



Video 4.9

Creating an API

Chris Murphy

Review

- Node.js and Express allow us to build server-side web apps in JavaScript
- MongoDB allows us to store data as documents and query them via JavaScript

Indicate the search criteria:

Title:

Author name:

Chris Murphy

Year:

2017|

☒ All

☐ Any

Search

```
function searchAll(req, res) {

  var query = {};

  if (req.body.title) query.title = req.body.title;
  if (req.body.year) query.year = req.body.year;
  if (req.body.name) {
    query['authors.name'] = req.body.name;
  }

  console.log(query);

  Book.find( query, (err, books) => {
    if (err) {
      res.type('html').status(500);
      res.send('Error: ' + err);
    }
    else {
      res.render('books', { books: books });
    }
  });
}
```

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function searchAll(req, res) {  
  
  var query = {};  
  
  if (req.body.title) query.title = req.body.title;  
  if (req.body.year) query.year = req.body.year;  
  if (req.body.name) {  
    query['authors.name'] = req.body.name;  
  }  
  
  console.log(query);  
  

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}
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Here are the results of your search:

- *JavaScript Programming*. Chris Murphy, Swapneel Sheth, 2017.
- *Data Structures*. Chris Murphy, 2017.

Indicate the search criteria:

Title:

Author name:

Year:

☒ All

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Search

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Title:

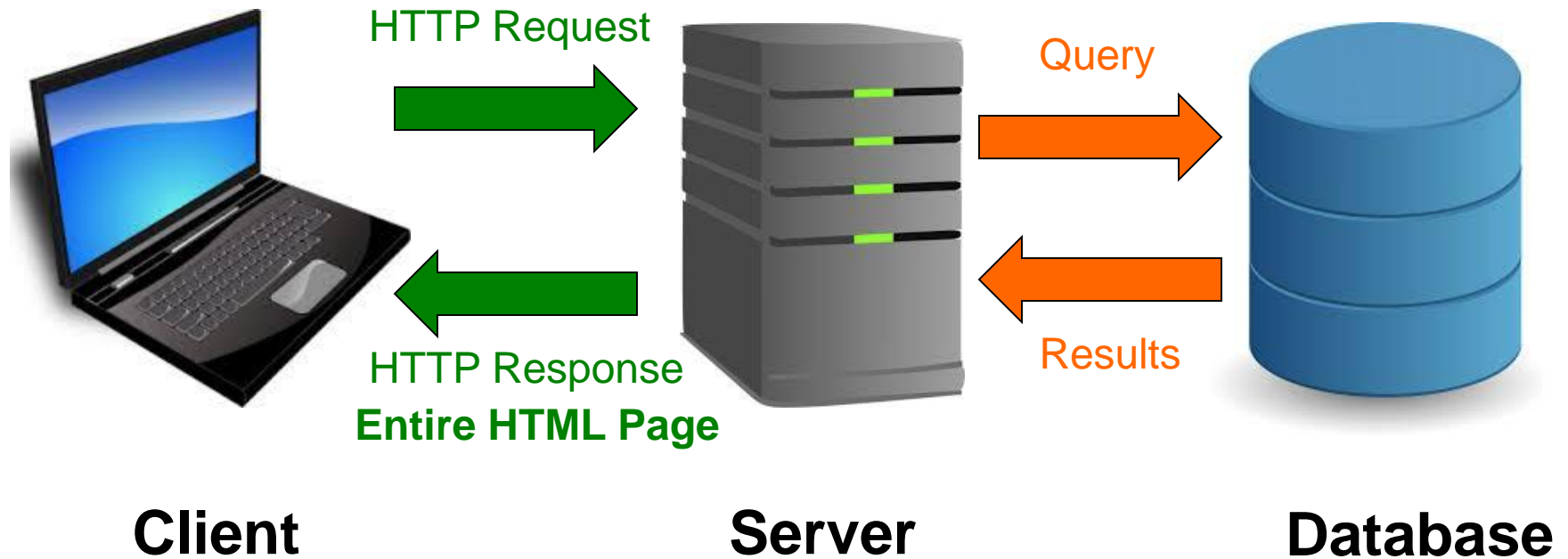
Author name:

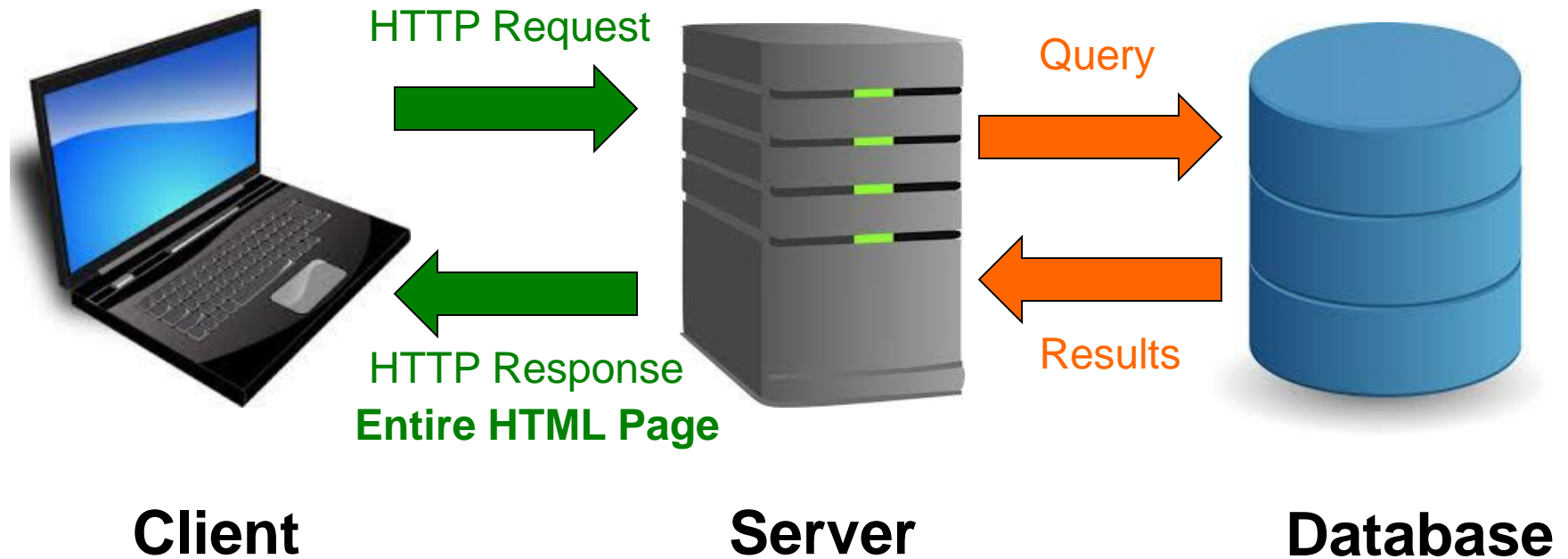
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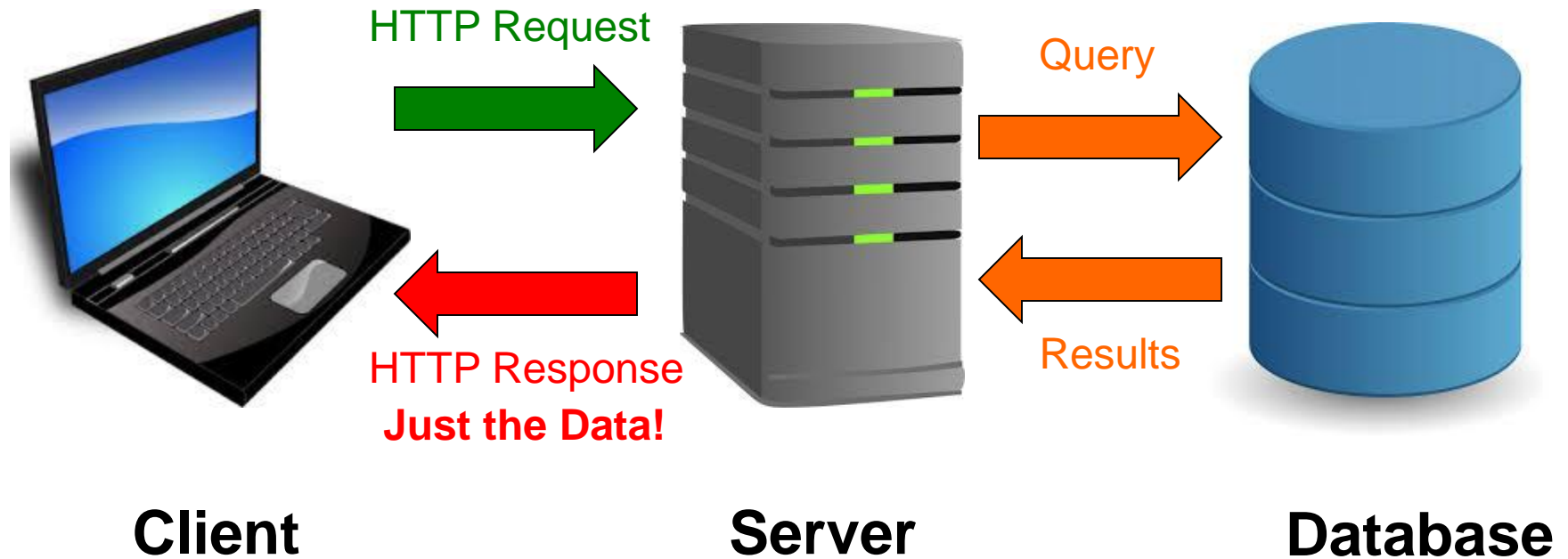
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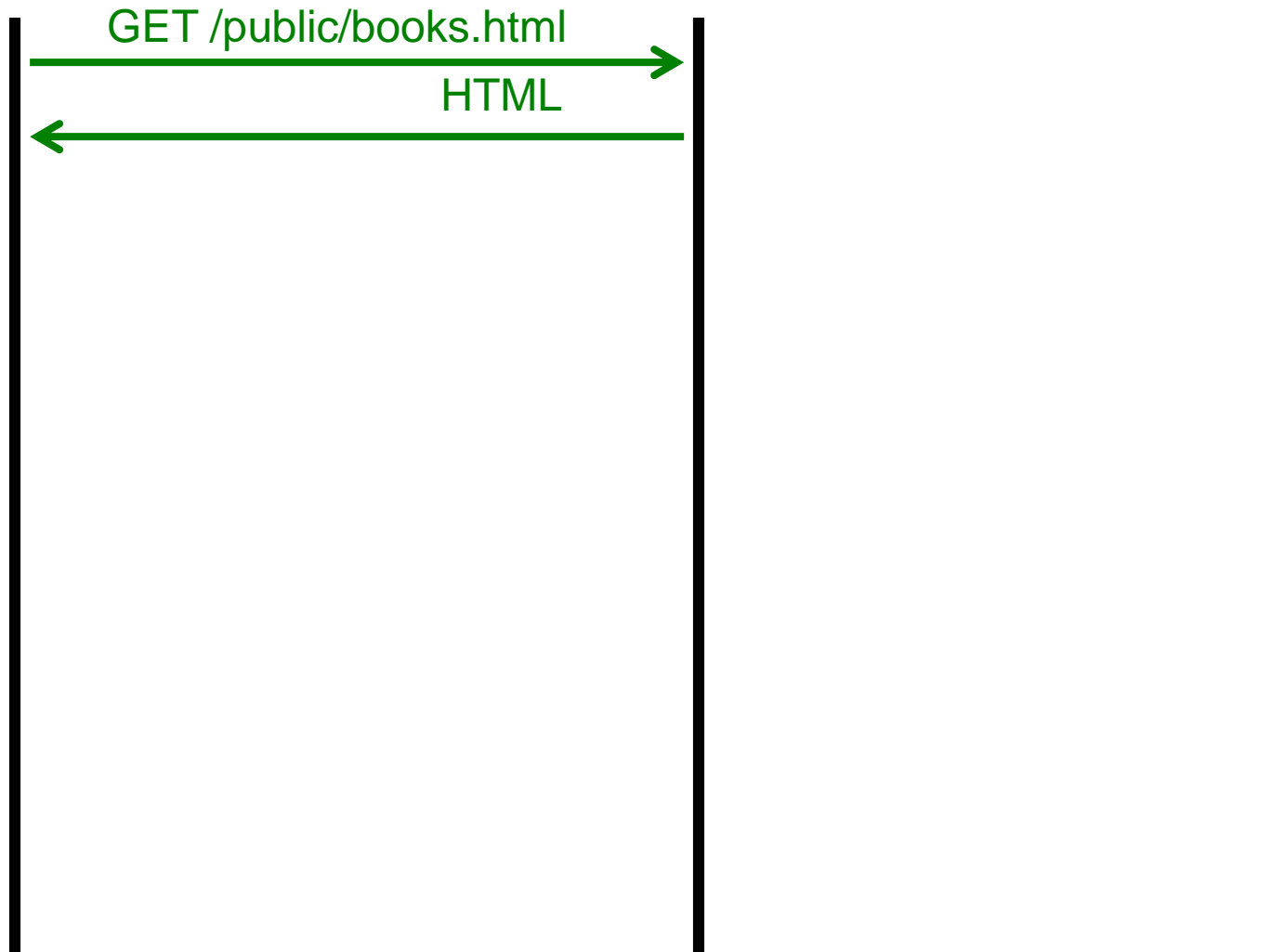


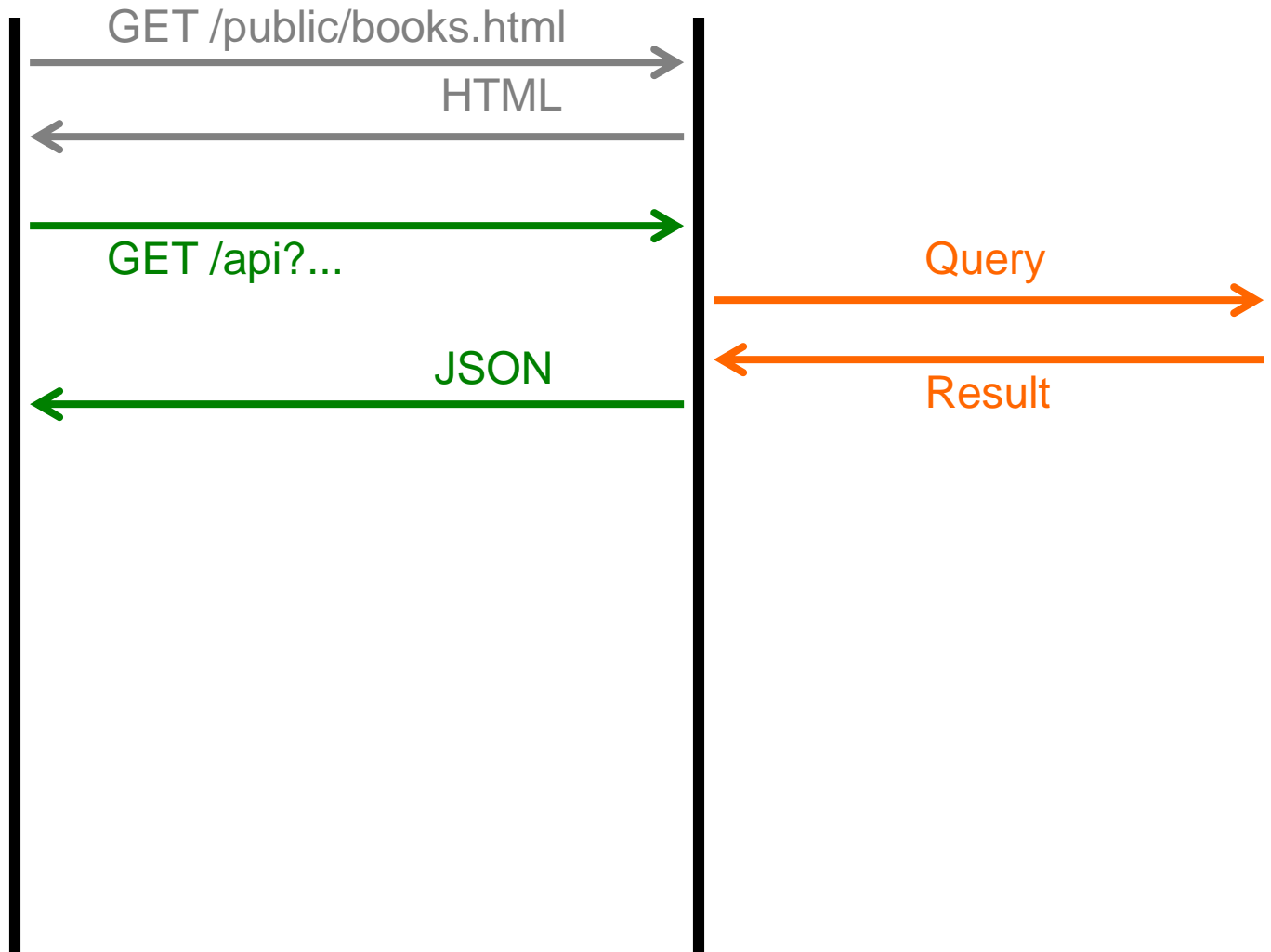
What is an API?

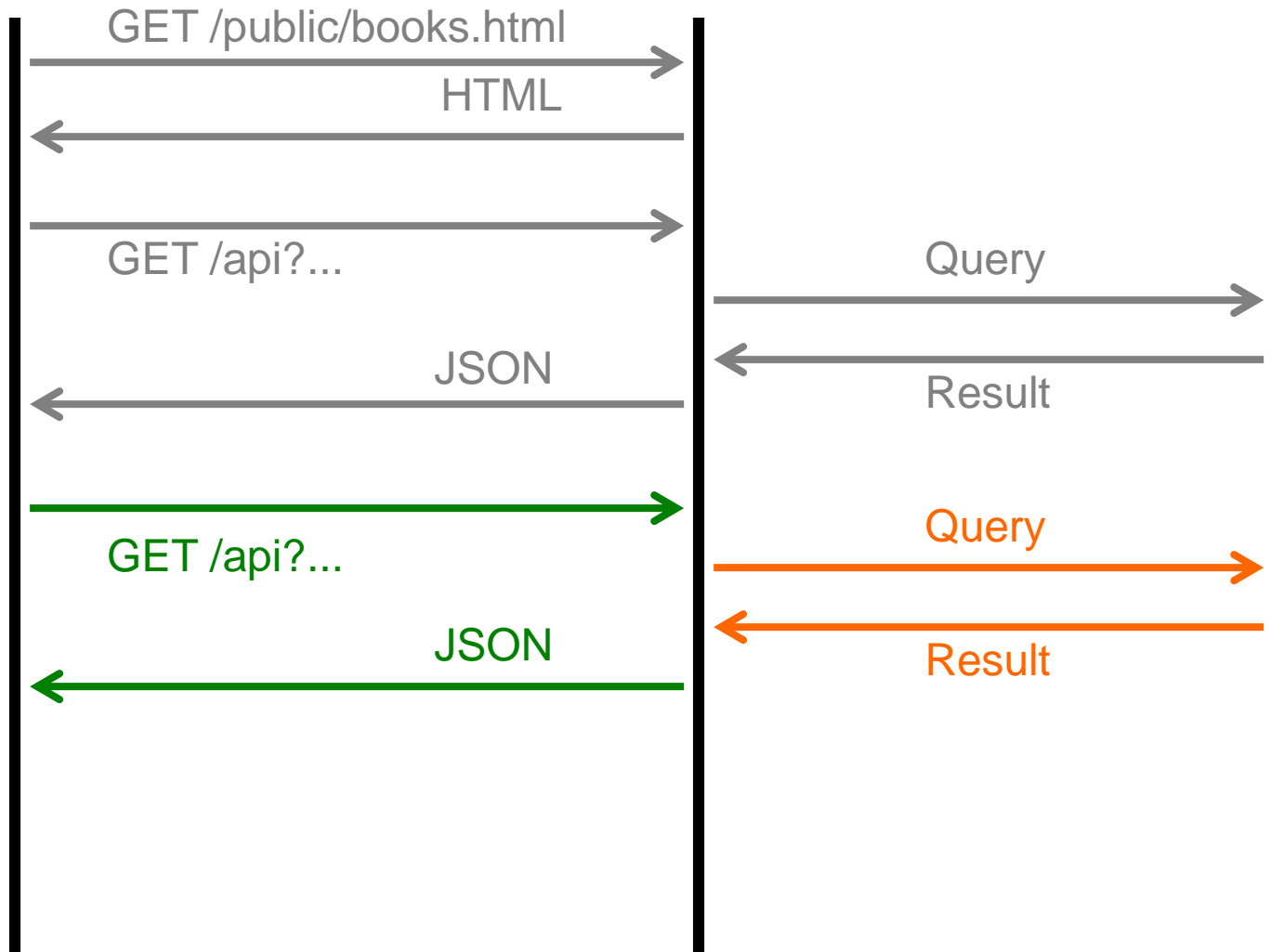
- An API is an **Application Programming Interface**
- It is a URL or a set of URLs that returns pure data to requests
- APIs can be used to incorporate data and functionality from other sources in your webapp

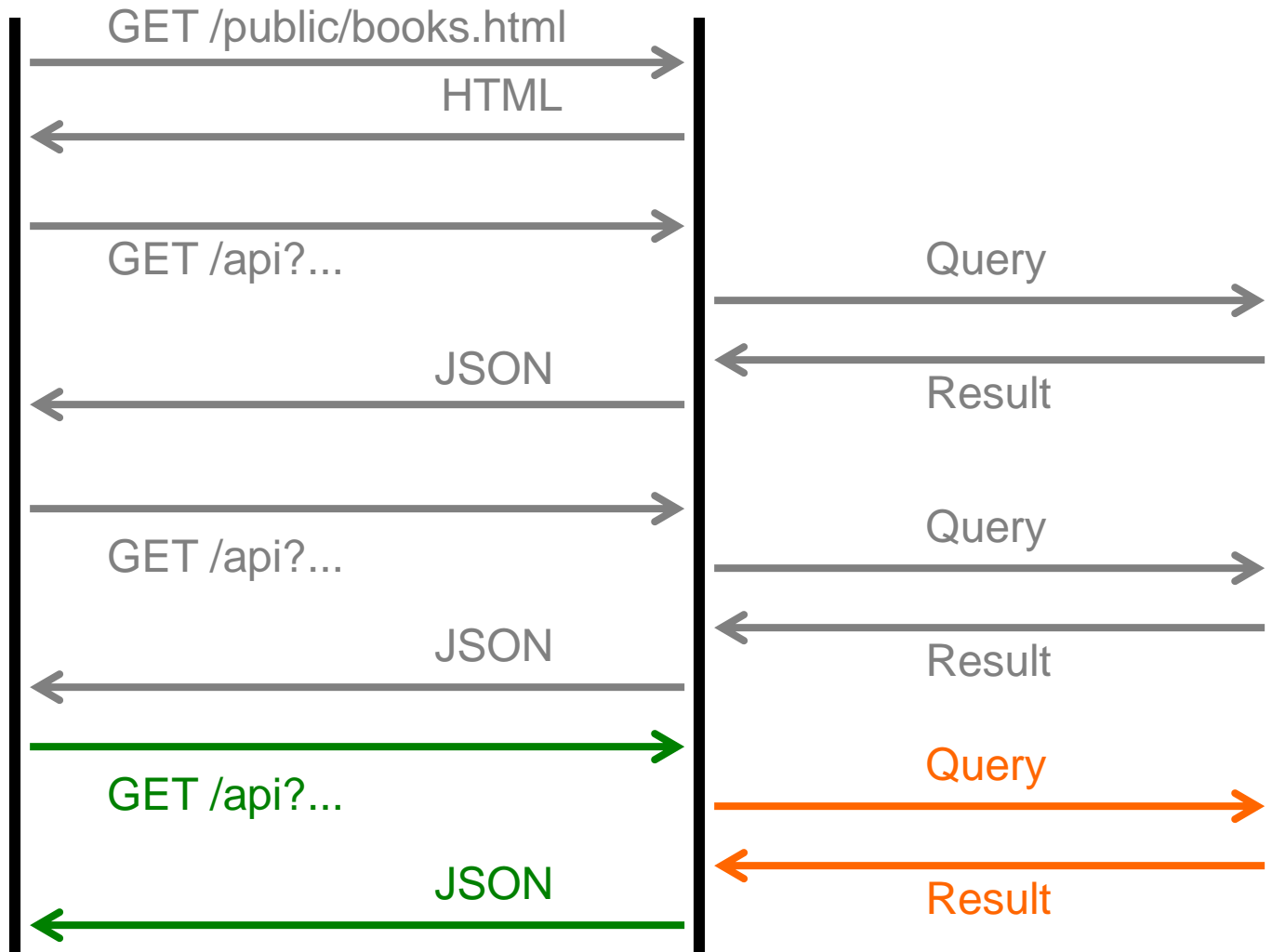
What is an API?

- An API is an **Application Programming Interface**
- It is a URL or a set of URLs that returns pure data to requests
- APIs can be used to incorporate data and functionality from other sources in your webapp
- **You can also create your own API using Node.js to return JSON data to HTTP requests**











Book Finder



Guest



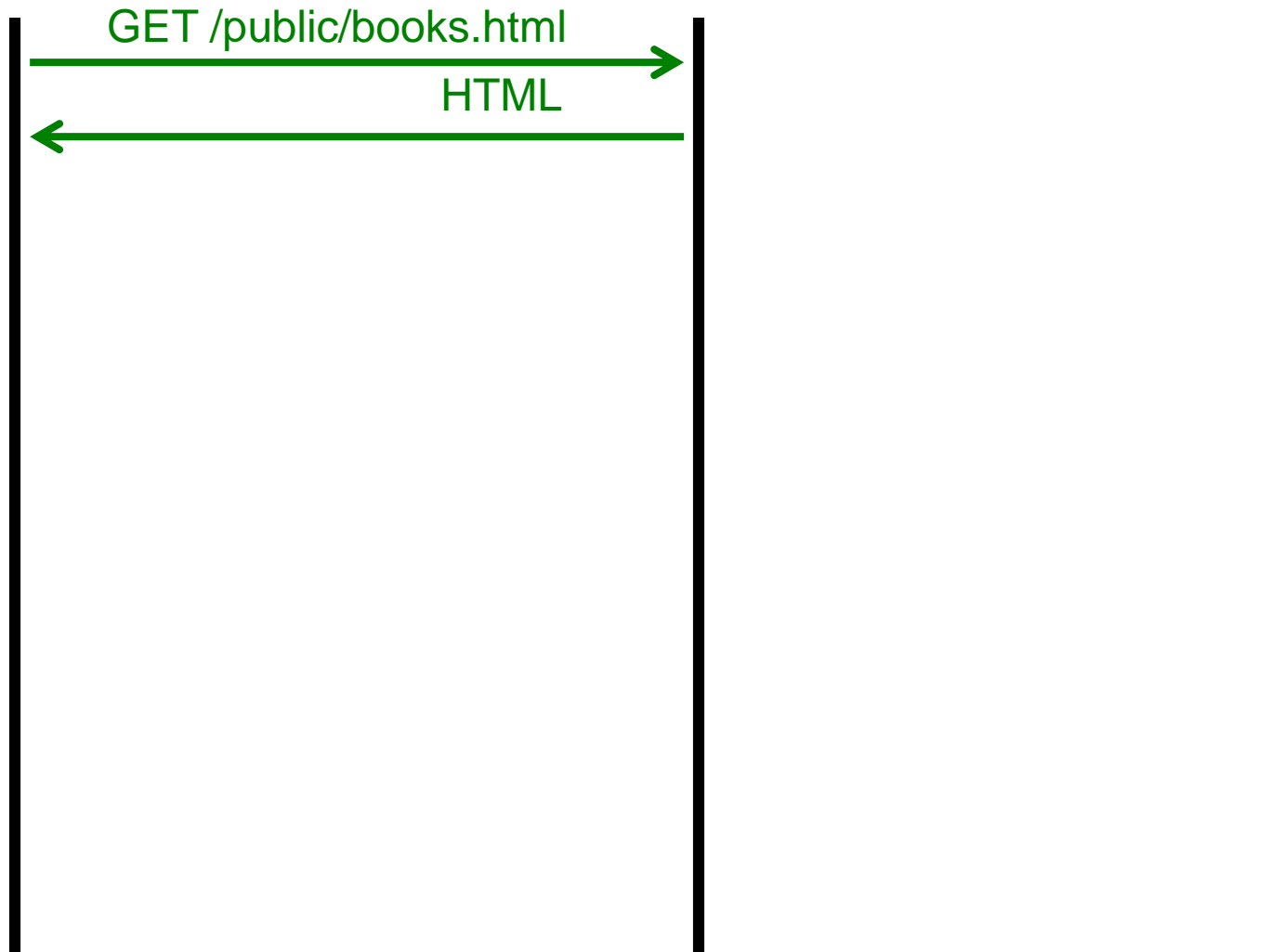
localhost:3000/public/books.html



Title:

Author:

Year:





Book Finder



Guest



localhost:3000/public/books.html



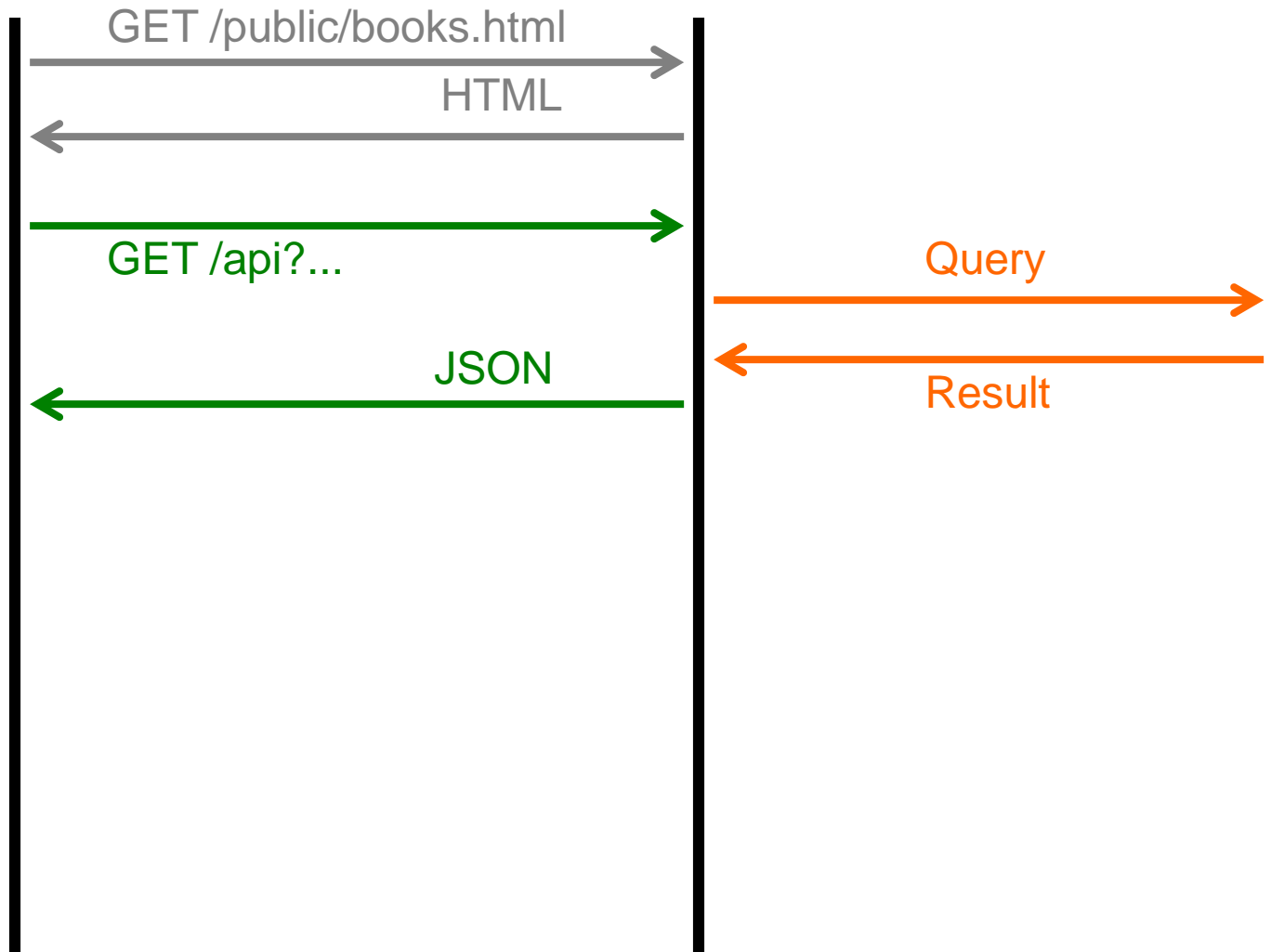
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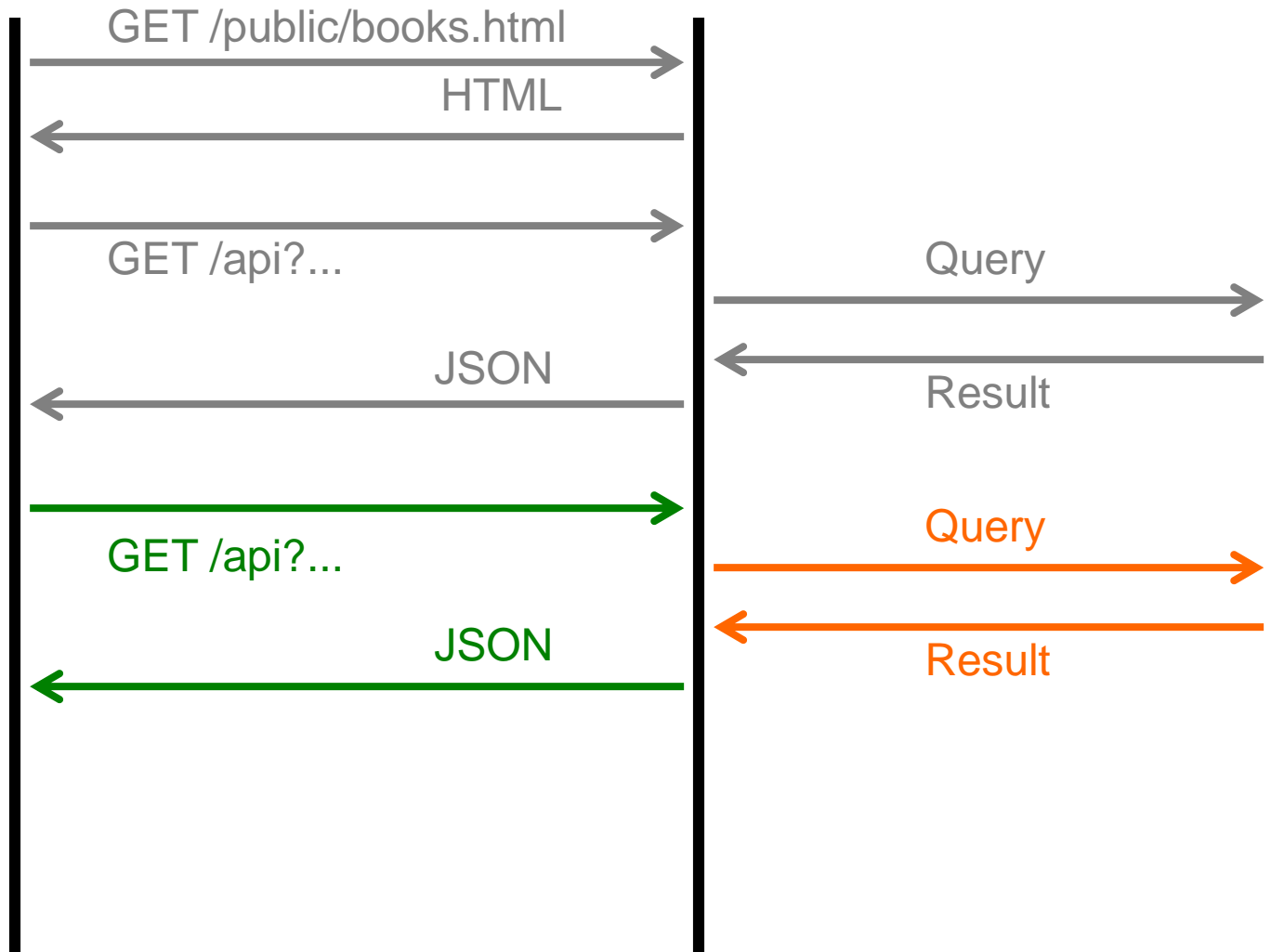


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var app = express();

app.set('view engine', 'ejs');

var bodyParser = require('body-parser');
app.use(bodyParser.urlencoded({ extended: true }));

var Book = require('./Book.js');

app.use('/public', express.static('public'));

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  if (req.query.name)
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  if (req.query.year)
    query.year = req.query.year;

  if (Object.keys(query).length != 0) {
    Book.find( query, (err, books) => {
      if (!err)
        res.json(books);
      else {
        console.log(err)
        res.json({});
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  }
  else res.json({}); // empty query

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  __v: 0,  
  authors: [ [Object] ] },  
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<html>
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    <meta charset="UTF-8" />
    <title>Book Finder</title>
    <script src="jquery.js"></script>
  </head>

  <body>

    <form>
      Title: <input name='title'><br>
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    <ul>
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        var title = $("input[name='title']").val();
        var author = $("input[name='author']").val();
        var year = $("input[name='year']").val();

        var query = '?';
        if (title) query += 'title=' + title + '&';
        if (author) query += 'name=' + author + '&';
        if (year) query += 'year=' + year;
        var url = 'http://localhost:3000/api/' + query;

        $.getJSON(url, (books, status) => {
            var results = $("#results");
            results.html('');
            books.forEach( (book) => {
                results.append('<li><i>' + book.title + '</i>, ');
                book.authors.forEach( (author) => {
                    if (author.name) results.append(author.name + ', ');
                });
                results.append(book.year + '</li>');
            });
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  <head>
    <meta charset="UTF-8" />
    <title>Book Finder</title>
    <script src="jquery.js"></script>
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  <body>

    <form>
      Title: <input name='title'><br>
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    <ul>
      <div id='results'></div>
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    <script>
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  __v: 0,  
  authors: [ [Object] ] },  
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</script>
```

```
<script>
    $("input").on( "change input textInput", () => {
        var title = $("input[name='title']").val();
        var author = $("input[name='author']").val();
        var year = $("input[name='year']").val();

        var query = '?';
        if (title) query += 'title=' + title + '&';
        if (author) query += 'name=' + author + '&';
        if (year) query += 'year=' + year;
        var url = 'http://localhost:3000/api/' + query;

        $.getJSON(url, (books, status) => {
            var results = $("#results");
            results.html('');
            books.forEach( (book) => {
                results.append('<li><i>' + book.title + '</i>, ');
                book.authors.forEach( (author) => {
                    if (author.name) results.append(author.name + ', ');
                });
                results.append(book.year + '</li>');
            });
        });
    });
</script>
```

```
<script>
    $("input").on( "change input textInput", () => {
        var title = $("input[name='title']").val();
        var author = $("input[name='author']").val();
        var year = $("input[name='year']").val();

        var query = '?';
        if (title) query += 'title=' + title + '&';
        if (author) query += 'name=' + author + '&';
        if (year) query += 'year=' + year;
        var url = 'http://localhost:3000/api/' + query;

        $.getJSON(url, (books, status) => {
            var results = $("#results");
            results.html('');
            books.forEach( (book) => {
                results.append('<li><i>' + book.title + '</i>, ');
                book.authors.forEach( (author) => {
                    if (author.name) results.append(author.name + ', ');
                });
                results.append(book.year + '</li>');
            });
        });
    });
</script>
```

[localhost:3000/public/books.html](#)Title: Author: Year:

- *Intro to Java Programming*, Arvind Bhusnurmath, 2017
- *JavaScript Programming*, Chris Murphy, Swapneel Sheth, 2017
- *The Art of Computer Programming*, Donald Knuth, 1968

Summary

- We can use **server-side** tools such as Node.js, Express, and MongoDB to develop APIs to make data available on the Web
- We can use **client-side** tools such as jQuery, React.js, and D3.js to access that data and display it in a Web page