Fixing Common jQuery Bugs

Selectors, Traversing, & Manipulation Bugs

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Outline

Houdini Hieroglyph Bug

Superfluous Spawn Bug

Always Alive Bug

Brittle Blood Bug

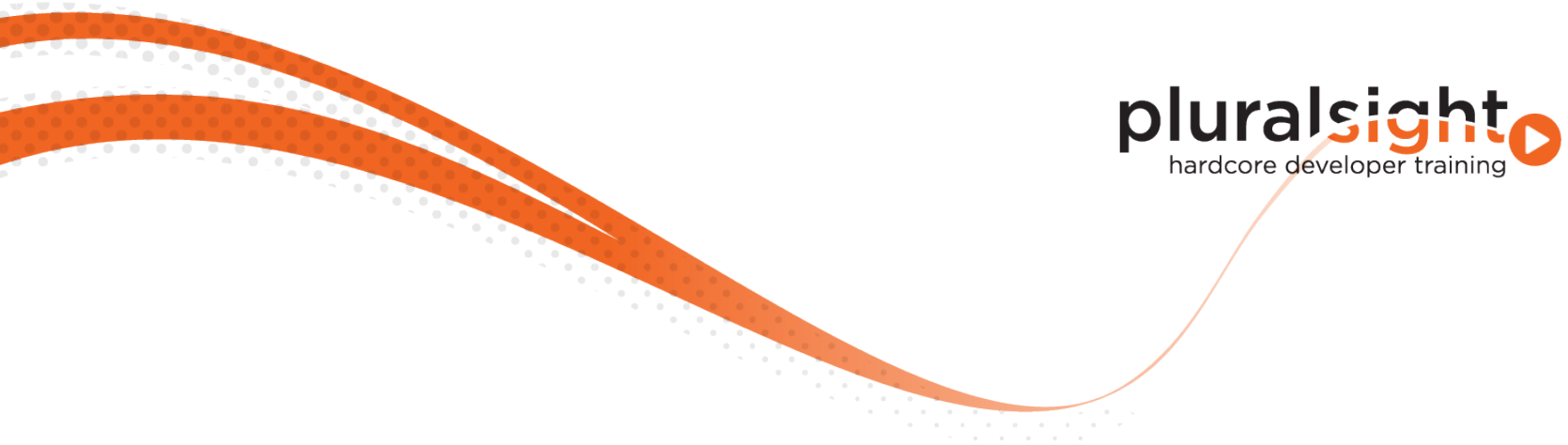
Forgetful Family Bug

Discarded Descendant Bug

Checking Condition Bug

Barbaric Behavior Bug

Houdini Hieroglyph Bug



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Houdini Hieroglyph Bug

Examine

```
<form id="personForm" name="personForm" method="post"
action="/Demo/jsf/main.jsf;jsessionid=0596FB948C..."
enctype="application/x-www-form-urlencoded">
    <div class="field">
        <label>Last Name</label>
        <input id="personForm:lastname"
name="personForm:lastname" type="text" />
    </div>
    <!-- ... more HTML ... -->
</form>
<script>
$(document).ready(function () {
    $("#personForm:firstname").addClass("required");
});
</script>
```

Expose

```
<form id="pers                                    od="post"
action="/Demo/                                    948C..."
enctype="appli
    <div class
        <label
        <input id="personForm:lastname"
name="personForm:lastname" type="text" />
    </div>
    <!-- ... more HTML ... -->
</form>
<script>
$(document).ready(function () {
    $("#personForm:firstname").addClass("required");
});
</script>
```

Houdini Hieroglyph Bug

Explain

At the root of the problem is that JSF inserts a : delimiter inside of the id attribute. jQuery abides by the W3C CSS Specification Rules.

If your ID, name, or class contains one of the following meta-characters then you have a problem...
!"#$%&'()*+,./:;<=>?@[\]^`{|}~

```
// <input id="person.name" name="person.name" />
$( "#person.name" ).addClass( "highlight" ); // Fail

// <input id="person:name" name="person:name" />
$( "#person:name" ).addClass( "highlight" ); // Fail

// <input id="person$name" name="person$name" />
$( "#person$name" ).addClass( "highlight" ); // Fail
```

Houdini Hieroglyph Bug

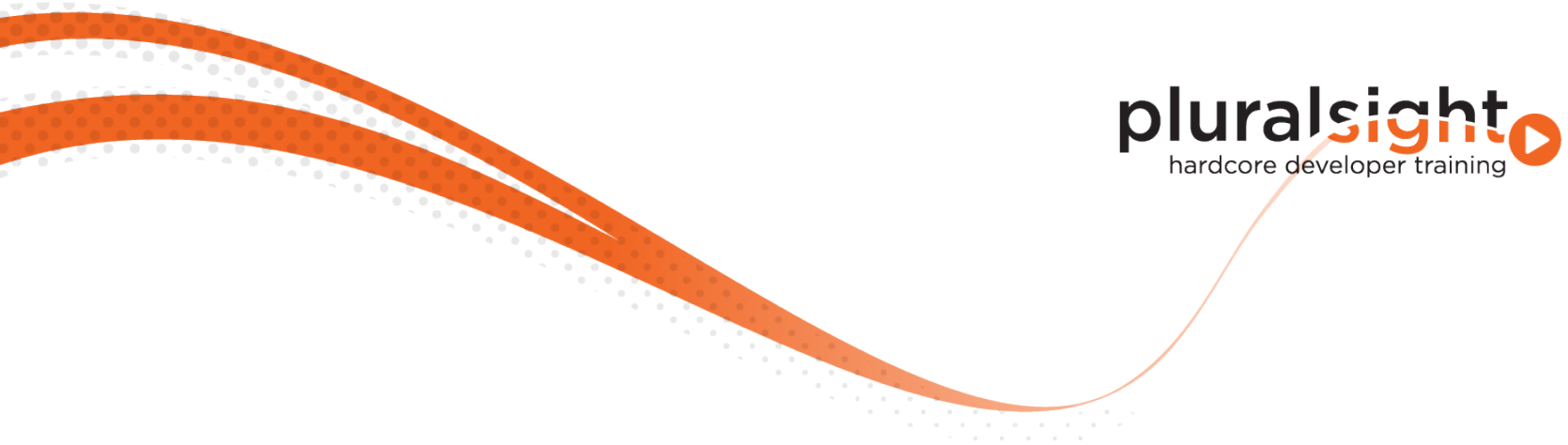
Exterminate

If you wish to use any of the meta-characters (such as !"#$%&'()*+,./:;<=>?@[\]^`{|}~) as a literal part of a name, you must escape the character with two backslashes: \\. For example, if you have an element with id="foo.bar", you can use the selector $("#foo\\.bar").

-- http://api.jquery.com/category/selectors/

```
$( document ).ready( function() {
    $("#personForm\\:firstname")
        .addClass( "required" );
});
```

Superfluous Spawn Bug



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Superfluous Spawn Bug

Examine

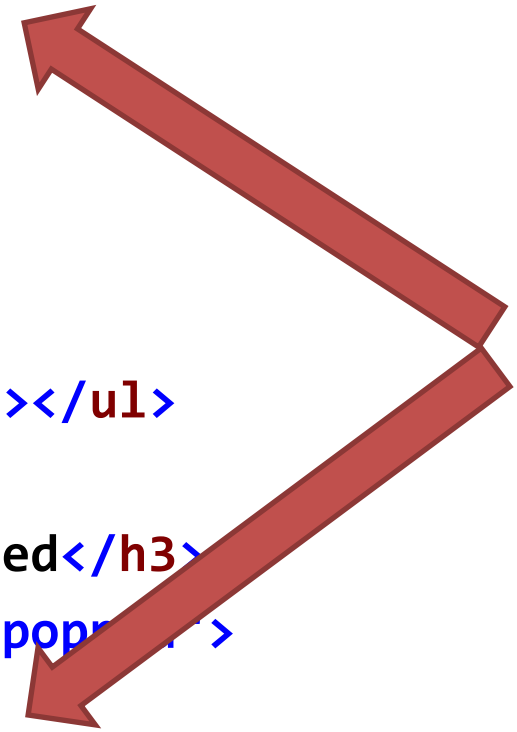
```
<h3>Items to Push</h3>
<ul id="items-to-push"><li>1</li><li>2</li></ul>
<h3>Stack</h3>
<ul id="stack"></ul>
<h3>Items Popped</h3>
<ul id="items-popped"></ul>
<button id="push">Push</button>
<button id="pop">Pop</button>

$("#push").on("click", function () {
    $("li:nth-child(1)").prependTo("#stack")
});
$("#pop").on("click", function () {
    $("#stack li:nth-child(1)").appendTo("#items-
popped");
});
```

Superfluous Spawn Bug

Expose

Superfluous Spawn Bug

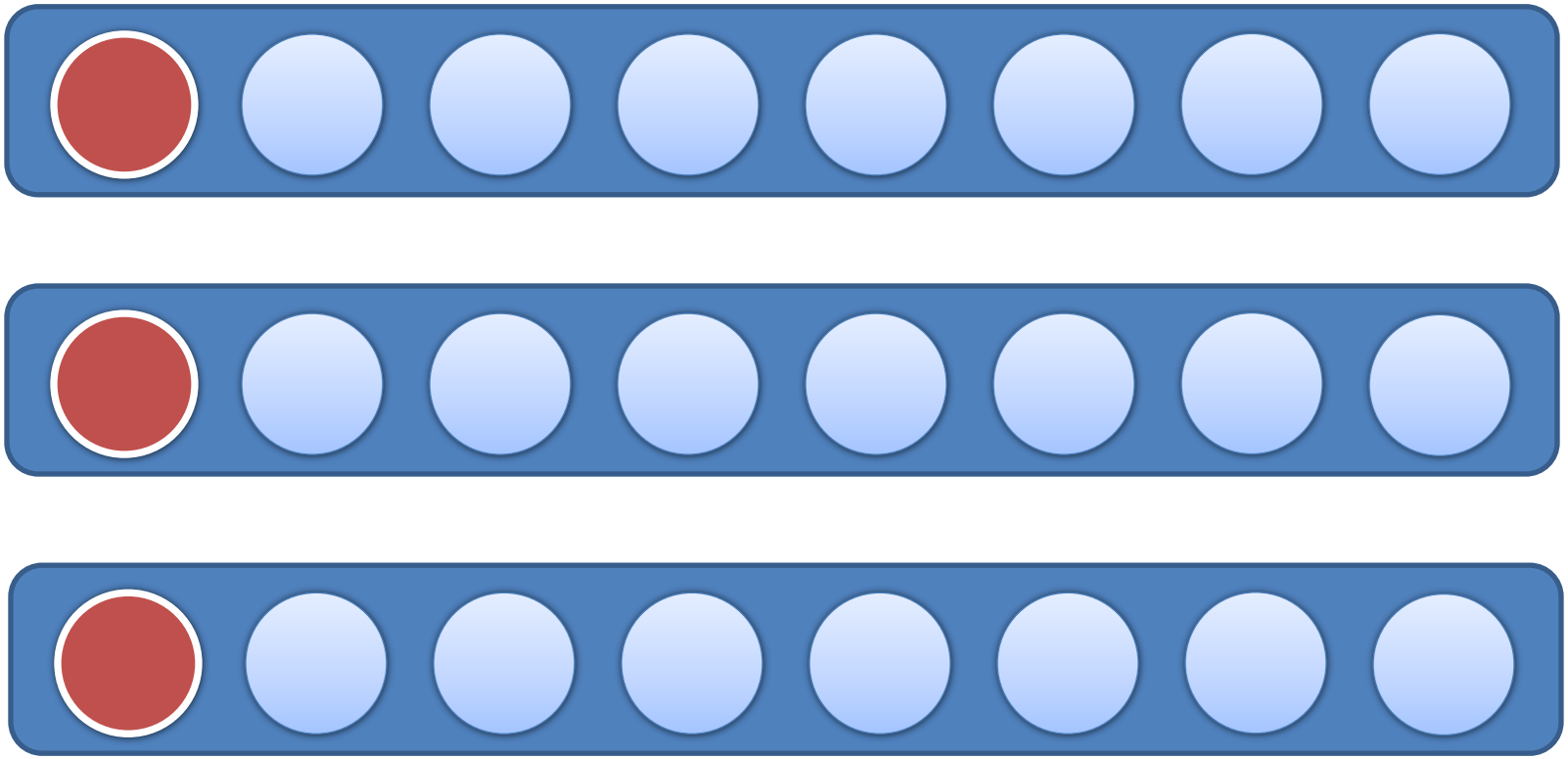

```
<h3>Items to Push</h3>
<ul id="items-to-push">
    <li>3</li>
    <li>4</li>
</ul>

<h3>Stack</h3>
<ul id="stack"></ul>

<h3>Items Popped</h3>
<ul id="items-popped">
    <li>2</li>
    <li>1</li>
</ul>
```



```
$("li:nth-child(1)")
```

Superfluous Spawn Bug

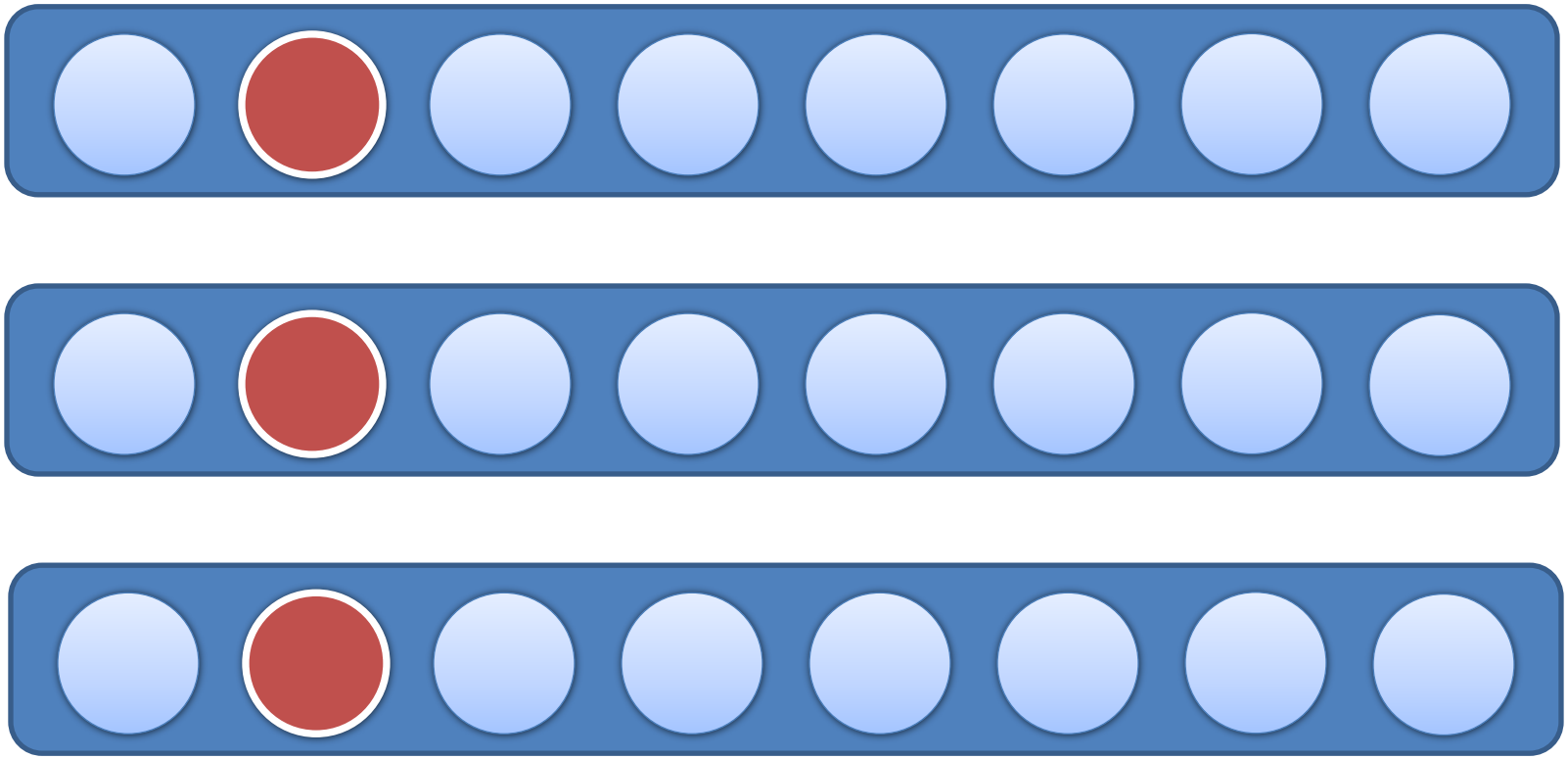
Explain



```
$("li:nth-child(1)")
```

Superfluous Spawn Bug

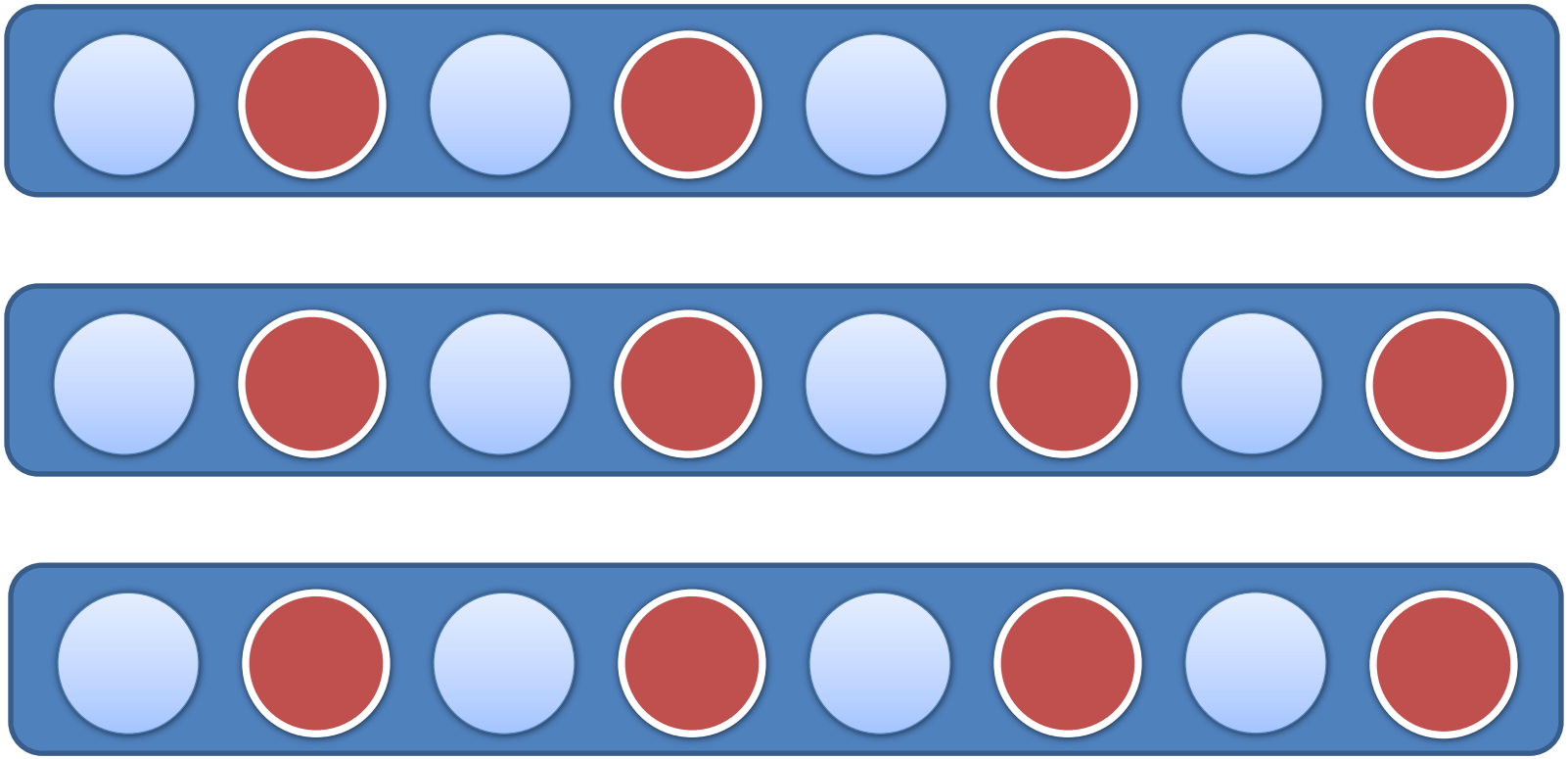
Explain



```
$("li:nth-child(2)")
```

Superfluous Spawn Bug

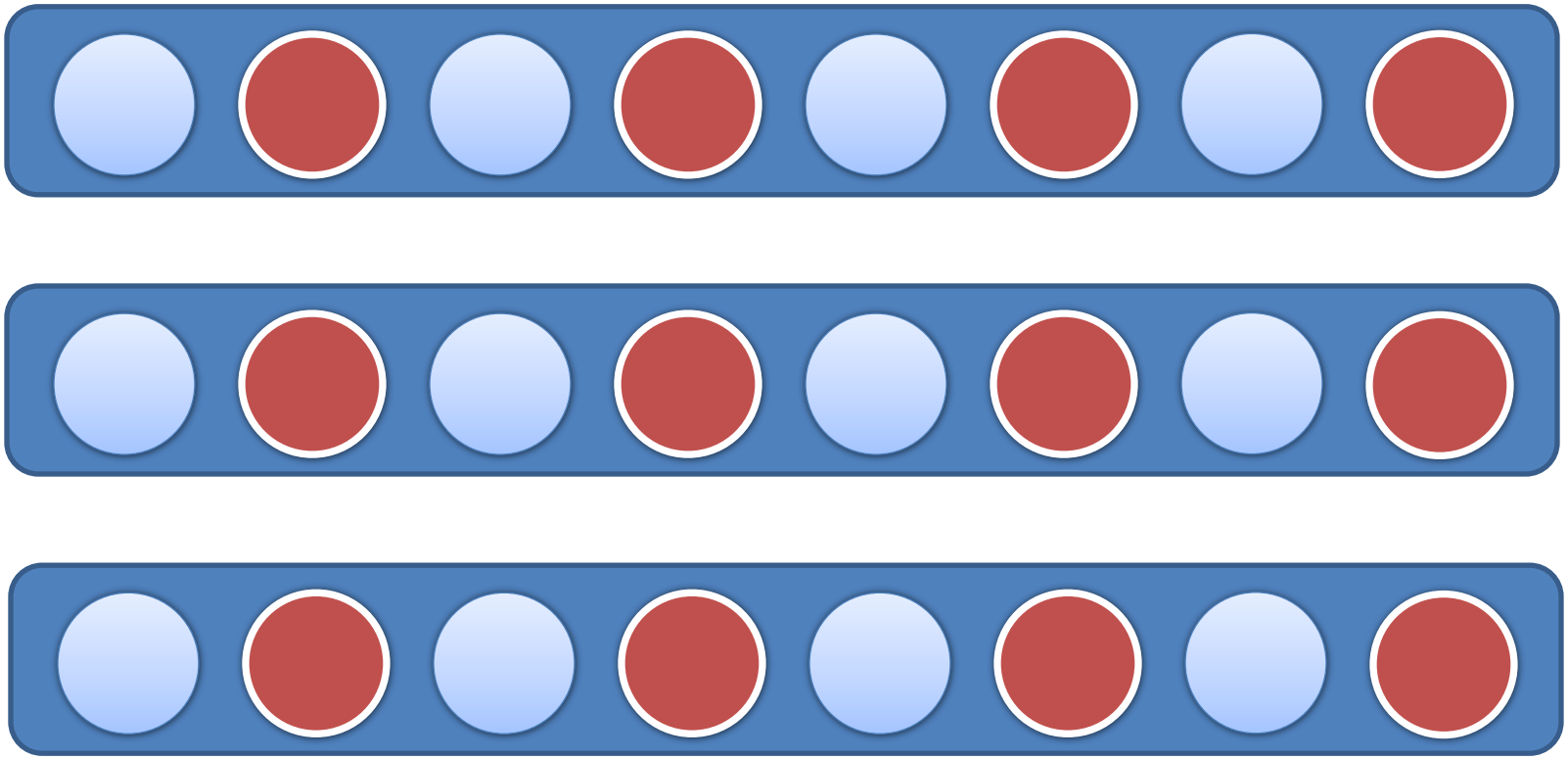
Explain



```
$("li:nth-child(2n)")
```

Superfluous Spawn Bug

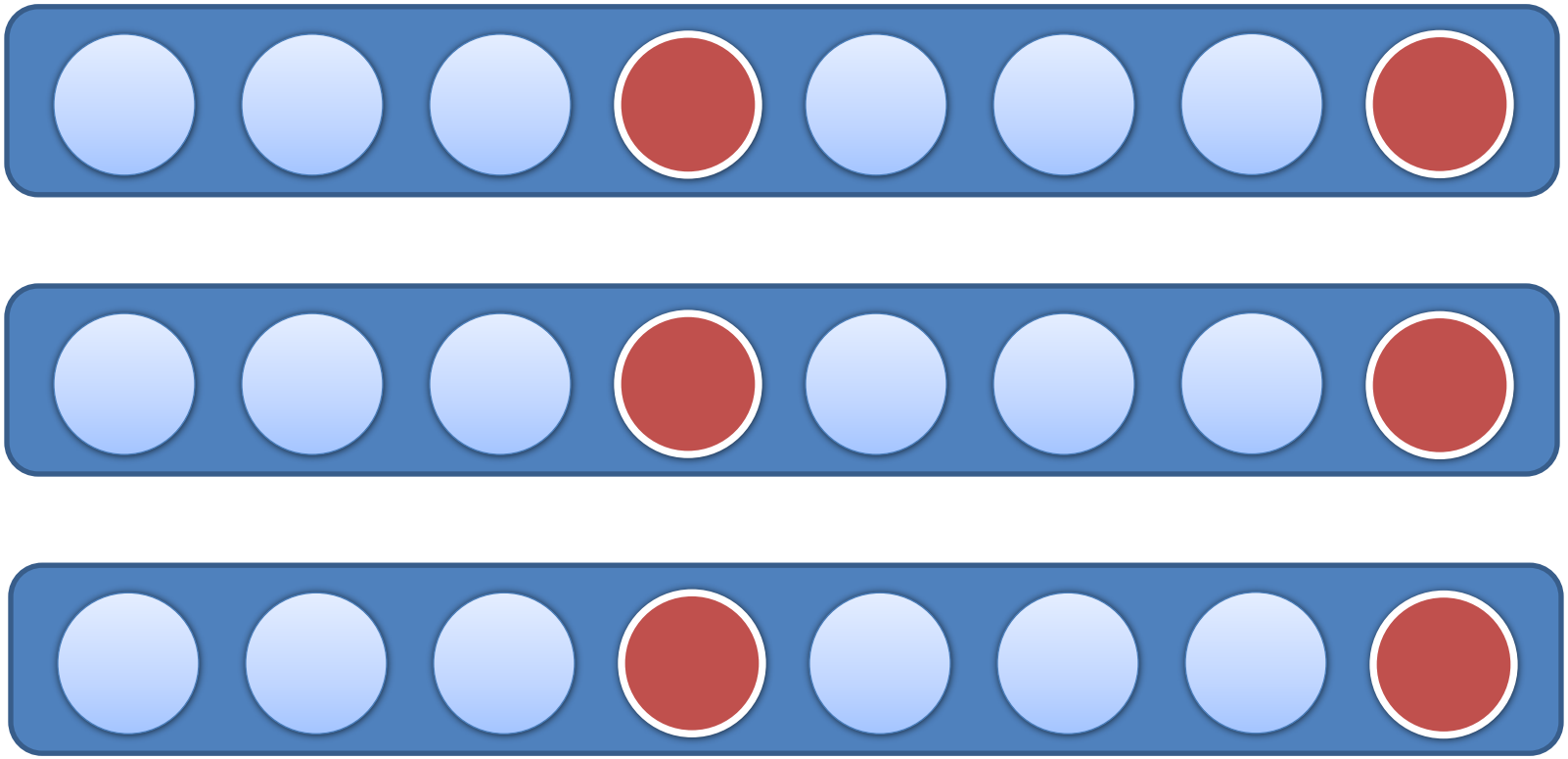
Explain



```
$("li:nth-child(even)")
```

Superfluous Spawn Bug

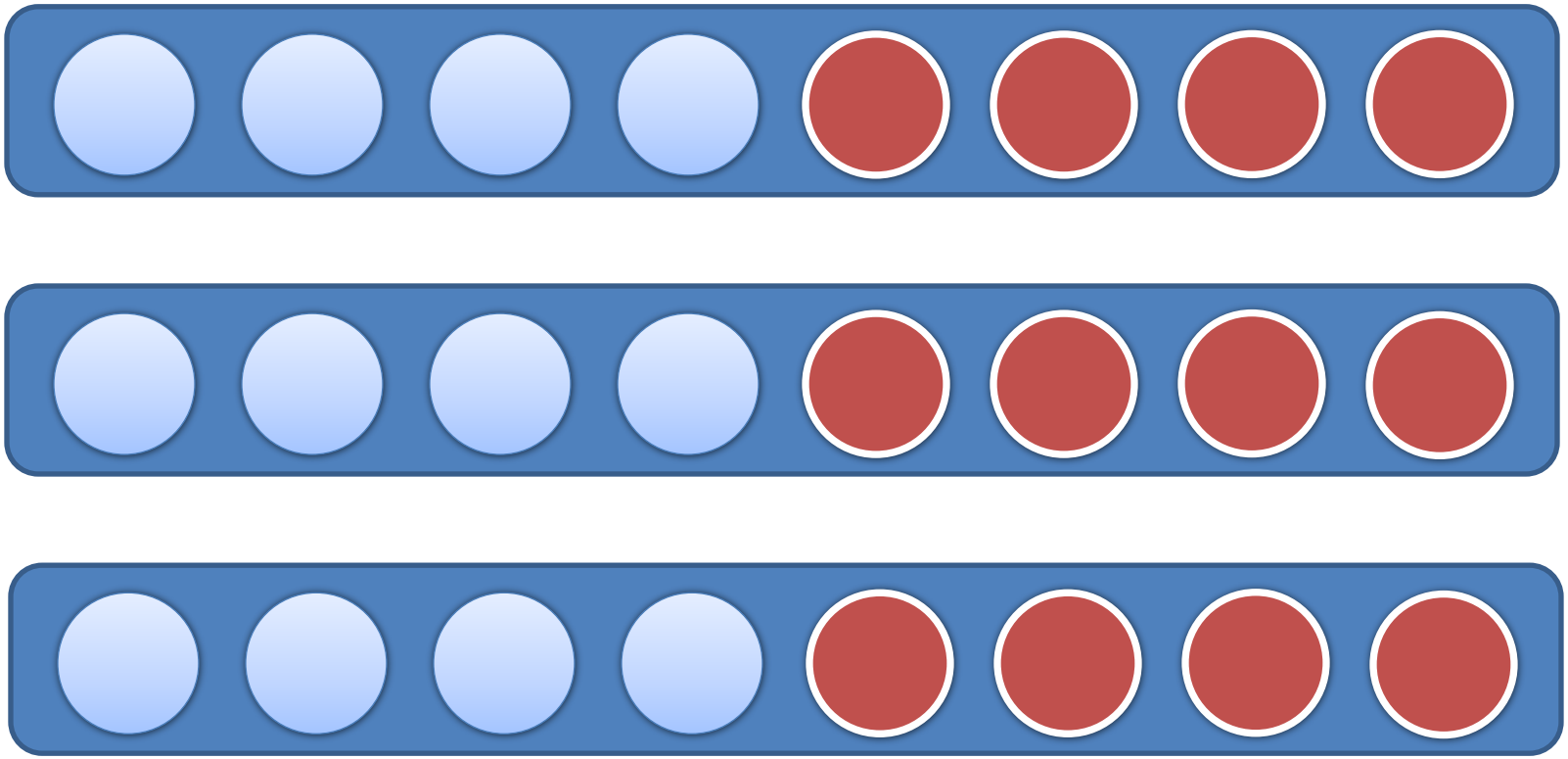
Explain



```
$("li:nth-child(4n)")
```

Superfluous Spawn Bug

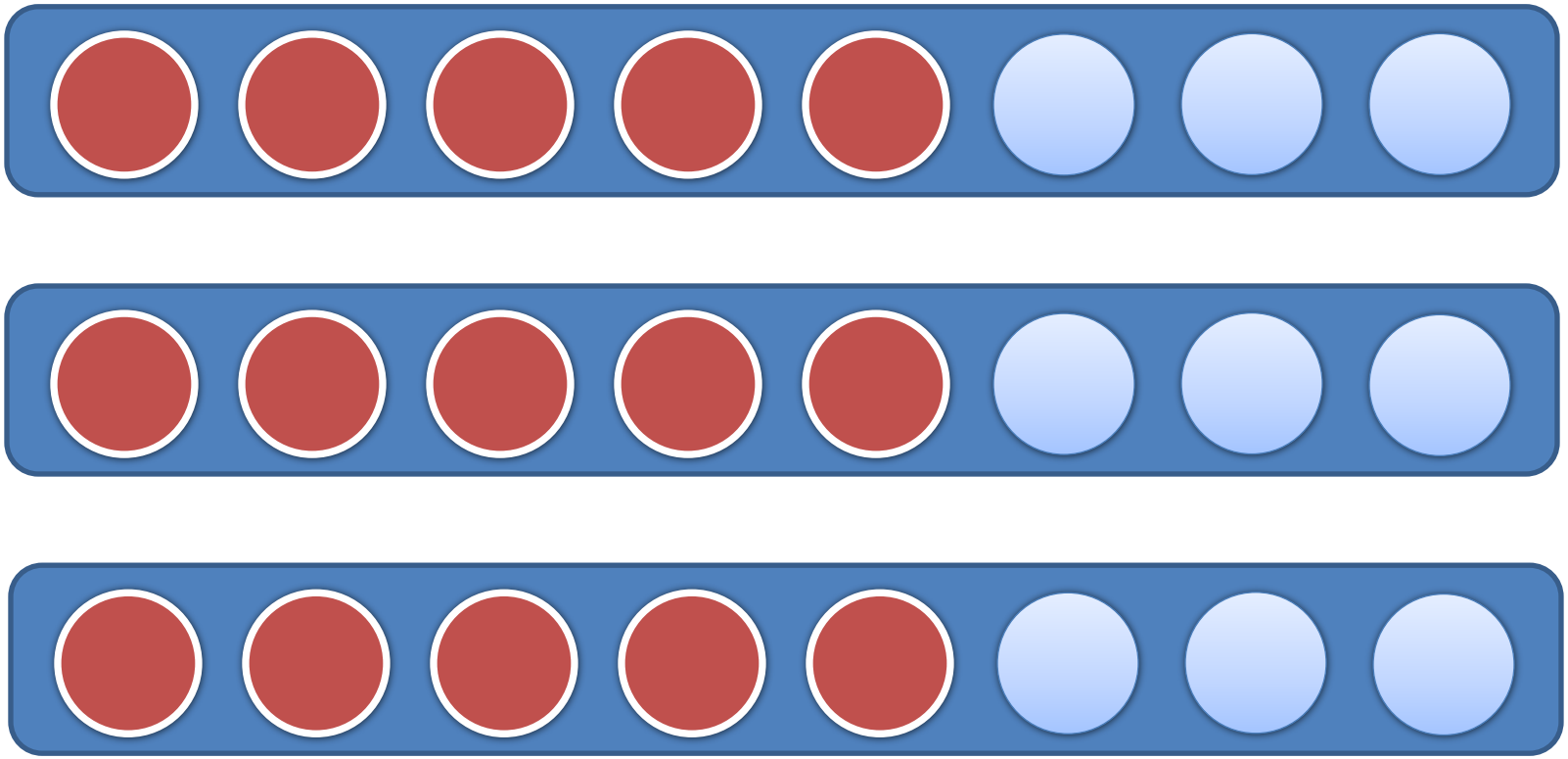
Explain



```
$("li:nth-child(n+5)")
```

Superfluous Spawn Bug

Explain



```
$("li:nth-child(-n+5)")
```

Superfluous Spawn Bug

Exterminate

Let jQuery know you only want list items that have an ancestor of "#items-to-push"

```
$("#push").on("click", function () {
    $("#items-to-push li:nth-child(1)")
        .prependTo("#stack")
});

$("#pop").on("click", function () {
    $("#stack li:nth-child(1)")
        .appendTo("#items-popped");
});
```

Superfluous Spawn Bug

Exterminate

:eq filters the matches and gives you an item by index

```
$("#push").on("click", function () {
    $("li:eq(0)")
        .prependTo("#stack")
});

$("#pop").on("click", function () {
    $("#stack li:eq(0)")
        .appendTo("#items-popped");
});
```

Superfluous Spawn Bug

Exterminate

:first is just a shorthand way of saying :eq(0)

```
$("#push").on("click", function () {
    $("li:first")
        .prependTo("#stack")
});

$("#pop").on("click", function () {
    $("#stack li:first")
        .appendTo("#items-popped");
});
```

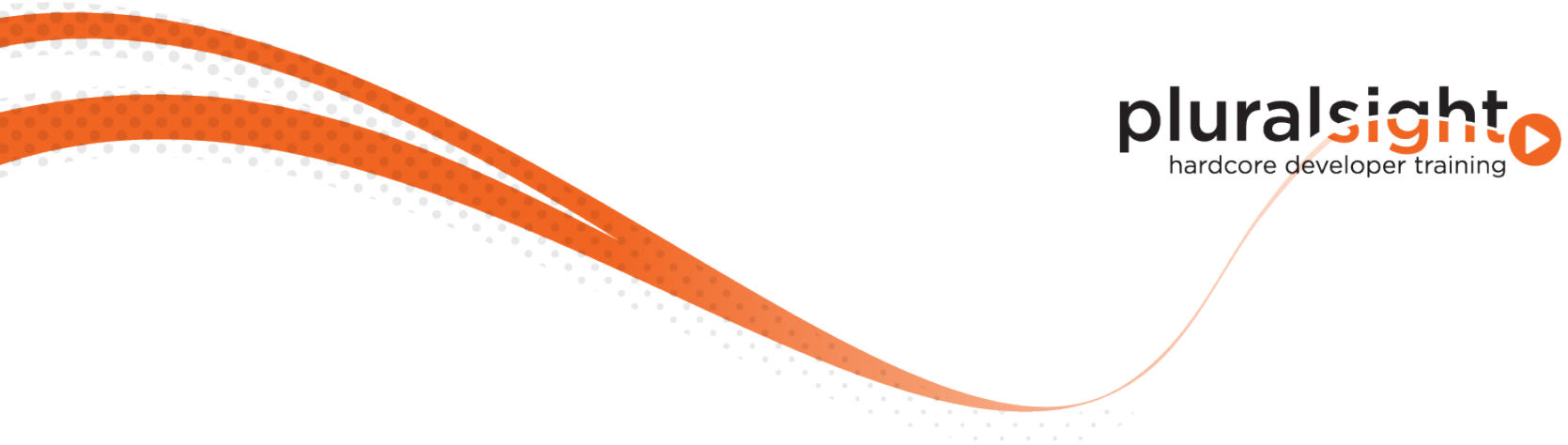
Superfluous Spawn Bug

Exterminate

Providing a context to start searching from and focus on finding the 1st list item

```
$("#push").on("click", function () {
    $("#items-to-push")
        .find("li:first")
        .prependTo("#stack")
});

$("#pop").on("click", function () {
    $("#stack")
        .find("li:first")
        .appendTo("#items-popped");
});
```

Always Alive Bug



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Always Alive Bug

Examine

```
function notify(message) {
    var $notify = $("#notify");
    if (!$notify) {
        $("<div />", {
            id: "notify",
            html: message
        }).appendTo("body");
    } else {
        $notify.html(message);
    }
}

notify("My 1st Message");
notify("My 2nd Message");
```

Always Alive Bug

Expose

```
function notify(message) {
    var $notify = $("#notify");
    if (!$notify) {
        $("<div />", {
            id: "notify",
            html: message
        }).appendTo("body");
    } else {
        $notify.html(message);
    }
}

notify("My 1st Message");
notify("My 2nd Message");
```

The if statement always resolves to something truthy

Always Alive Bug

Explain

jQuery(selector [, context]) *Returns: jQuery*

Description: *Accepts a string containing a CSS selector which is then used to match a set of elements.*

```
var $notify = $("#notify");
```

Always returns the jQuery object. If selection is found then it's stored in jQuery's internal collection

```
if (jQuery) {
    console.log("True!");
}
```

Objects are always "truthy" based on truthy/falsey rules in JavaScript

FALSEY: `false, 0, -0, null, undefined, NaN, ""`

TRUTHY: `true, {}, [], 5, etc...`

Always Alive Bug

Exterminate

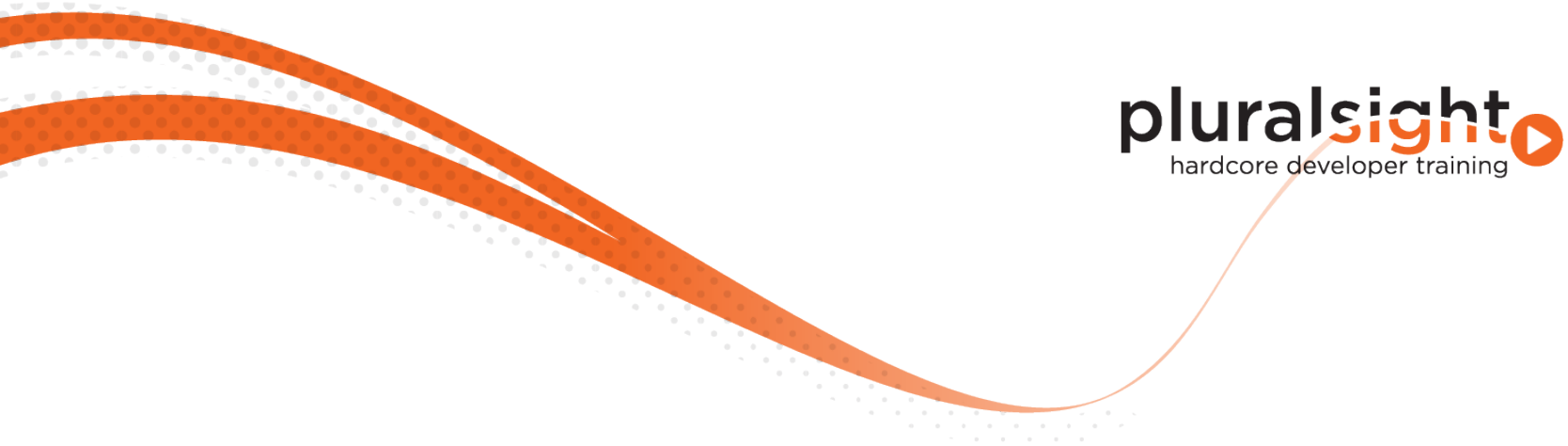
```
function notify(message) {
    var $notify = $("#notify");
    if (!$notify.length) {
        $("<div />", {
            id: "notify",
            html: message
        }).appendTo("body");
    } else {
        $notify.html(message);
    }
}

notify("My 1st Message");
notify("My 2nd Message");
```

The length property exposes how many items are in jQuery's internal collection

FALSEY: 0

TRUTHY: 1 - Number.MAX_VALUE

Brittle Blood Bug



Brittle Blood Bug

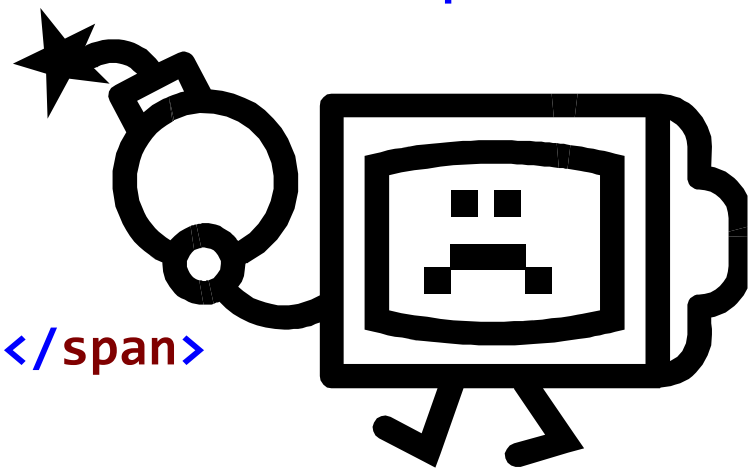
Examine

```
<ul id="mailbox" data-role="listview" data-count-
theme="c" data-inset="true">
    <li><a href="/inbox">Inbox <span class="ui-li-
count">12</span></a></li>
    <!-- ... more markup ... -->
</ul>

$(document).on("click", "#mailbox a", function (e) {
    var $this = $(this),
        $listItem = $this.parent()

    e.preventDefault();
    $listItem.addClass("highlight");
});
```

Brittle Blood Bug

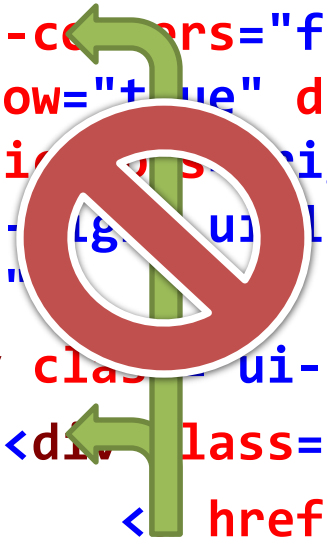
Expose

```
<li data-corners="false" data-shadow="false" data-
iconshadow="true" data-wrapperels="div" data-icon="arrow-
r" data-iconpos="right" data-theme="c" class="ui-btn ui-
btn-icon-right ui-li-has-arrow ui-li ui-li-has-count ui-
btn-up-c">
    <div class="ui-btn-inner ui-li">
        <div class="ui-btn-text">
            <a href="/drafts" class="ui-link-
inherit">Drafts <span class="ui-li-count ui-btn-up-c ui-
btn-corner-all">4</span></a>
        </div>
        <span class="ui-icon
            ui-icon-arrow-r
            ui-icon-shadow"> </span>
    </div>
</li>
```



Brittle Blood Bug

Explain



Exterminate

.closest(selector)

Returns: jQuery

Description: For each e … testing the element itself and traver…

.closest(selector)

version added: 1.3

selector

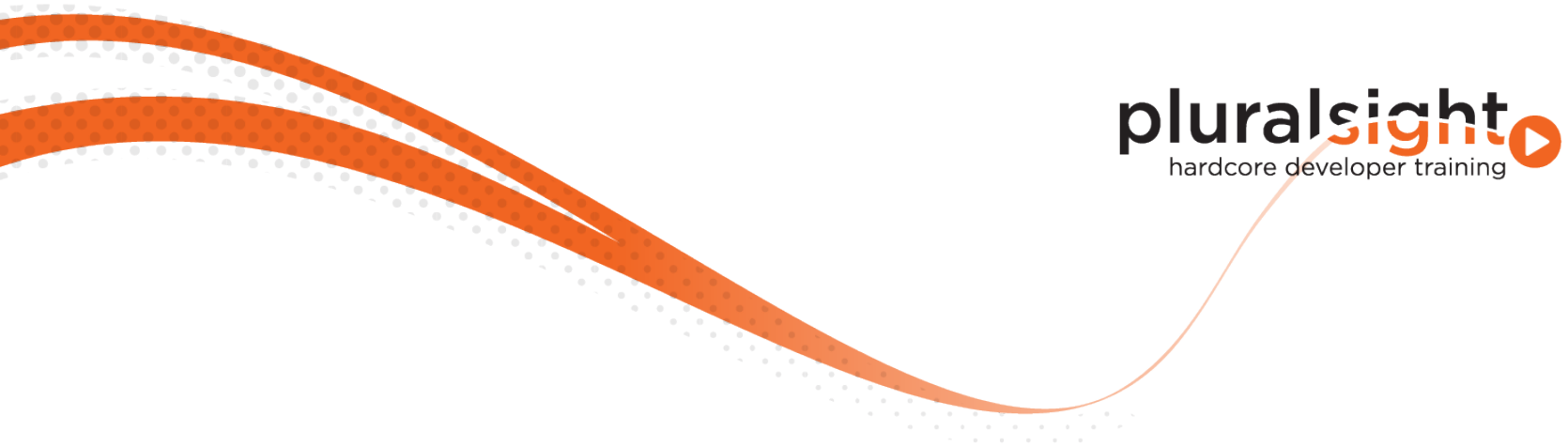
Type: Selector

A string containing a s…

```
$(document).on("click", "#mailbox a", function (e) {
    var $this = $(this),
        $listItem = $this.closest("li");

    e.preventDefault();
    $listItem.addClass("highlight");
});
```

Traverse ancestors (starting with itself) until it finds an element matching passed selector

Forgetful Family Bug



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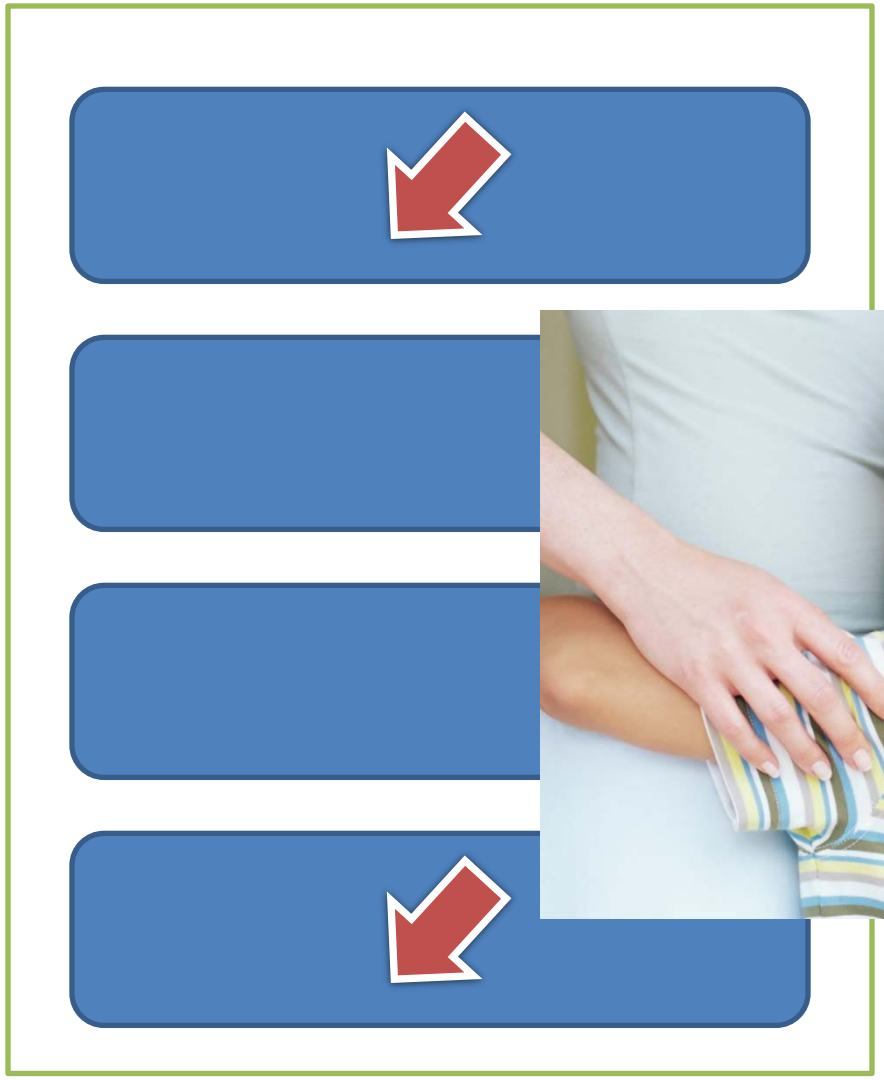
Forgetful Family Bug

Examine

```
<ul id="items">
    <li>Item 1</li>
    <li>Item 2</li>
    <li>Item 3</li>
    <li>Item 4</li>
    <!-- ... more markup ... -->
</ul>

$(document).on("mouseenter", "#items li", function (e) {
    var $this = $(this);

    $this.addClass("highlight");
    $this.nextAll().removeClass("highlight");
});
```

Expose

Forgetful Family Bug



Forgetful Family Bug

Explain

.nextAll([selector]) — **Returns:** jQuery

Description: *Get all following siblings of each element in the set of matched elements, optionally filtered by a selector.*

.prevAll([selector]) — **Returns:** jQuery

Description: *Get all preceding siblings of each element in the set of matched elements, optionally filtered by a selector.*

.siblings([selector]) — **Returns:** jQuery

Description: *Get the siblings of each element in the set of matched elements, optionally filtered by a selector.*

Forgetful Family Bug

Exterminate

```
$(document).on("mouseenter", "#items li", function (e) {
    $(this).addClass("highlight")
        .prevAll().removeClass("highlight").end()
        .nextAll().removeClass("highlight");
});

// OR

$(document).on("mouseenter", "#items li", function (e) {
    $(this).addClass("highlight")
        .siblings().removeClass("highlight");
});
```

Make sure to remove the highlight class from previous & next elements

The siblings() methods gets both previous and next elements

Forgetful Family Bug

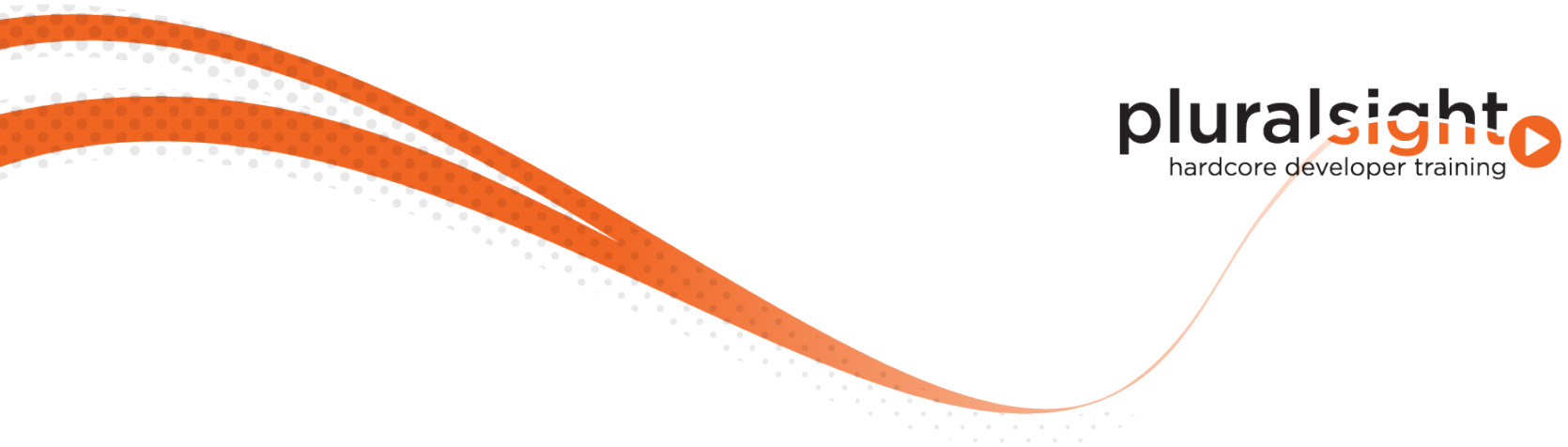
Exterminate

```
$(document).on("mouseenter mouseleave", "#items li",
    function (e) {
        $(this).toggleClass("highlight");
    });

// OR

$(document).on("mouseenter mouseleave", "#items li",
    function (e) {
        $(this).toggleClass("highlight",
            e.type === "mouseenter");
    });
```

Instead of messing with siblings, listen to mouseleave & remove class

Pass boolean to toggleClass() to guarantee if adding or removing

Discarded Descendant Bug



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Discarded Descendant Bug

Examine

```
<ul id="source" style="float: left;">
    <li><input type="checkbox" /> <div
class="content">Item 1</div></li>
    <li><input type="checkbox" /> <div
class="content">Item 2</div></li>
    <li><input type="checkbox" /> <div
class="content">Item 3</div></li>
</ul>

<ul id="destination" style="float: right;"></ul>

<button>Add</button>
```

Discarded Descendant Bug

Examine

```
$(document).on("click", "#source input", function () {
    var $this = $(this),
        $item = $this.closest("li");

    $item.toggleClass("highlight", $this.is(":checked"));
});
```

Discarded Descendant Bug

Examine

```
$(document).on("click", "button", function (e) {
    var $srcItems = $("#src li"), $dest = $("#dest");

    $srcItems.add("#destination li");
    $srcItems.removeClass("highlight");

    $srcItems.find("input:checked").each(function () {
        var $this = $(this), $item = $this.closest("li");
        $("<li class='highlight'>" +
            $item.find(".content").html() + "</li>")
           .appendTo($dest);
        $this.prop("checked", false);
    });
});
```

Discarded Descendant Bug

Expose

```
$(document).on("click", "button", function (e) {
    var $srcItems = $("#src li"), $dest = $("#dest");

    $srcItems.add("#destination li");
    $srcItems.removeClass("highlight");

    $srcItems.find("input:checked").each(function () {
        var $this = $(this), $item = $this.closest("li");
        $("<li class='highlight'>" +
            $item.find(".content").html() + "</li>")
           .appendTo($dest);
        $this.prop("checked", false);
    });
});
```

The highlight class isn't being removed from the destination list items

Discarded Descendant Bug

Explain

```
var pdiv = $("p");
pdiv.add("div");
pdiv.fadeIn(); // fadeIn only p elements
```

> ".add() creates a new set and leaves the original set unchanged" –jQuery Docs

```
var pdiv = $("p");
pdiv = pdiv.add("div");
pdiv.fadeIn(); // fadeIn p & div elements

// OR

$("p").add("div").fadeIn(); // fadeIn p & div elements
```

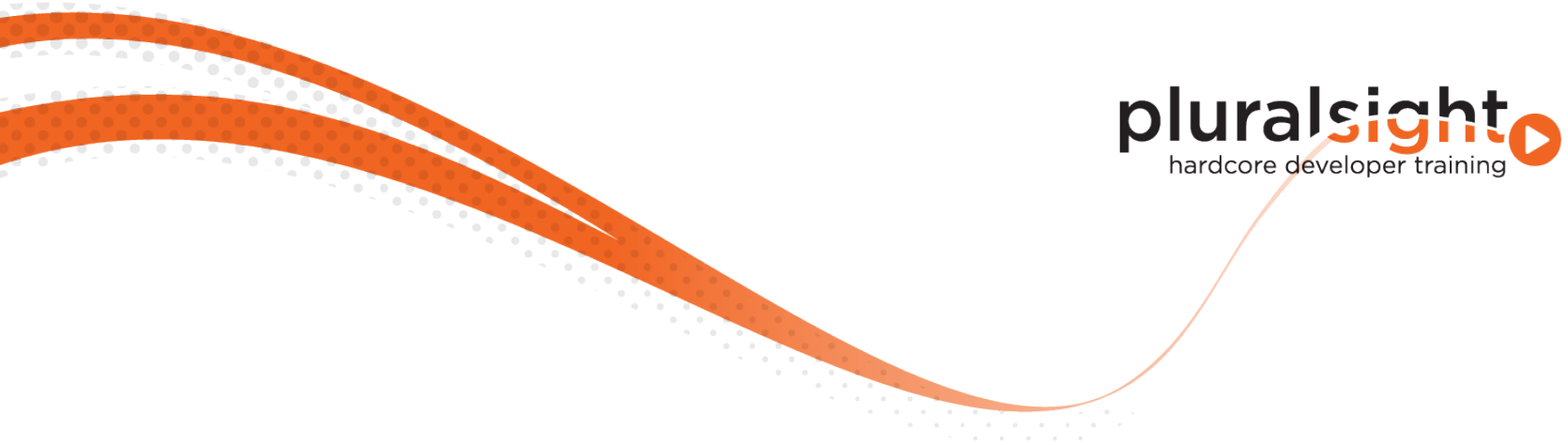
Discarded Descendant Bug


```
$(document).on("click", "button", function (e) {
    var $srcItems = $("#src li"), $dest = $("#dest");

    $srcItems = $srcItems.add("#destination li");
    $srcItems.removeClass("highlight");

    $srcItems.find("input:checked").each(function () {
        var $this = $(this), $item = $this.closest("li");
        $("<li class='highlight'>" +
            $item.find(".content").html() + "</li>")
           .appendTo($dest);
        $this.prop("checked", false);
    });
});
```

Checking Condition Bug



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Checking Condition Bug

Examine

```
<div id="toggle"><input type="checkbox" /> Toggle</div>
<ul id="items">
    <li><input type="checkbox" /> <div
class="content">Testing 1</div></li>
    <li><input type="checkbox" /> <div
class="content">Testing 2</div></li>
    <li><input type="checkbox" /> <div
class="content">Testing 3</div></li>
</ul>

$(document).on("click", "#toggle input",
    function (e) {
        $("#items").find("input").attr("checked",
            $(this).attr("checked"));
});
```

Checking Condition Bug


```
$(document).on(
    "click",
    "#toggle input",
    function (e) {
        $("#items").find("input").attr(
            "checked",
            $(this).attr("checked")
        );
    }
);
```

.attr("checked") always returns undefined

Checking Condition Bug

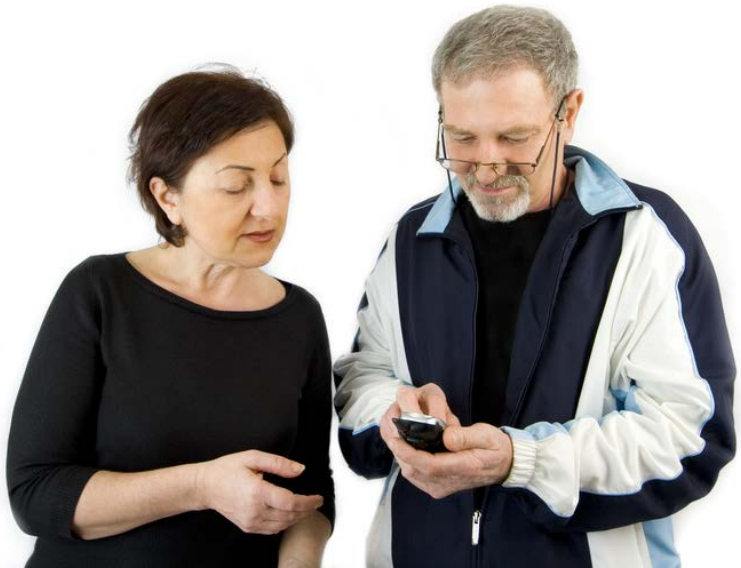
Explain

```
$(elem).attr("checked") // 1.6.0-      true      Boolean
// Changes with checkbox state

$(elem).attr("checked") // 1.6.0       "checked" String
// Initial state of the checkbox;
// does not change

$(elem).attr("checked") // 1.6.1-1.6.2 "checked" String
// Changes with checkbox state

$(elem).attr("checked") // 1.6.3+
// Initial state of the checkbox;
// does not change
```



Checking Condition Bug

Explain

```
elem.checked                // true Boolean
// Changes with checkbox state

$(elem).prop("checked") // true Boolean
// Changes with checkbox state

$(elem).is(":checked")  // true Boolean
// Changes with checkbox state
```

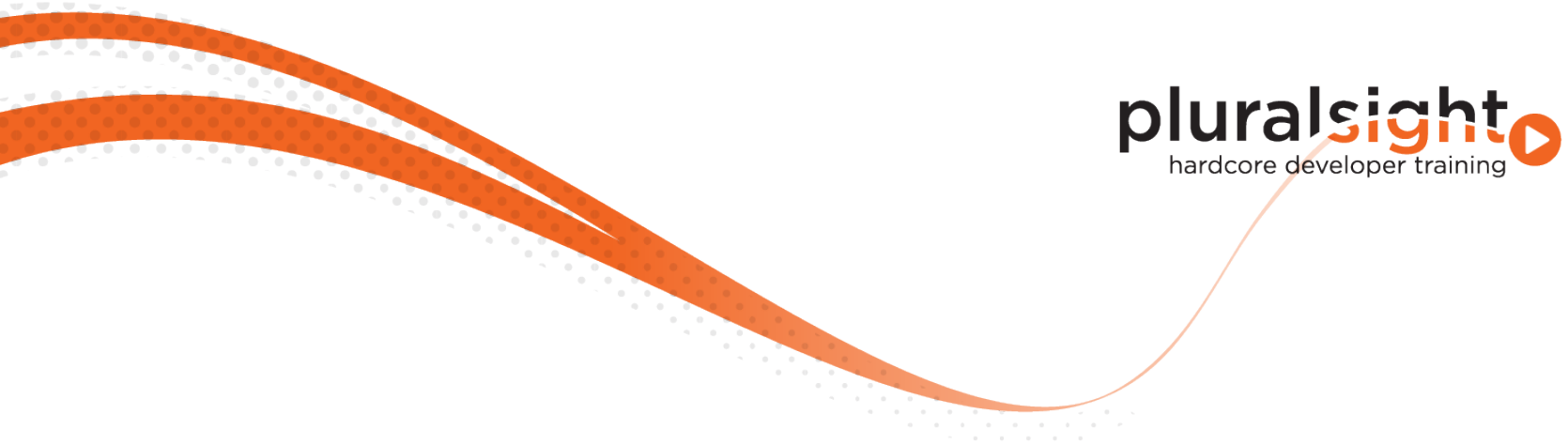
Checking Condition Bug

Exterminate

```
$(document).on(
    "click",
    "#toggle input",
    function (e) {
        $("#items").find("input").prop(
            "checked",
            $(this).prop("checked")
        );
    }
);
```

.prop("checked") changes with state of checkbox

Barbaric Behavior Bug



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Barbaric Behavior Bug

Examine

```
var contacts = [
    { name: "John Doe", birthday: "1/1/1970" },
    { name: "Jane Doe", birthday: "2/2/1975" },
    { name: "Baby Doe", birthday: "3/3/2010" }
];

addContacts(contacts);

$("button").on("click", function () {
    addContacts([
        { name: "Yoda Doe", birthday: "4/4/2013" }
    ]);
});
```

Barbaric Behavior Bug

Examine

```
var $container = $("#container");
var $contacts = $("#contacts");
var addContacts = function (contacts) {
    var list = $contacts.remove();
    $.each(contacts, function (index, contact) {
        $("<li />", { html: contact.name })
            .data("birthday", contact.birthday)
            .appendTo($contacts);
    });
    $container.append(list);
};
$container.on("click", "#contacts li", function () {
    alert("Birthday: " + $(this).data("birthday"));
});
```

Expose

```
var $co
var $co
var add
    var
    $.e
    });
    $co
};
$contai                                    {
    ale                                   ;
});
```

Barbaric Behavior Bug

Explain

```
var list = $contacts.remove();
```

.remove() removes elements from the DOM, all bound events, & jQuery data associated with the elements

```
var list = $contacts.detach();
```

.detach() removes elements from the DOM, but keeps all bound events & jQuery data associated to be reinserted

Barbaric Behavior Bug

Exterminate

```
var $container = $("#container");
var $contacts = $("#contacts");
var addContacts = function (contacts) {
    var list = $contacts.detach();
    $.each(contacts, function (index, contact) {
        $("<li />", { html: contact.name })
            .data("birthday", contact.birthday)
            .appendTo($contacts);
    });
    $container.append(list);
};
$container.on("click", "#contacts li", function () {
    alert("Birthday: " + $(this).data("birthday"));
});
```

Conclusion

- Make sure to escape your selectors if they have special characters
- Understand what the nth-child selector does before you use it
- Learn the truthy/falsey JavaScript rules
- Use .closest() instead of .parent() to traverse up the DOM
- Make use of .siblings() method or listen to multiple events
- Save off jQuery if you are making a new set and not chaining
- Use the .prop() method when getting/setting a property
- Use .detach() to temporarily remove DOM instead of .remove()