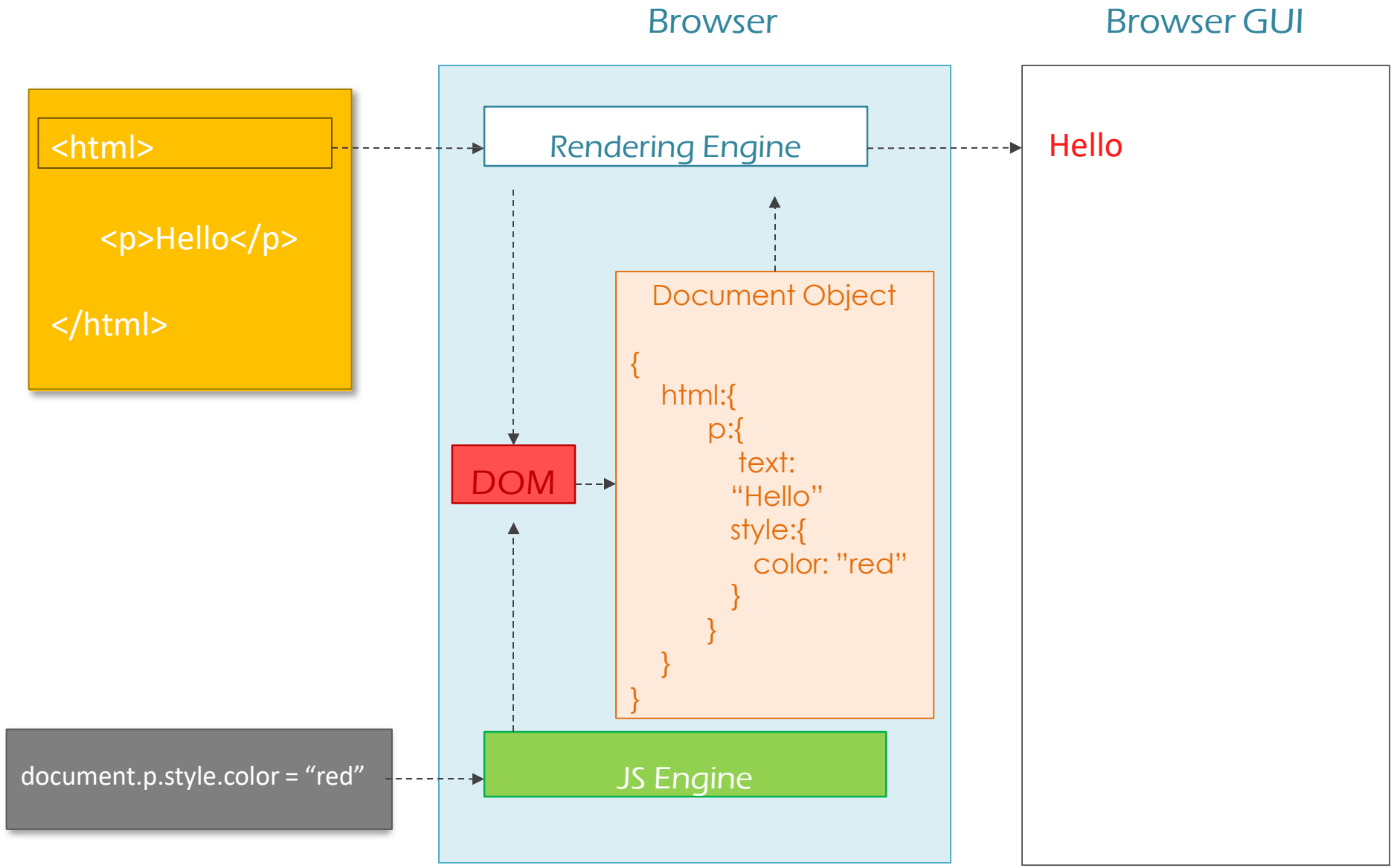
The Game

JavaScript DOM

Fact #2

> “Firstly you will hate me. Then you will depend on me. Finally You will really love me.”
>
> -- JavaScript

Overview


Browser
Browser GUI
<html>
Hello
</html>
Rendering Engine
Hello
Document Object
{
html:{
p:{
text:
"Hello"
style:{
color: "red"
}
}
}
}
DOM
document.p.style.color = "red"
JS Engine

HTML DOM

The HTML DOM is a standard object model and programming interface for HTML.

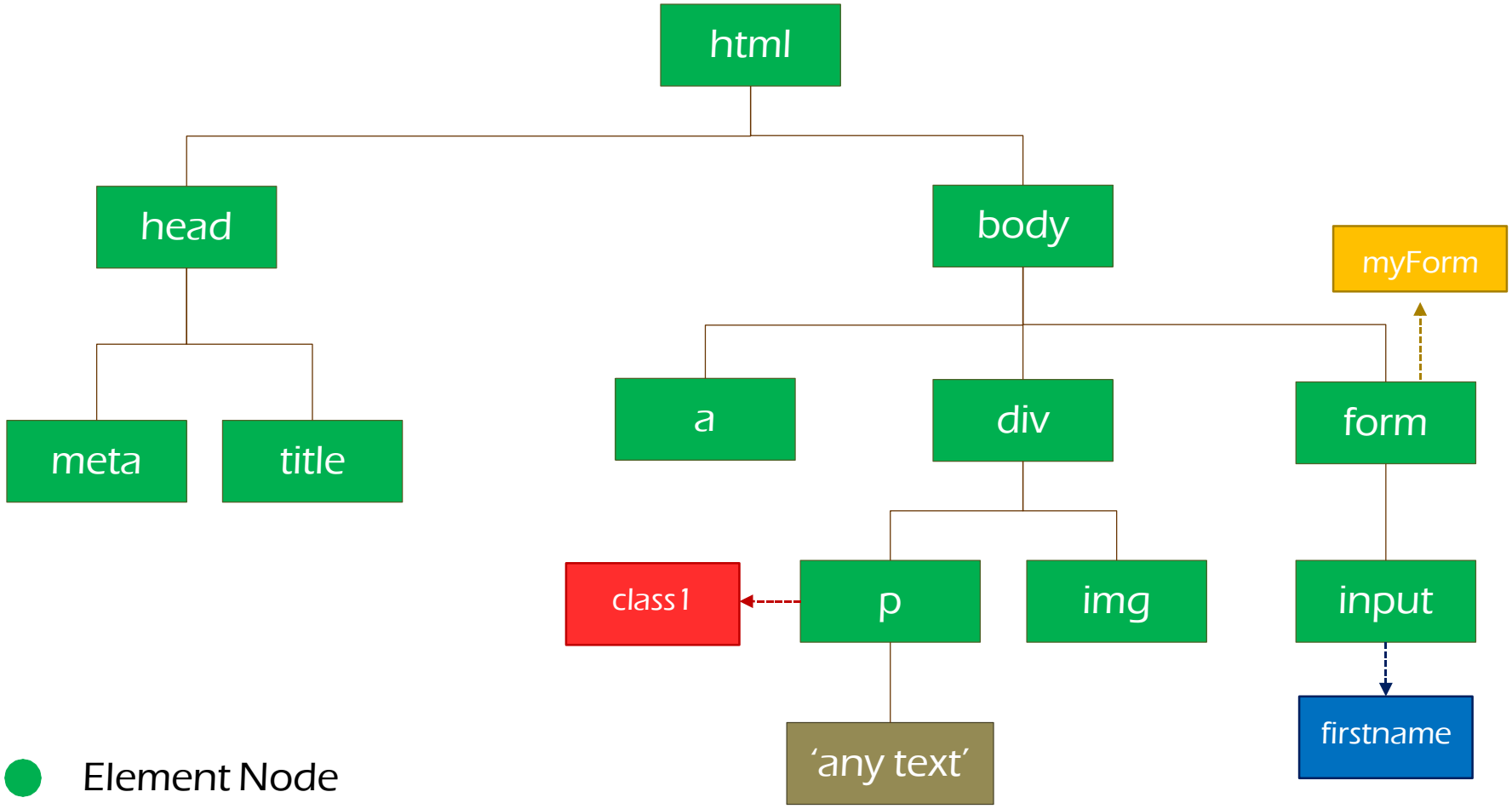
It defines:

- The HTML elements as objects
- The properties of all HTML elements
- The methods to access all HTML elements
- The events for all HTML elements

In other words:

The HTML DOM is a standard for how to get, change, add, or delete HTML elements.

DOM Tree



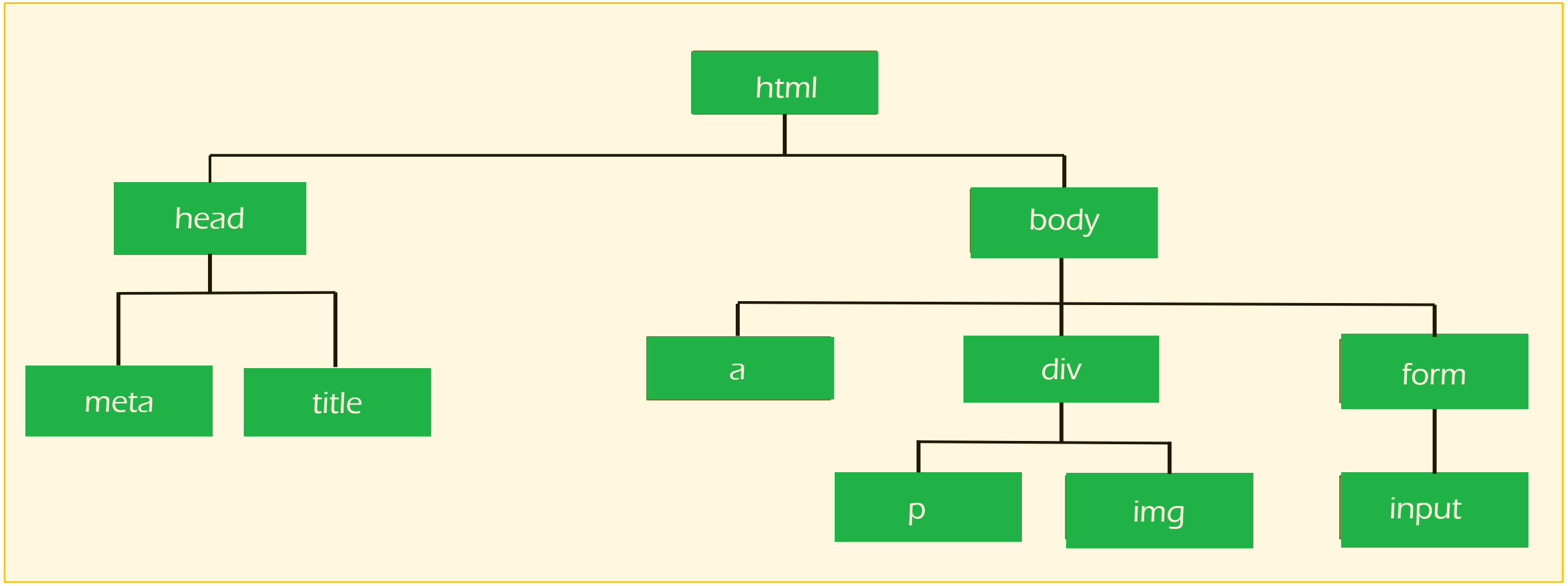
Element Node

Text Node

Attribute Node

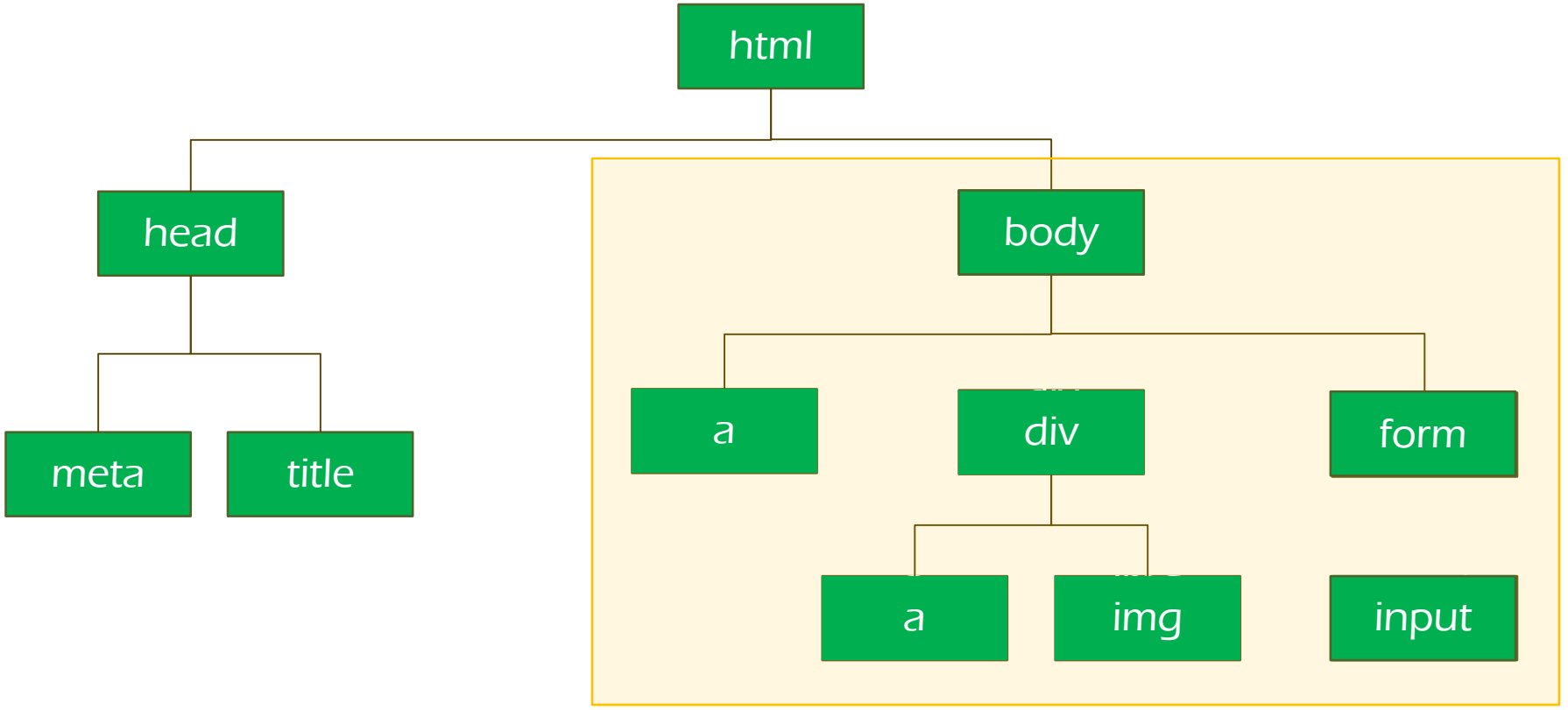
Document Object

```
document.documentElement
```



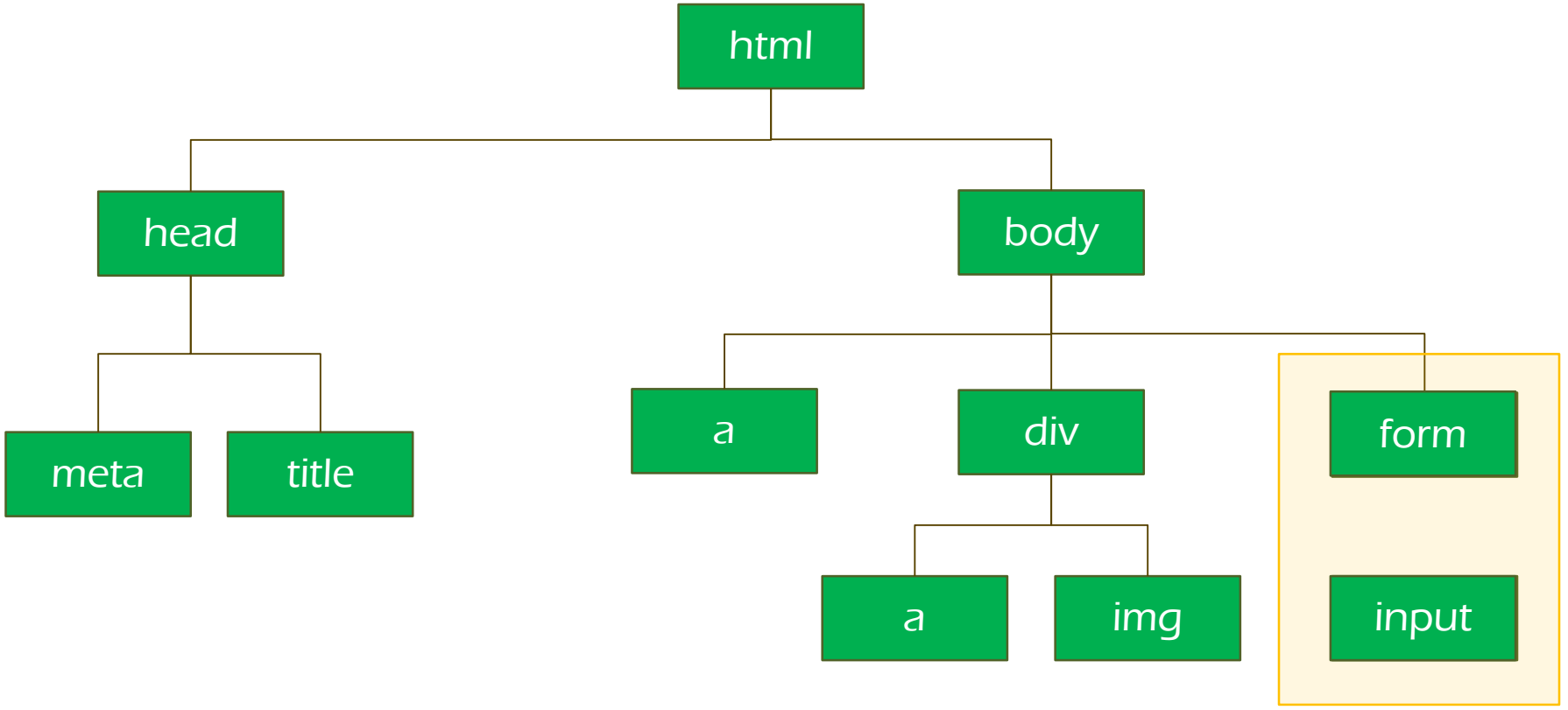
Document Object

```
document.body
```



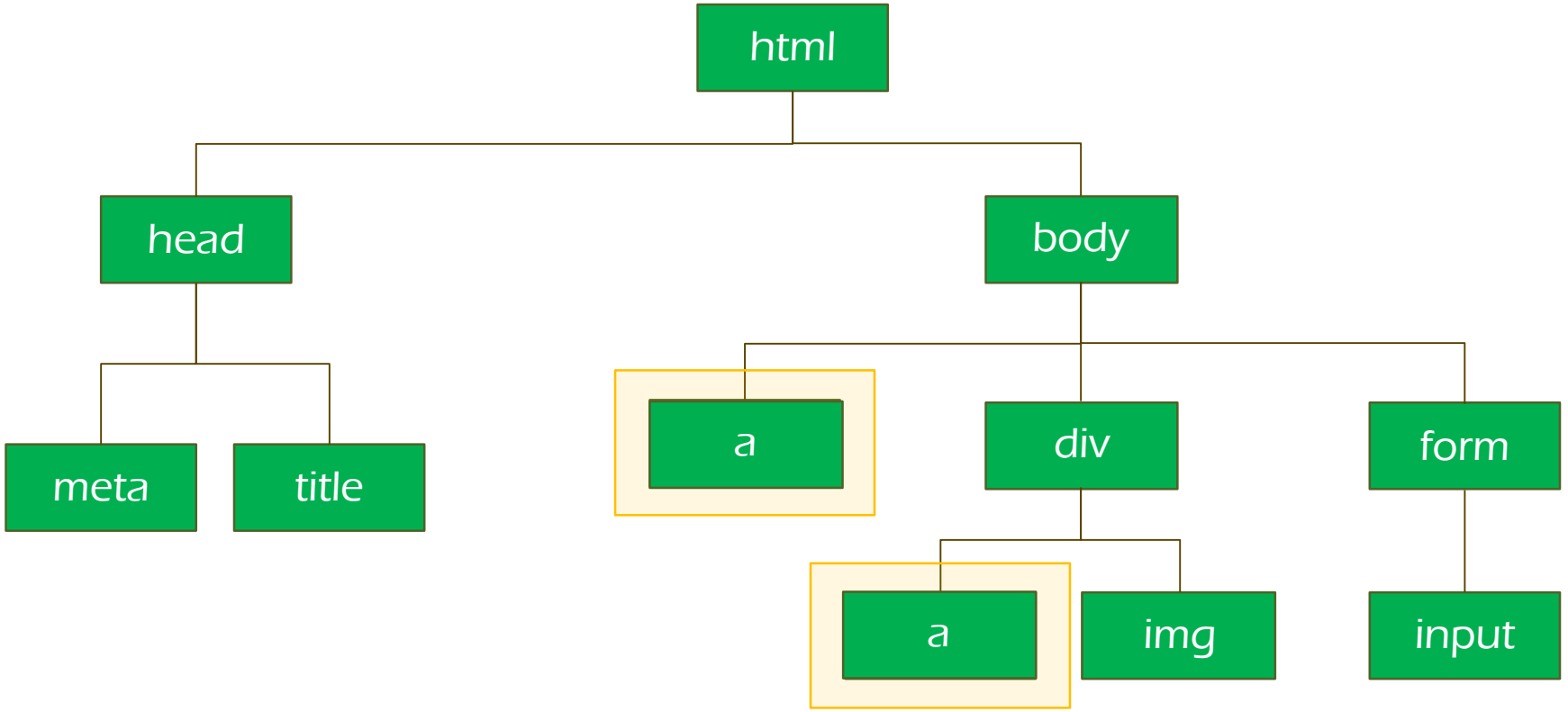
Document Object

```
document.forms
```



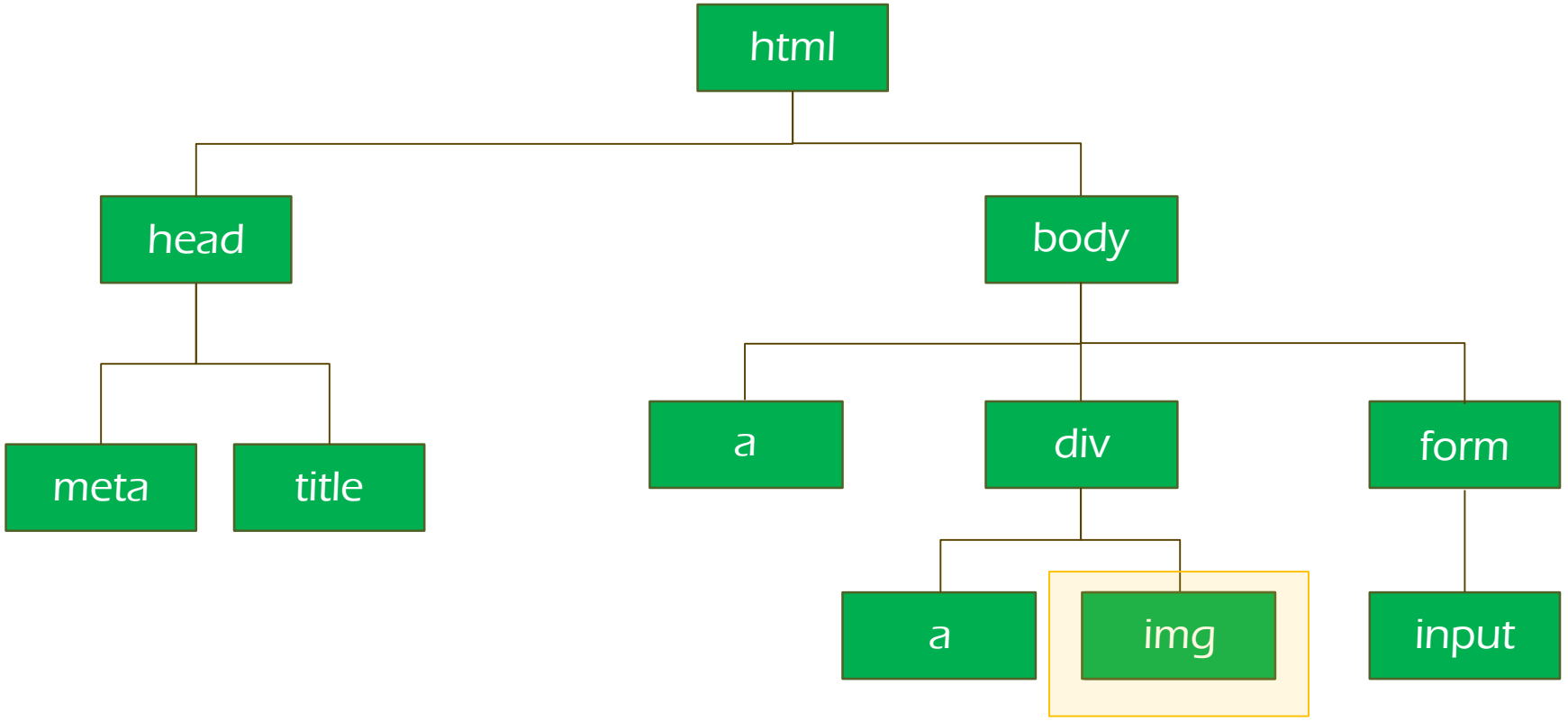
Document Object

```
document.links
```



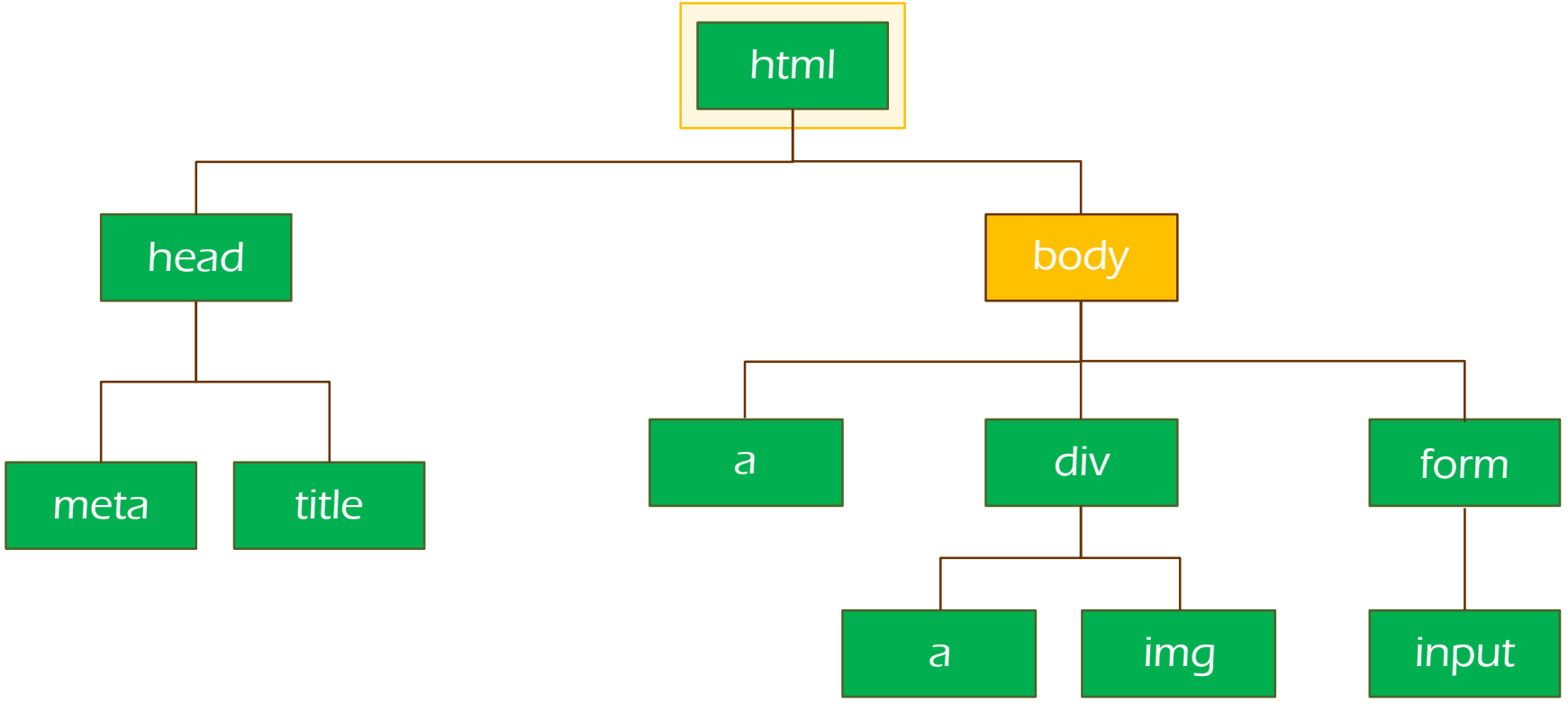
Document Object

```
document.images
```



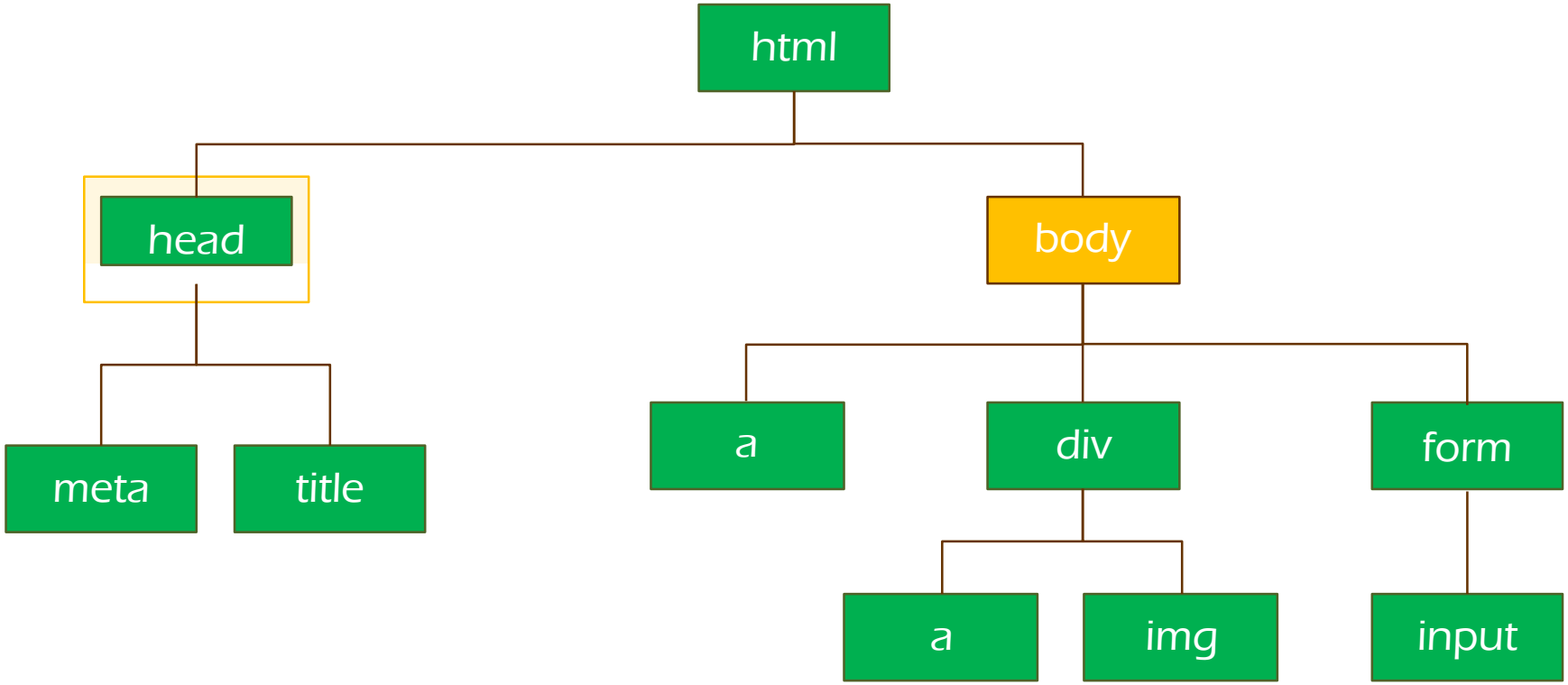
DOM Navigation

```
document.body.parentElement
```



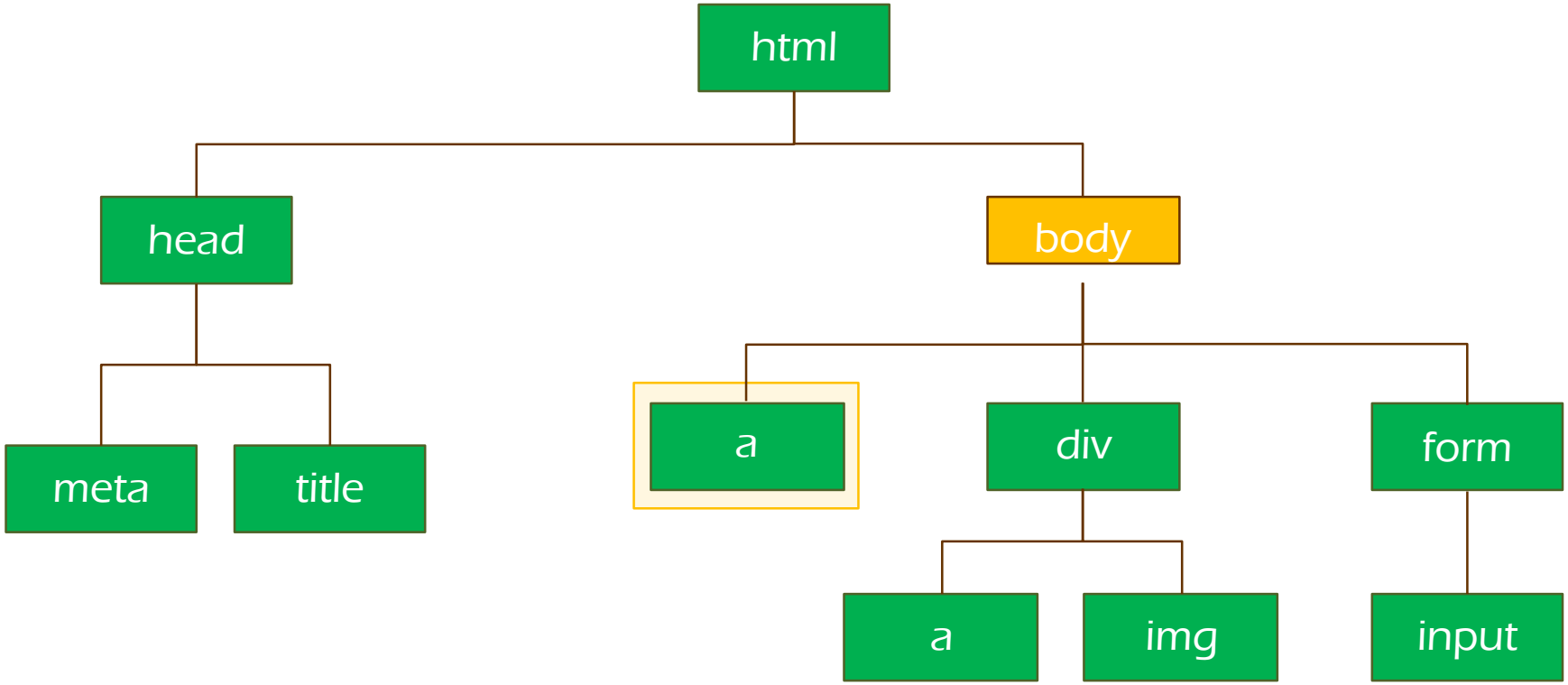
DOM Navigation

```
document.body. previousElementSibling
```



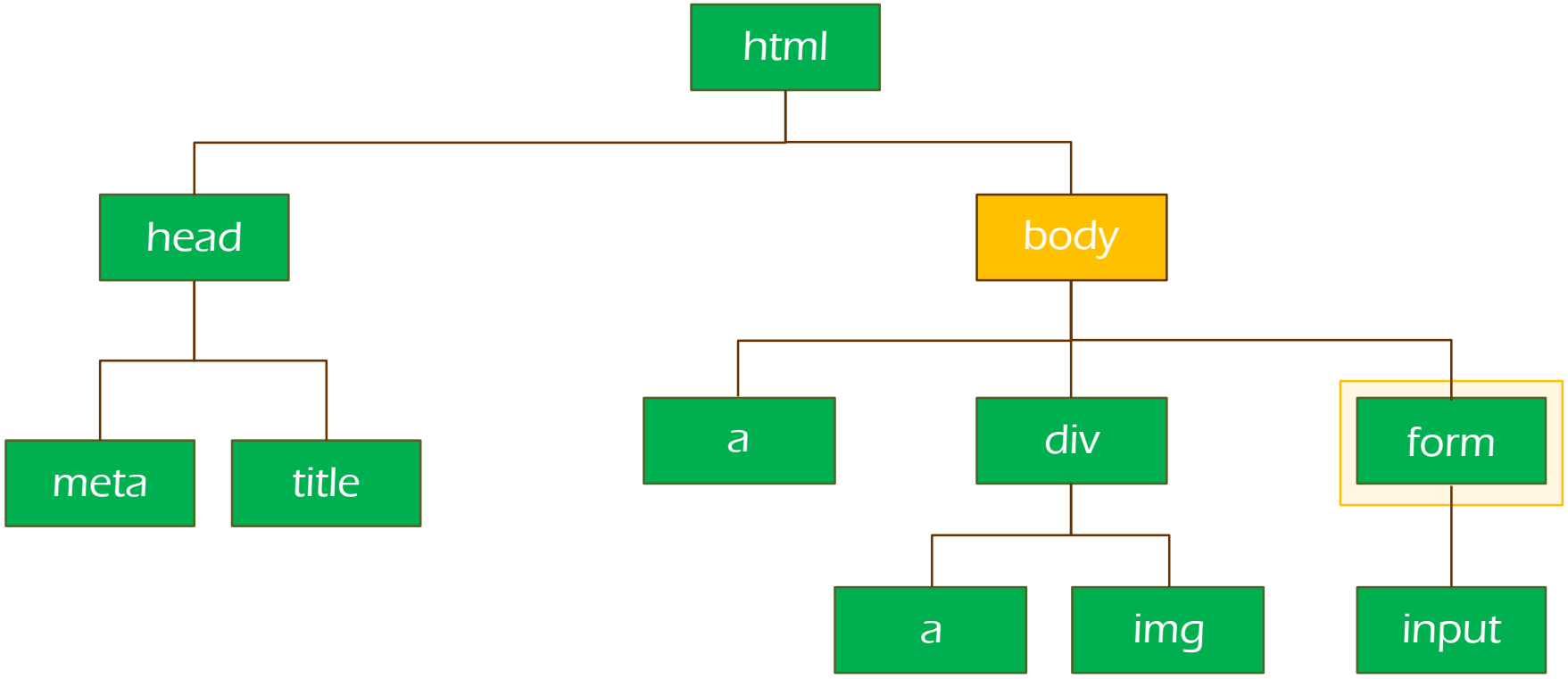
DOM Navigation

```
document.body. firstElementChild
```



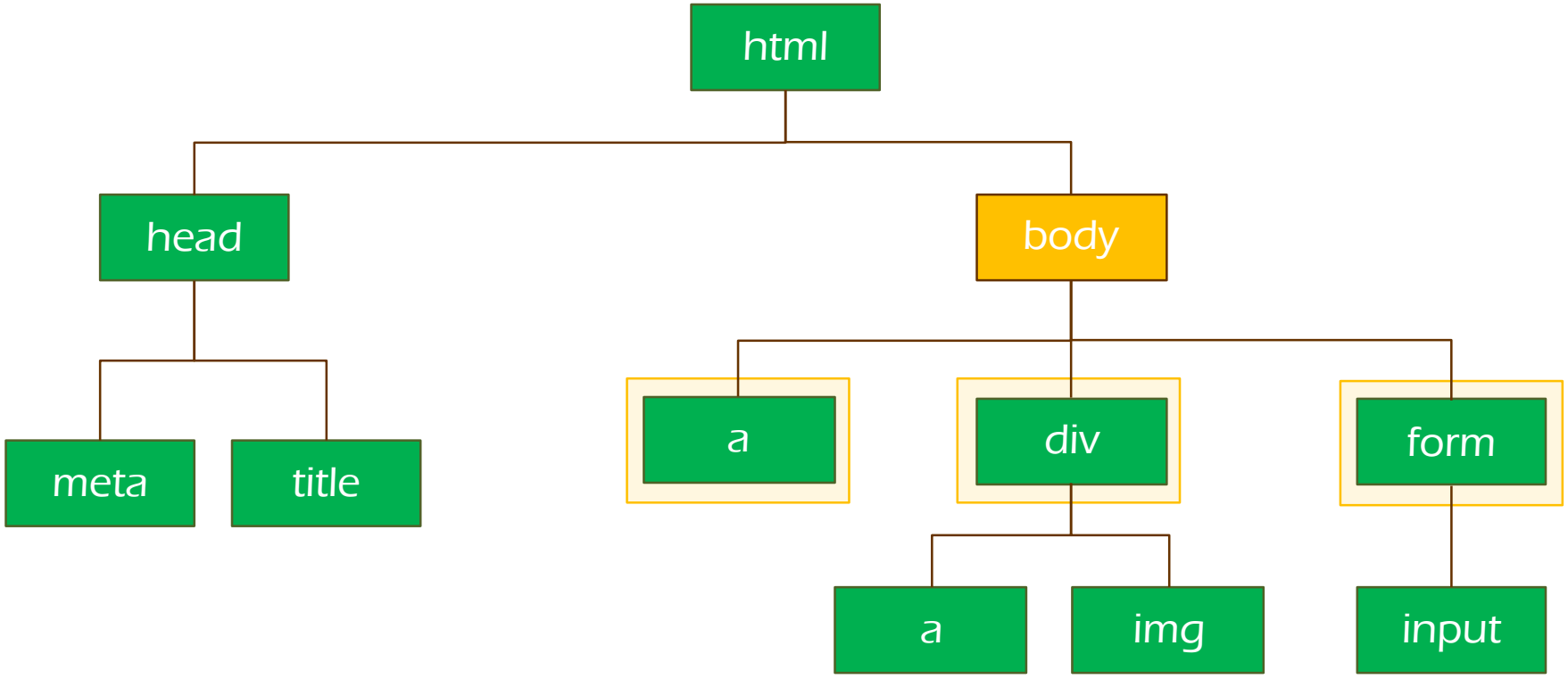
DOM Navigation

```
document.body.lastElementChild
```



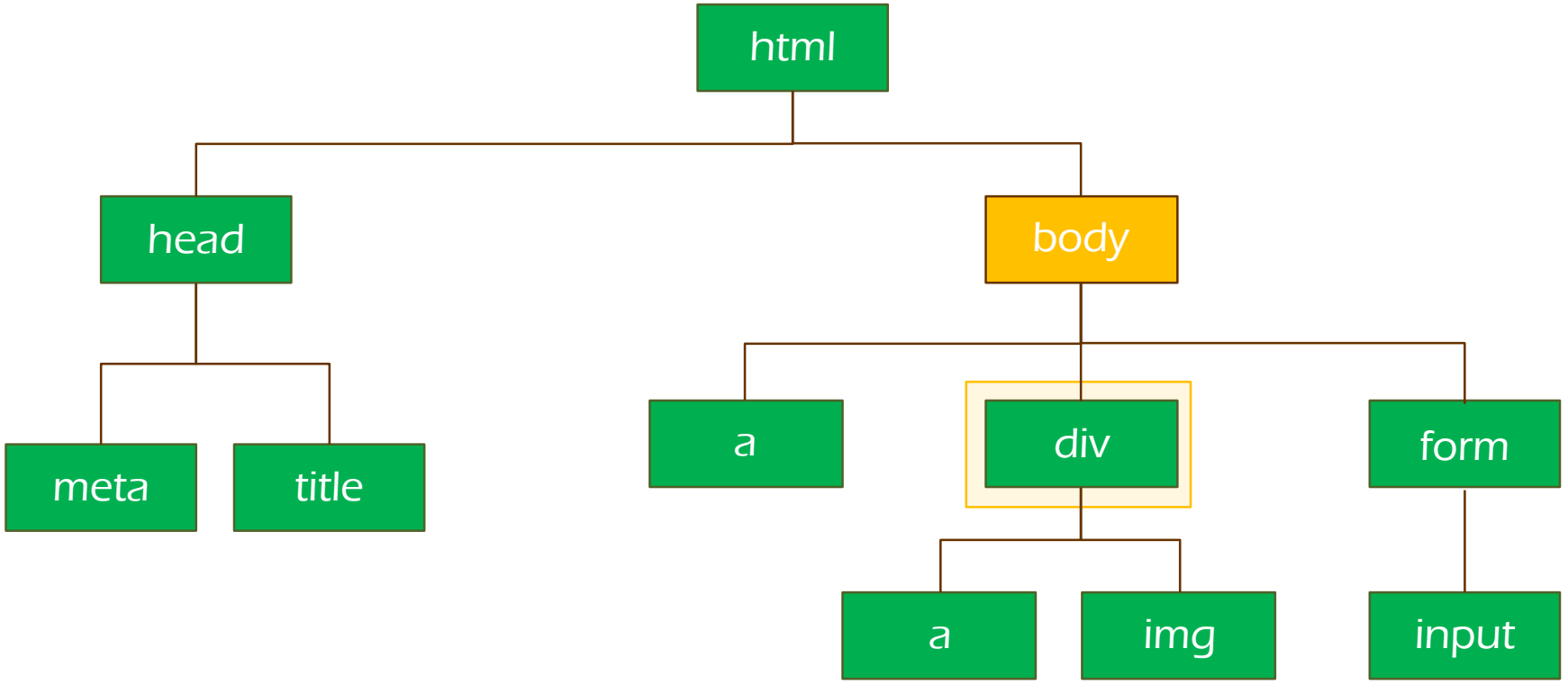
DOM Navigation

```
document.body. children
```



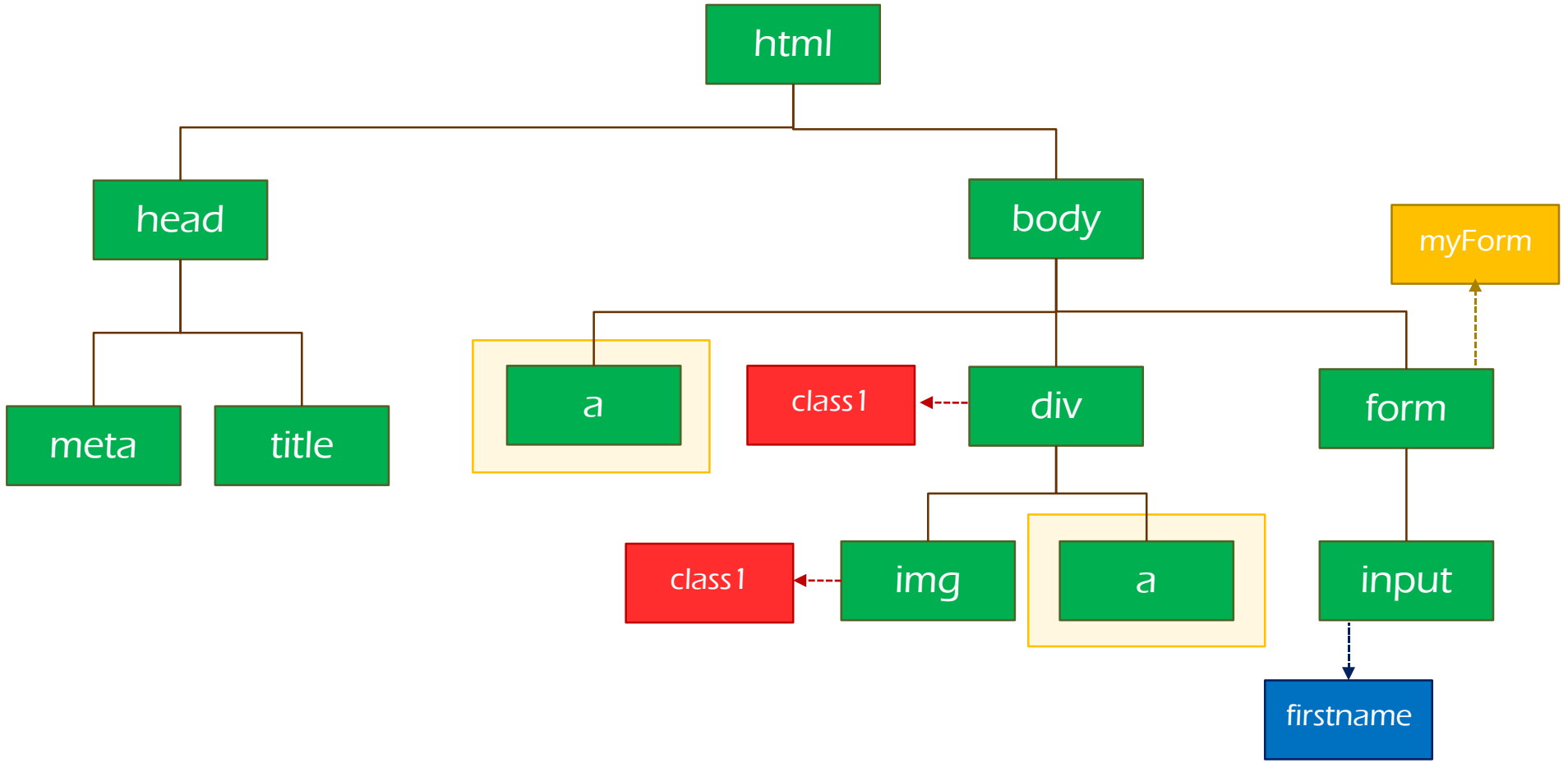
DOM Navigation

```
document.body.children[1]
```



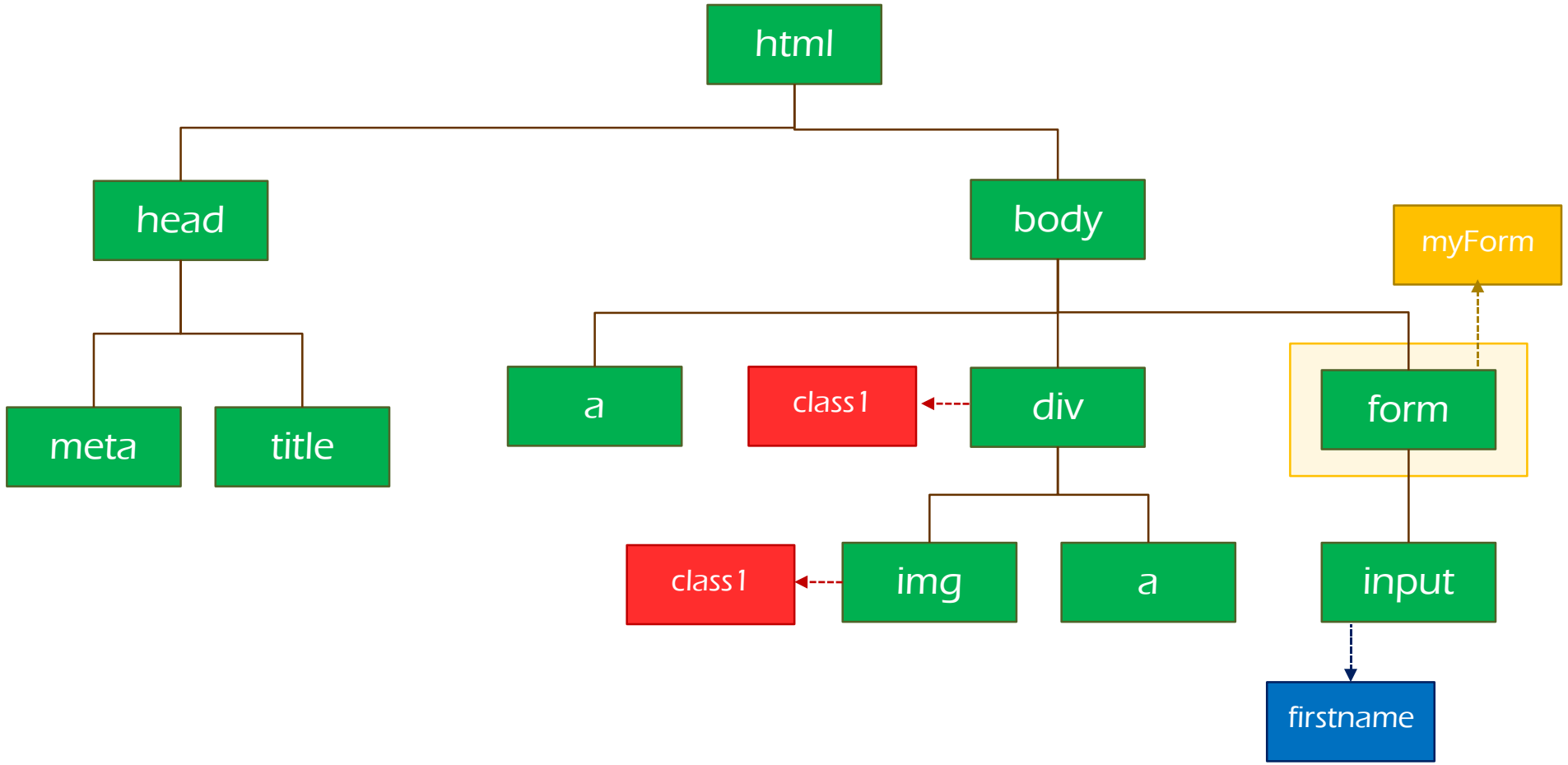
Finding Elements

```
document.getElementsByTagName('a');
```



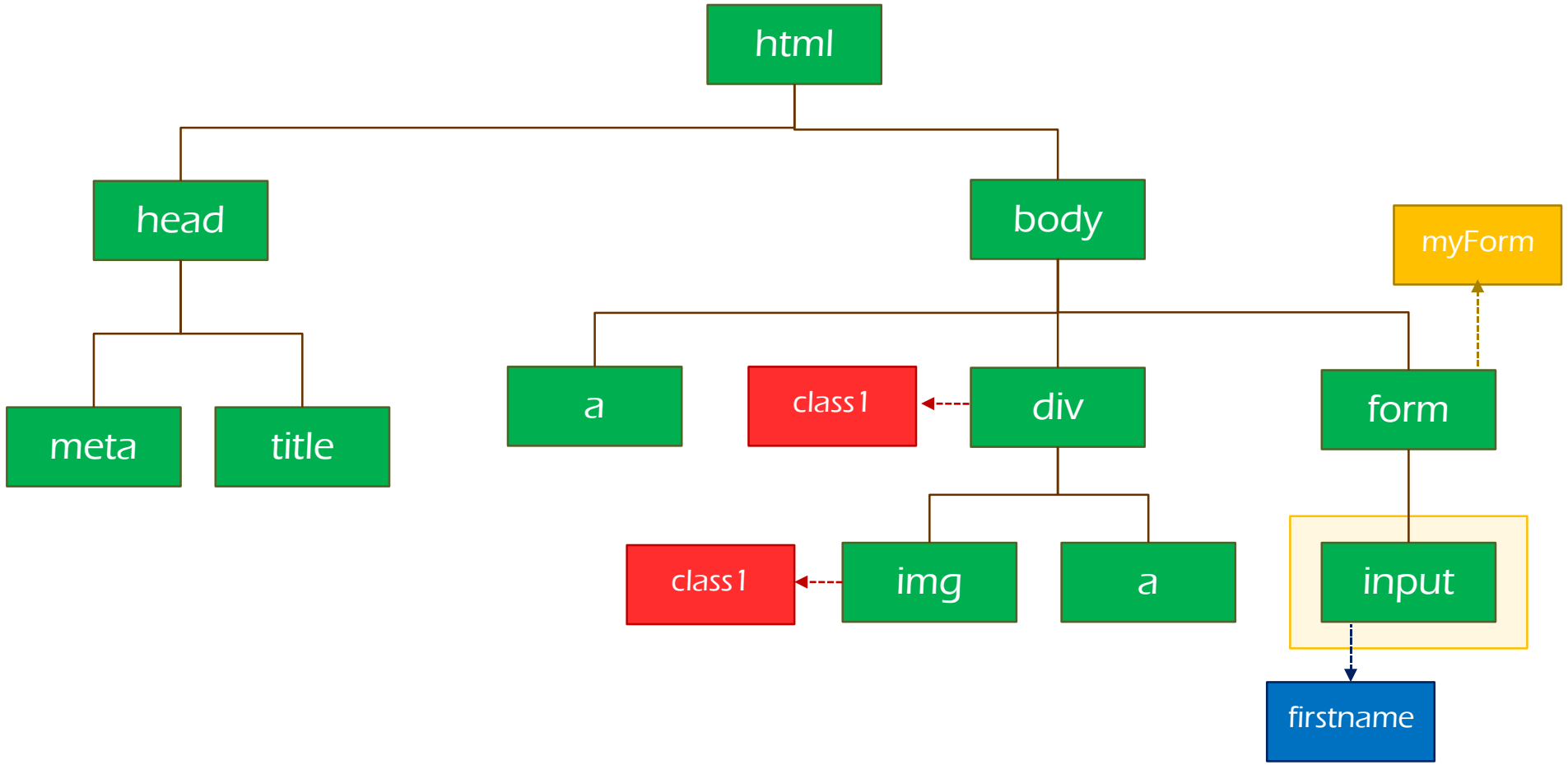
Finding Elements

```
document. getElementById('myForm');
```



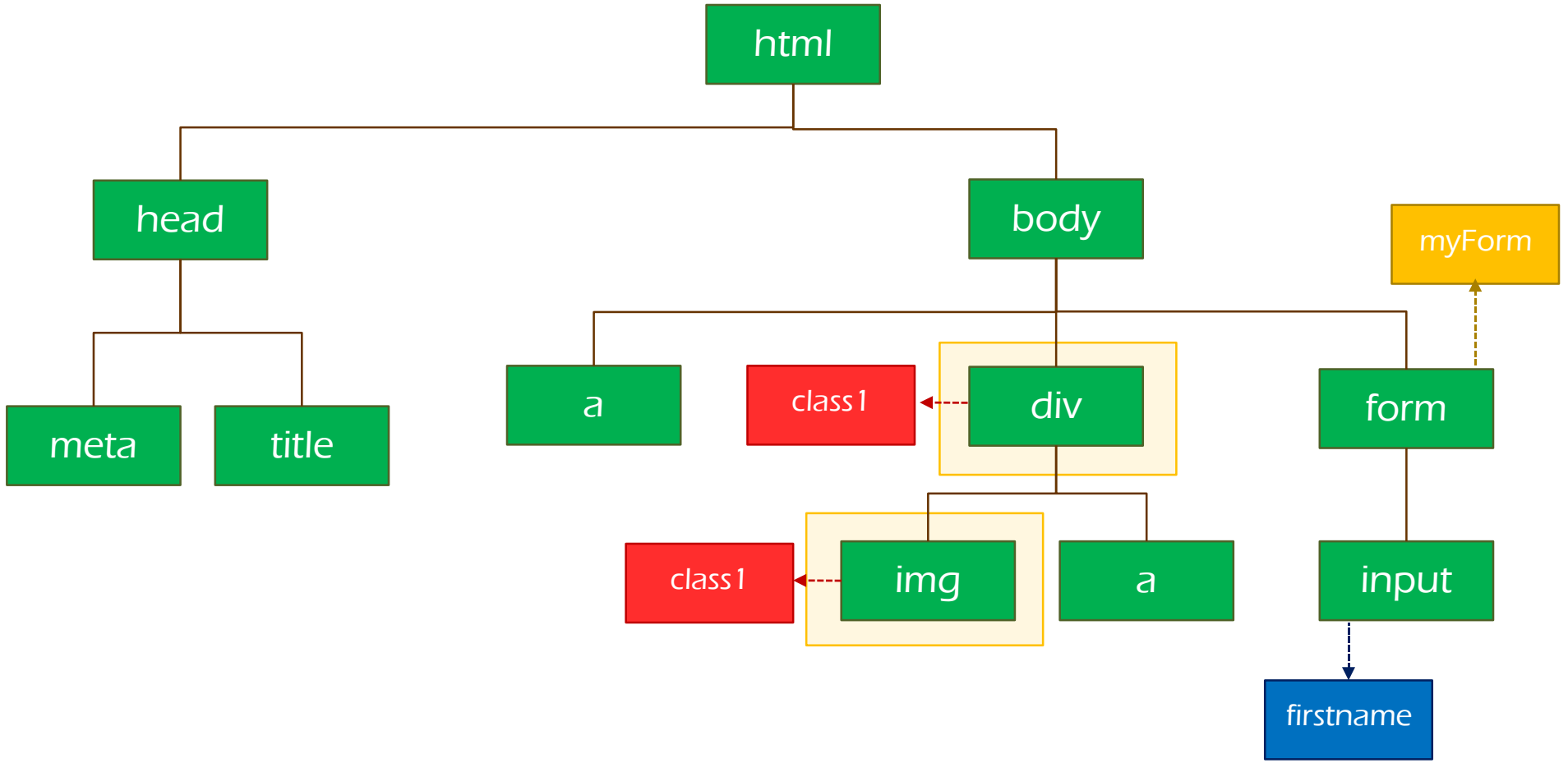
Finding Elements

```
document. getElementsByName('firstname');
```



Finding Elements

```
document.getElementsByClassName('class1');
```

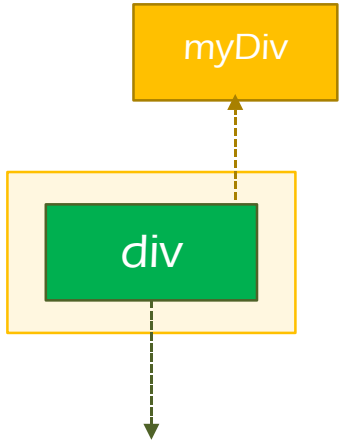


DOM Manipulation

Appending Child Element

1 Creating The Element(get The Element):

```
var paragraph = document.createElement("p")
```



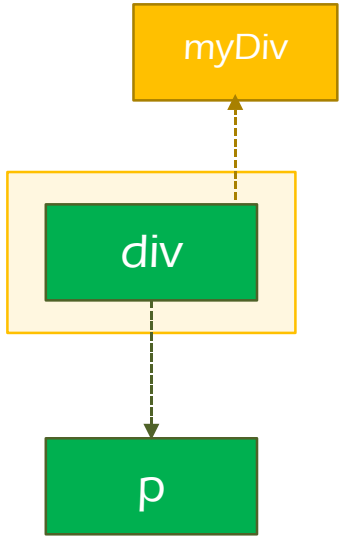
Appending Child Element

1 Creating The Element(get The Element):

```
var paragraph = document.createElement("p")
```

2 Adding this Element:

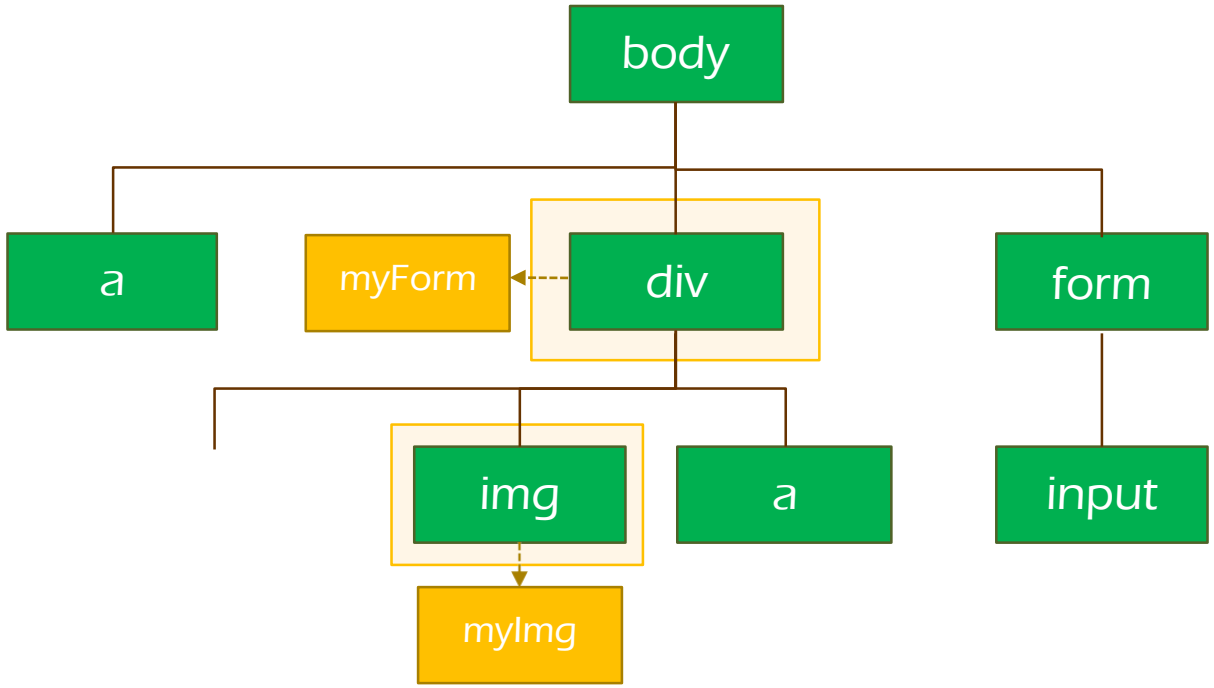
```
var myDiv = document.getElementById('myDiv')

myDiv.appendChild(paragraph)
```



Inserting Element

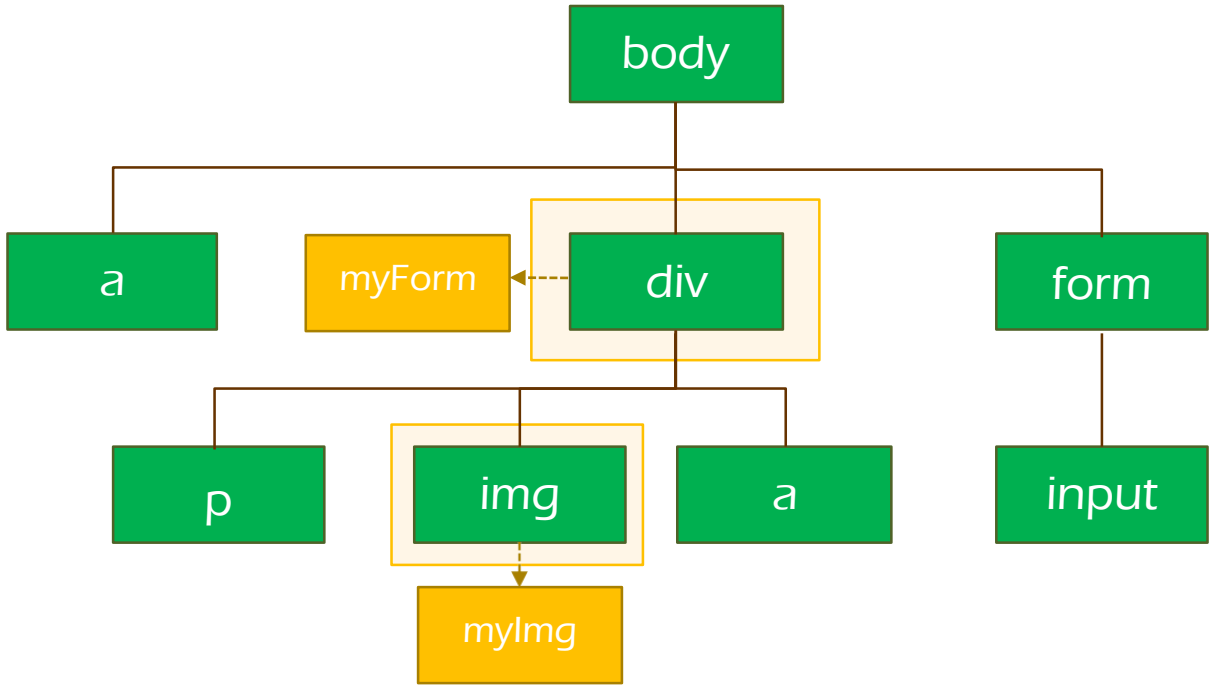
```
var paragraph = document.createElement("p")

var parent = document.getElementById('myDiv')

var child = document.getElementById('myImg')
```

p



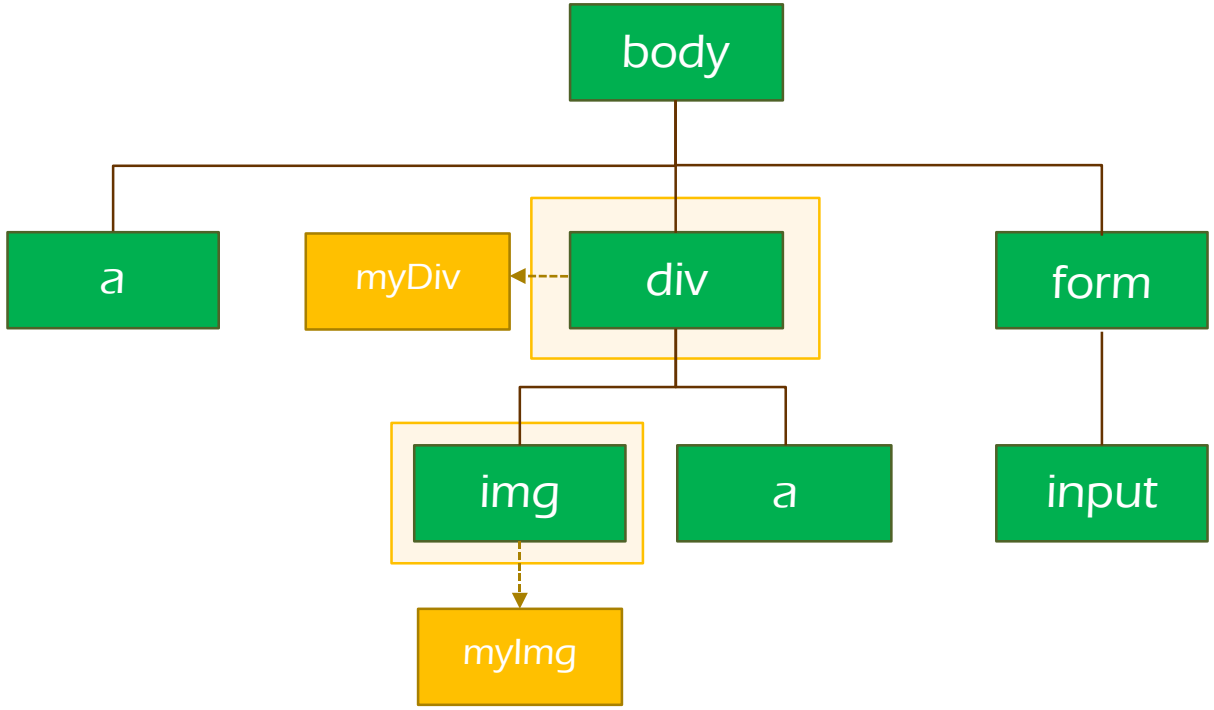
Inserting Element

```
var paragraph = document.createElement("p")

var parent = document.getElementById('myDiv')

var child = document.getElementById('myImg')

parent.insertBefore(paragraph, child)
```



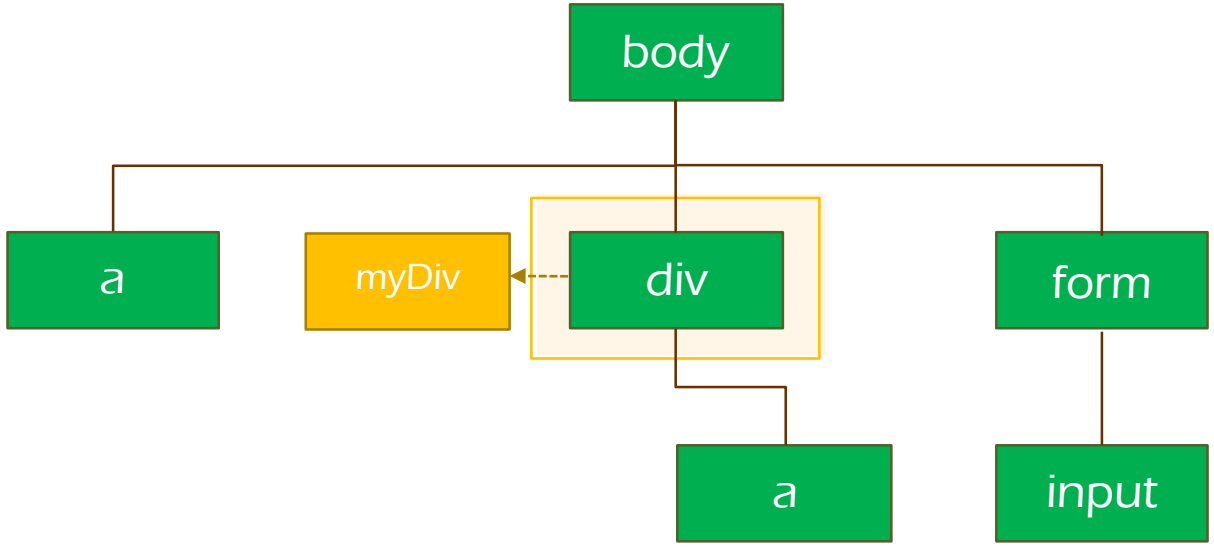
Removing Elements

```
var parent = document.getElementById('myDiv')

var child = document.getElementById('myImg')
```



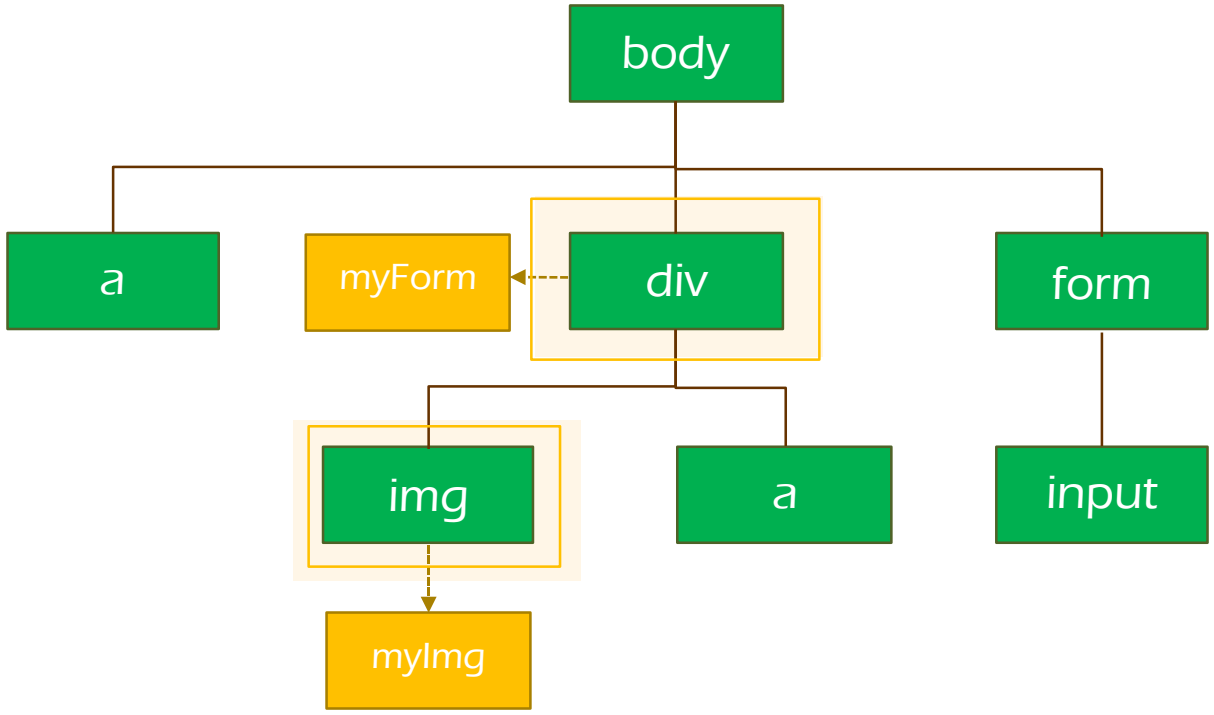
Removing Elements

```
var parent = document.getElementById('myDiv')

var child = document.getElementById('myImg')

parent.removeChild(child)
```



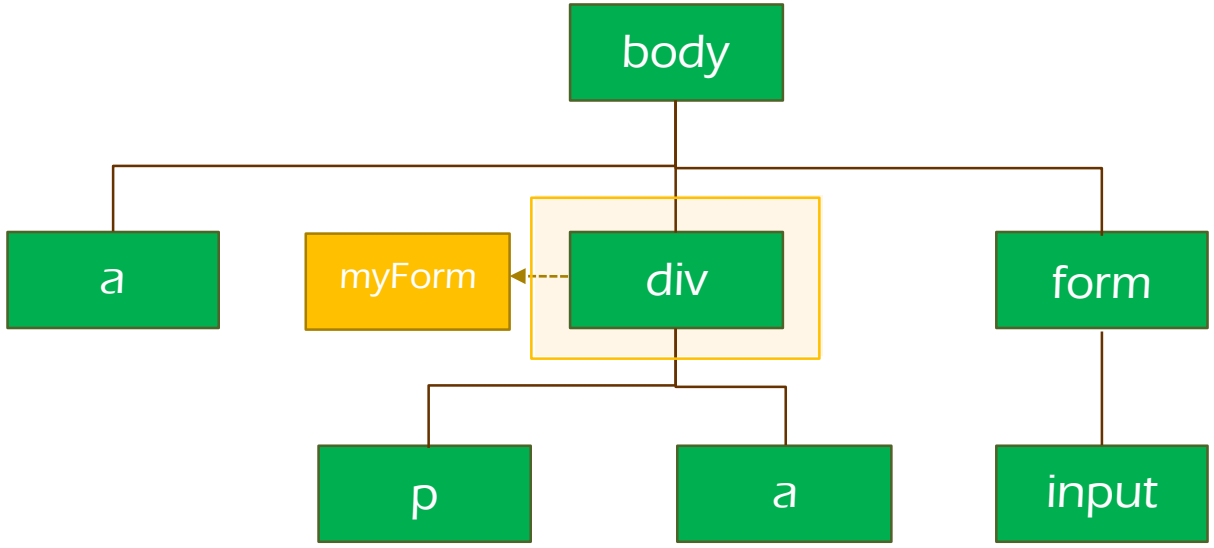
Replacing Elements

```
var paragraph = document.createElement("p")

var parent = document.getElementById('myDiv')

var child = document.getElementById('myImg')
```



Replacing Elements

```
var paragraph = document.createElement("p")

var parent = document.getElementById('myDiv')

var child = document.getElementById('myImg')

parent.replaceChild(paragraph, child)
```



innerHTML

Getting the HTML inside an Element

```
var html = document.getElementById('myDiv').innerHTML
```

Setting the HTML inside an Element

```
document.getElementById('myDiv').innerHTML ='<new HTML Content/>'
```

textContent

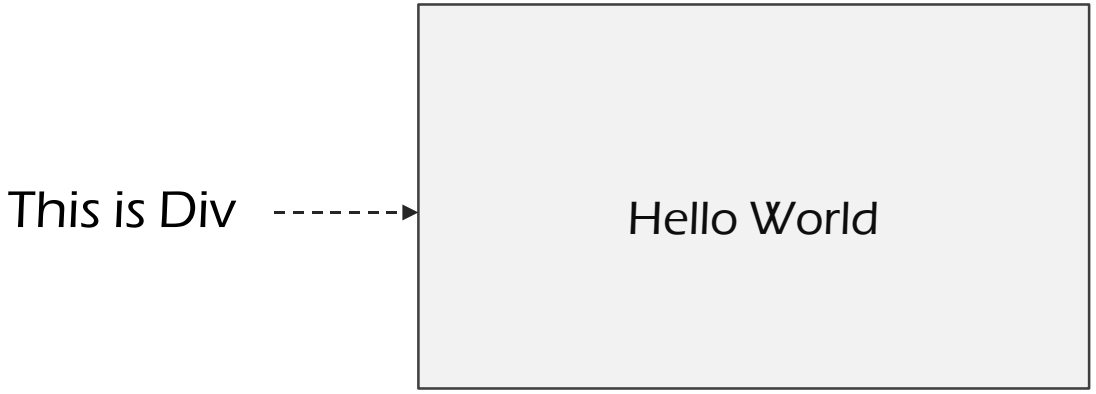
Getting the HTML inside an Element

```
var text = document.getElementById('myDiv').textContent
```

Setting the HTML inside an Element

```
document.getElementById('myDiv').textContent ='hi there';
```

Changing CSS Styling




```
var div = document.getElementById('myDiv')

div.style.backgroundColor = 'green'

div.style.borderColor = 'red'

div.style.color = 'orange'
```

Treating with attributes

Getting an attribute value of an Element

```
var imgSource = document.getElementById('myImg').src
```

Setting an attribute value of an Element

```
document.getElementById('myImg').src ='orange-juice.png'
```

Treating with Attributes

Getting an attribute value of an Element

```
var img = document.getElementById('myImg')
var imgSource = img.getAttribute('src')
```

Setting an attribute value of an Element

```
img.setAttribute('src','orange-juice.png')
```

Getting Class names

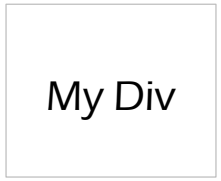
My Div

```
<div id="my-div" class="blue square"> My Div</div>
```

Getting class list of an Element

```
var div = document.getElementById('my-div')
var classes = div.classList
console.log(classes)        //[blue, square]
```

Treating with Classes




```
<div id="my-div" class="square"> My Div</div>
```

Setting class list of an Element

```
var div = document.getElementById('my-div')
div.classList.add('blue')
div.classList.remove('blue')
div.classList.toggle('red')
div.classList.toggle('red')
```

Creating & Forming HTML Elements

```
var article = document.createElement('p')
var content = document.createTextNode("I'm an article")
article.appendChild(content)
var myAttr = document.createAttribute('class')
myAttr.value = 'make-me-bold'
article.setAttributeNode(myAttr)
```

```
<p class='make-me-bold'>
I'm an article
</p>
```

BOM

Intro

The Browser Object Model (BOM) allows JavaScript to talk to the browser.

Window Object

The window object represents the browser's window

-All global JavaScript objects, functions, and variables automatically become members of the window object.

```
alert( "Hello")      ===   window.alert("hello")

document   ===   window.document
```

- Global variables are properties of the window object.

- Global functions are methods of the window object.

MISSION #2

Try

exploring window object properties

Tips and Tricks

DOM Element Cloning

Node.cloneNode(*[deep]*)

```
var element = document.getElementByTagName('a')[0]
var elementCopy = element.cloneNode(true)
```

Access DOM carefully

Dom Access is costly , So try to reduce using it as much as possible

```
// Bad
for (var i = 0; i < 100; i += 1) {
    document.getElementById("result").innerHTML += i + ", ";
}

// Good
var i, content = "";
for (i = 0; i < 100; i += 1) {
    content += i + ",";
}
document.getElementById("result").innerHTML += content;
```

--- 'JavaScript Patterns' Book

Challenges

Rules

1. If you have Syntax Error, Solve it yourself. You are able to do that.

2. Mentors exist to guide you *to the best way to solve the problem and why errors raised* not *to solve the problem or trace your code to solve syntax errors.*

3. Steps of Solving the problem:
   -Think.
   -Think again.
   -Use Pen and Papers to convert your thoughts into Procedures.
   -Convert your previous pseudo code into JavaScript Code using its syntax rules.
   -Don't be afraid of syntax errors. It is easy to solve. Read it clearly and you will solve it.
   - Check the output of every step you do and then check them all.

4. The most important rule is to enjoy challenging yourself and don't stress your mind by the headache of assignments delivery's deadlines.

Beginner

Ready Go Game

★ ☆ ☆

Write a function that follow the below rule. Take the given number and light the corresponding circle.

Input

Number

2

Output

steady

Notes

Rule :
1="Ready", 2 ="Steady", 3= "Go"

Challenges

JS

Intermediate

Make Me Stylish Game

★ ★ ☆

Write a function that take a tag name and style object and apply this style to the DOM element which match the tag name.

Input

Tag Name

"div"

Object

{**color**: "red", **background**: "blue"}

Output

JS

Advanced

Count Me Game

★ ★ ★

Write a function that take a tag name and some attributes values and return an Object that contains the number of elements that match each criteria as shown below.

Input

Tag Name

"div"

Object

{**Class**: 'my-class', **Id**: 'my-id', **Name**: 'my-name'}

Output

Object

{all: 7, Class: 3, Id: true, Name: 2}

JS

Make Me Live Game

Write a function that convert all the paragraphs in the Html page into anchors with href = 'http://www.{Paragraph Text Content}.com'

Input

No Input

Output

google

facebook

twitter