

Careers in Software Engineering

George Marklow

About me

Summary

I'm a software engineer,
author, blogger, and tech
enthusiast who believes in
helping others to make us
happier and healthier.



Career highlights

Analyst

Bank of America Merrill
Lynch, London
April 2014 – Feb 2018



Assistant Vice President

Bank of America Merrill
Lynch, London
Feb 2018 – Jan 2020



Developer

BigHand, London
Mar 2020 – Present



What's the most common technologies?

Stackoverflow.com

More than just a Q&A site!

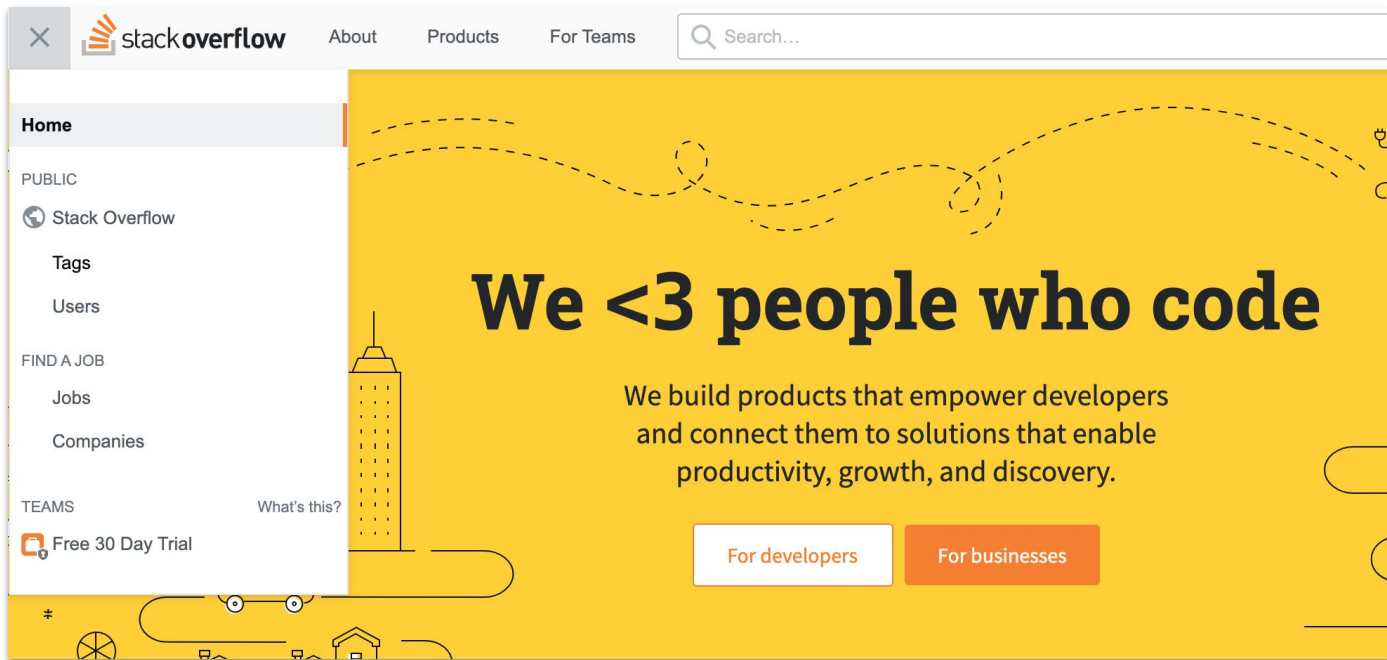


- Visit the **tags** section of the website
- Find which technologies have the most questions
- It follows there must be more jobs with those skills

— — —

Find tags in the main menu

— — —



Check technologies with the most questions



stackoverflow

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Search...

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PUBLIC

Stack Overflow

Tags

Users

FIND A JOB

Jobs

Companies

TEAMS

What's this?



Free 30 Day Trial

Tags

A tag is a keyword or label that categorizes your question with other, similar questions. Using the right tags makes it easier for others to find and answer your question.

[Show all tag synonyms](#)



Filter by tag name

Popular

Name

New

javascript

For questions regarding programming in ECMAScript (JavaScript/JS) and its various dialects/implementations (excluding ActionScript). This tag is...

2112678
questions

837 asked today, 5358 this
week

java

a popular high-level programming language. Use this tag when you're having problems using or understanding the language itself. Th...

1726186
questions

496 asked today, 3087 this
week

python

a multi-paradigm, dynamically typed, multipurpose programming language. It is designed to be quick to learn, understand, and use, and enforce a...

1571200
questions

1197 asked today, 7552
this week

c#

a high level, statically typed, multi-paradigm programming language developed by Microsoft. C# code usually targets Microsoft's .NET famil...

1444685
questions

358 asked today, 2174 this
week

Search skills from community posts

— — —

stackoverflow About Products For Teams Search...

Home

PUBLIC

Stack Overflow

Tags

Users

FIND A JOB

Jobs

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TEAMS What's this?

Free 30 Day Trial

A tag is a keyword or label that categorizes your question with other, similar questions. Using the right tags makes it easier for others to find and answer your question.

[Show all tag synonyms](#)

Search: perl

Tag	Description	Questions	Recent Activity
perl	a procedural, high-level, general-purpose, dynamic programming language, known for its native support of regular expressions and string...	65806 questions	9 asked today, 49 this week
hyperlink	a reference to a document (or a section) that can be followed for retrieval using a navigation system that allows selecting emphasized content...	16966 questions	24 asked this week, 98 this month
hyperledger-fabric	an implementation of blockchain technology. Use this tag for questions about this project.	5306 questions	14 asked this week, 68 this month

How do I find salary and industry trends?

ItJobsWatch.com

All in a day's work




- Search software jobs
- Check industry trends
- Which skills typically go together i.e. **stack**
- Salary distribution

— — —

List the top skills and job descriptions

— — —



Tracking the IT Job Market

14,958 Job Vacancies

WFH

CV Upload

Permanent IT Jobs

Contract IT Jobs

Skills / Job Roles - Comma Separated

London
















Any Category

Period


6 months

3 months to 30 October 2020

Results 1 - 30 of 7,779

Skill / Job Role (Historical trends & salary statistics)	Rank 6 Months to 30 Oct 2020	Rank Change Year-on-Year	Median Salary 6 Months to 30 Oct 2020	Median Salary % Change Year-on-Year	Historical Permanent Job Ads	Live Job Vacancies
<div> Developer</div>	1	<div> +1</div>	£55,000	+10.00%	15,267 (30.55%)	<div> 4,980</div>
<div> Agile Software Development</div>	2	<div> -1</div>	£60,000	+9.09%	14,377 (28.77%)	<div> 3,442</div>
<div> Azure</div>	3	<div> +5</div>	£57,500	+4.54%	10,113 (20.23%)	<div> 2,611</div>
<div> JavaScript</div>	4	<div> +2</div>	£52,500	+5.00%	9,923 (19.85%)	<div> 3,014</div>
<div> Finance</div>	5	<div> -2</div>	£65,000	+8.33%	9,660 (19.33%)	<div> 1,975</div>

Search permanent and contract career data



Tracking the IT Job Market

14,958 Job Vacancies

WFH

CV Upload

Permanent IT Jobs

Contract IT Jobs

Javascript

London

Any Category


JavaScript

months

3 months to 30 October 2020

	Rank Change Year-on-Year	Median Salary 6 Months to 30 Oct 2020	Median Salary % Change Year-on-Year	Historical Permanent Job Ads	Live Job Vacancies
JavaScript Developer	▲ +1	£55,000	+10.00%	15,267 (30.55%)	▶ 4,980
JavaScript Engineer					
Isomorphic JavaScript					
Junior JavaScript Developer					
▶ Agile Software Development	▼ -1	£60,000	+9.09%	14,377 (28.77%)	▶ 3,442

Refine by skill or job role



Tracking the IT Job Market

[Home](#)[UK Job Vacancies](#)[WFH](#)[CV Upload](#)

Permanent IT Jobs

Contract IT Jobs

JavaScript

London

Any Category

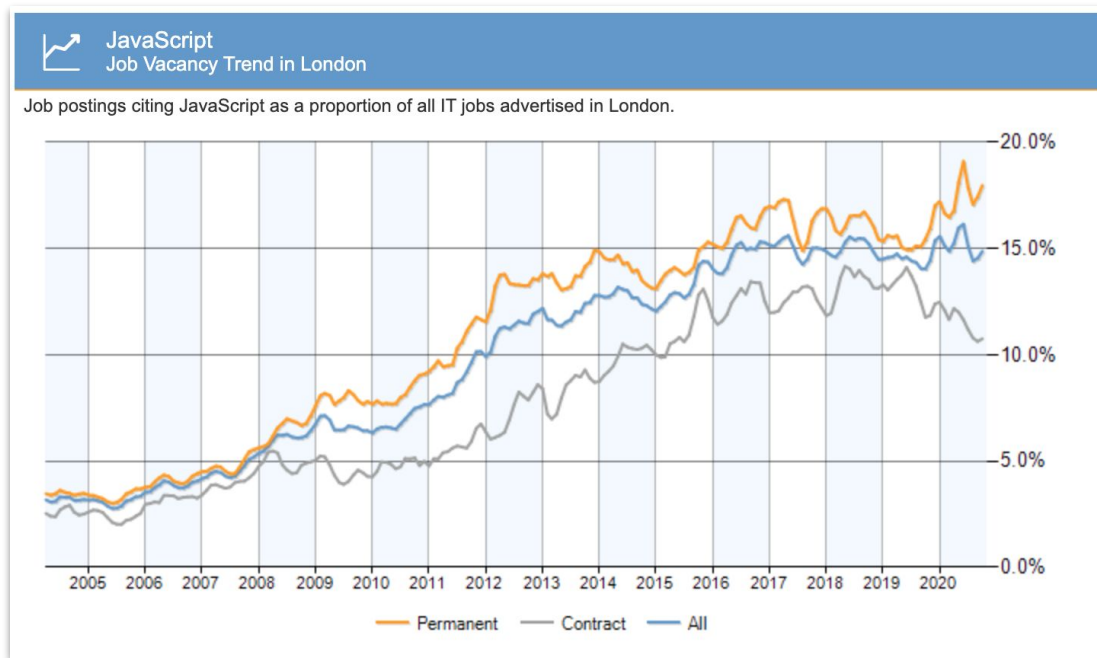
Period ☒ 6 months ☐ 3 months to 30 October 2020

Results 1 - 23 of 23

Skill / Job Role (Historical trends & salary statistics)	Rank 6 Months to 30 Oct 2020	Rank Change Year-on-Year	Median Salary 6 Months to 30 Oct 2020	Median Salary % Change Year-on- Year	Historical Permanent Job Ads	Live Job Vacancies
JavaScript	9	-1	£67,500	+3.84%	3,592 (17.94%)	909
JavaScript (including ECMAScript) jobs in London						
JavaScript Developer	143	+66	£70,000	+3.70%	470 (2.35%)	115
JavaScript Engineer	291	+275	£87,500	+25.00%	180 (0.90%)	31

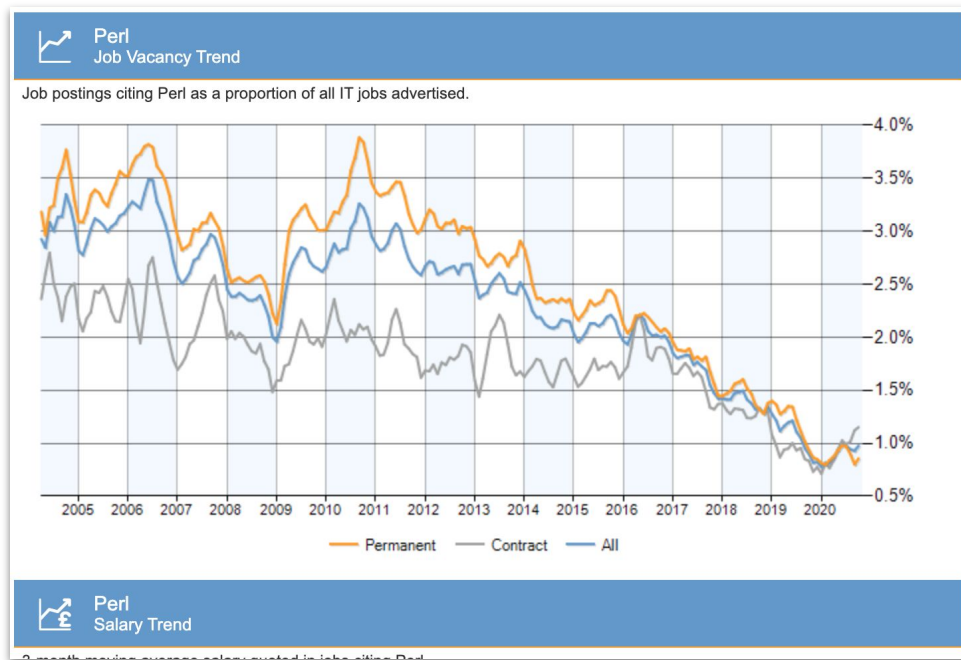
Check the trend is going the right way

— — —



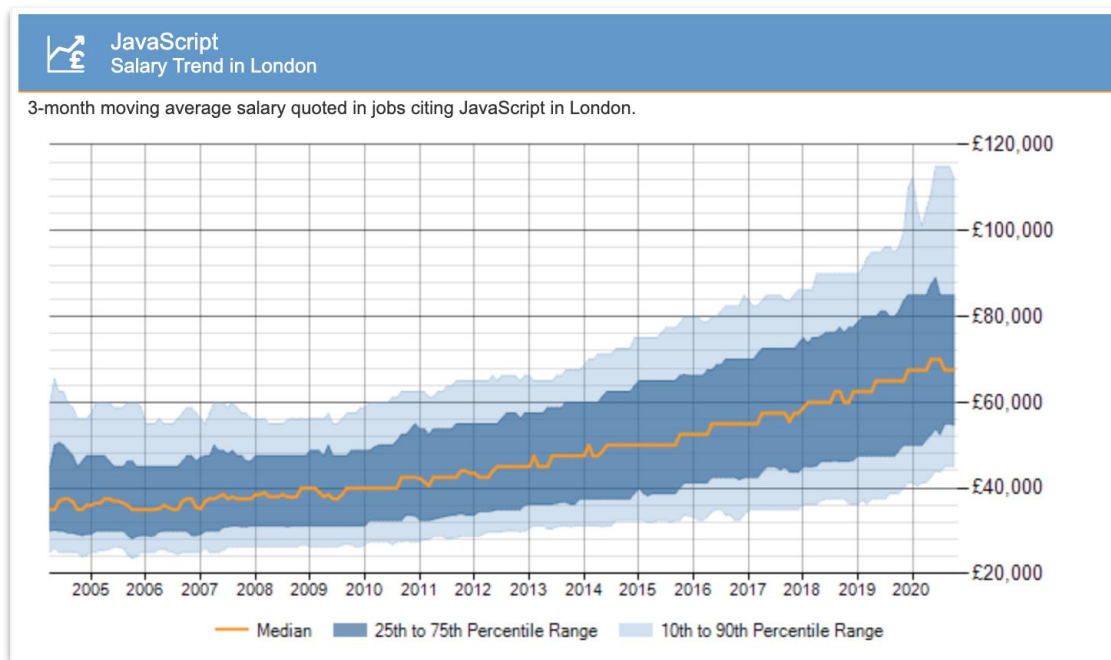
...or perhaps not

— — —



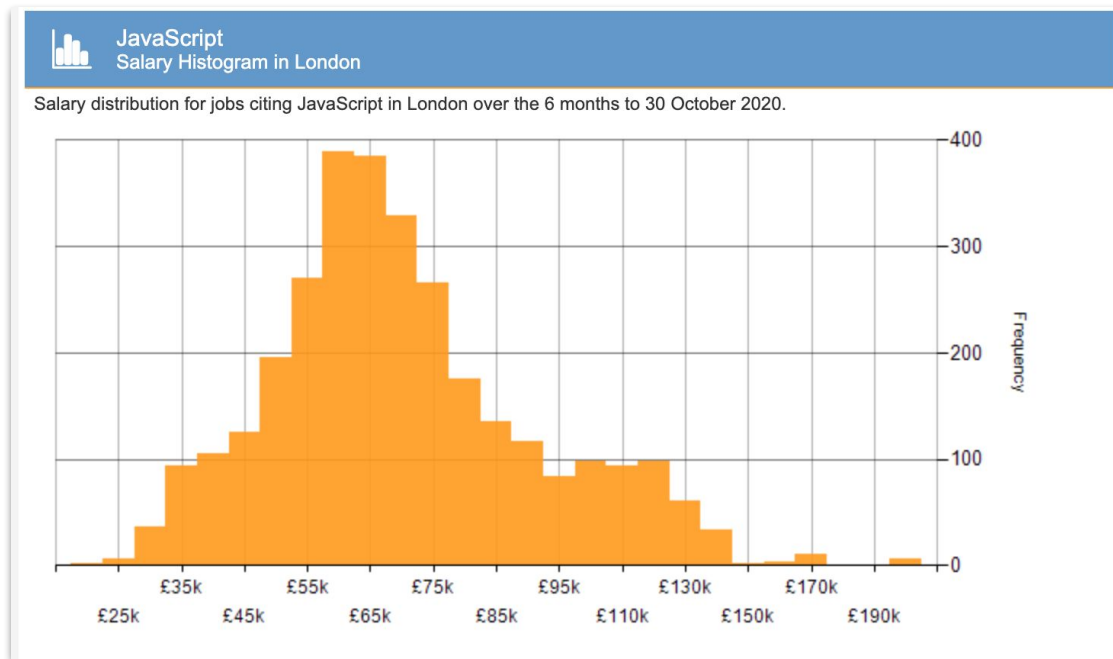
Find salary trends by skill

— — —



Discover the salary distribution

— — —



Check which skills commonly go together



JavaScript

Top 30 Co-occurring IT Skills in London

For the 6 months to 30 October 2020, IT jobs citing JavaScript also mentioned the following skills in order of popularity. The figures indicate the absolute number co-occurrences and as a proportion of all permanent job ads across the London region with a requirement for JavaScript.

1	1,888 (52.56%)	Agile Software Development	16	783 (21.80%)	C#
2	1,449 (40.34%)	React	17	722 (20.10%)	Microservices
3	1,230 (34.24%)	HTML	18	658 (18.32%)	TypeScript
4	1,193 (33.21%)	AWS	19	640 (17.82%)	DevOps
5	1,191 (33.16%)	CSS	20	626 (17.43%)	Docker

What are some typical stacks?



Javascript

The language of the web

- HTML
- CSS
- HTTP
- Node.js
- Angular / React
- TypeScript
- Visual Studio Code
- Git

— — —



Java

Write once, run anywhere

- Spring
- Linux
- Scala
- Kotlin
- SQL
- Oracle
- Eclipse
- Git

— — —



Python

The compiler reads those
indents

- Flask
- Linux
- Django
- Data Science
- SQL
- Pandas
- PyCharm
- Git

— — —



.NET

A framework for building
web apps and services with
.NET and C#.

- ASP.NET
- C#
- MVC
- Angular / React
- Microsoft SQL Server
- Visual Studio
- Azure
- Git

— — —

Example job description 1

As a JavaScript Developer, you'll work with a small but talented team to design, develop and maintain cloud-based software applications. The team are looking for you to demonstrate strong full-stack experience, with a Node.js back-end. As a remote team, they make the most of video technology to ensure open communication and team building, they get together in the office for a meet up every few weeks. The office is based in Kent, about an hour outside on central London.

As well as their remote and flexible working policy, the business also provide a strong benefits package and a salary to match your experience.

Skills

- React.js
- Node.js
- HTML/CSS/JavaScript
- TypeScript
- GIT

Example job description 2

— — —

WHAT YOU WILL DO:

- Build low latency, scalable and highly performant services using the most appropriate languages (e.g. C/C++, Java, Kotlin) and tools (Kafka, Cassandra).
- Be a part of a dedicated engineering team committed to rapidly shipping, and iterating on products that directly impact millions of users.
- Be at the forefront of the cryptocurrency ecosystem building out a new set of financial services, systems and architecture.
- Gain exposure to an array of open-source technologies such as Kafka, PostgreSQL, Redis, Cassandra, RabbitMQ, etc.
- Ensure security is at the forefront of everything you do, employing advanced encryption schemes to secure user and company data.
- Work within interdisciplinary teams to continually deliver the highest quality products to our users.

How do I practice for technical interviews?

Preparing for technical interviews

Getting over that initial
hurdle

- The “Drill Script”
- Hackerrank / Coderpad / Leetcode
- GeeksforGeeks
- Books
- YouTube / Blogs
- Video tutorial sites
e.g Pluralsight

— — —

What language should I choose for technical interviews?

— — —

- Python
- Main objective is to **get the right answer**
- No curly braces to trip up on
- Compiler reads indents, so code will be nicely formatted to complete during the interview
- Easy to explain your thinking
- Fewer lines of code



Create a “Drill Script”

— — —

Write out a drill script to
memorise examples on:

- String manipulation
- Control flow
- Arrays / lists / dictionaries / sets
- Classes
- Standard library
- Search / sort algorithms

```
>>> letters = ['a', 'b', 'c', 'd', 'e', 'f', 'g']>>> letters
['a', 'b', 'c', 'd', 'e', 'f', 'g']
>>> # replace some values
>>> letters[2:5] = ['C', 'D', 'E']
>>> letters
['a', 'b', 'C', 'D', 'E', 'f', 'g']
>>> # now remove them
>>> letters[2:5] = []
>>> letters
['a', 'b', 'f', 'g']
>>> # clear the list by replacing all the elements
>>> letters[:] = []
>>> letters
[]
```

Where do I start?

— — —

Online Python Interpreter:

<https://www.programiz.com/python-programming/online-compiler/>

The Python Tutorial:

<https://docs.python.org/3/tutorial/index.html>

w3 School:

https://www.w3schools.com/python/python_arrays.asp

Array Methods

Python has a set of built-in methods that you can use on lists/arrays.

Method	Description
<code>append()</code>	Adds an element at the end of the list
<code>clear()</code>	Removes all the elements from the list
<code>copy()</code>	Returns a copy of the list
<code>count()</code>	Returns the number of elements with the specified value
<code>extend()</code>	Add the elements of a list (or any iterable), to the end of the current list
<code>index()</code>	Returns the index of the first element with the specified value
<code>insert()</code>	Adds an element at the specified position
<code>pop()</code>	Removes the element at the specified position
<code>remove()</code>	Removes the first item with the specified value
<code>reverse()</code>	Reverses the order of the list
<code>sort()</code>	Sorts the list

Platforms commonly used in technical interviews

— — —

- Programming challenges for interview preparation
- Used by companies to make hiring decisions
- Interviewer starts with an incomplete piece of code
- Asks you to read the question
- Complete the code
- Get unit tests to pass

N.b. don't start coding until you understand what you're asked for



GeeksForGeeks

— — —

- Learning and revision
- Tutorials
- Courses
- Problems with answers in different coding languages



Data Structures and Algorithms

— — —

Tutorials ^ Student v Courses Jobs v

Algorithms >

Data Structures >

Languages >

Interview Corner >

GATE >


ISRO CS >

UGC NET CS >

CS Subjects >

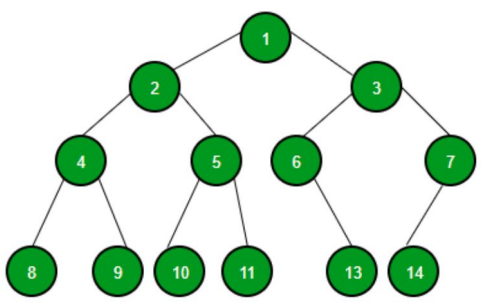
Web Technologies >

Algorithms v



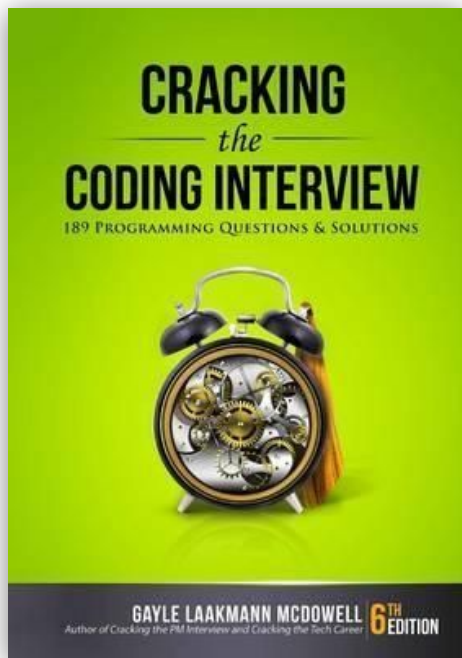
Binary Tree Data Structure

A tree whose elements have at most 2 children is called a binary tree. Since each element in a binary tree can have only 2 children, we typically name them the left and right child.



Books I've used to prepare for interviews

— — —



‘Cracking the Coding Interview’ in Python

— — —

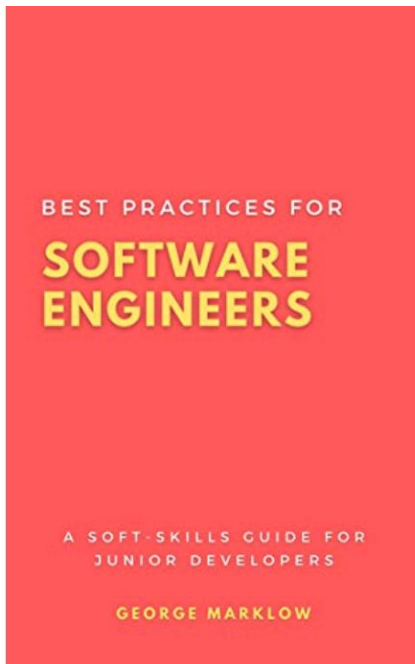
The screenshot shows the GitHub interface for the repository 'careercup / CtCI-6th-Edition-Python'. The top navigation bar includes the GitHub logo, a search bar, and links for Pull requests, Issues, Marketplace, and Explore. Below the repository name, there are tabs for Code, Issues (15), Pull requests (80), Actions, Projects, Wiki, Security, and Insights. The 'Code' tab is selected, showing the file structure of the repository. At the top of the file list, there are buttons for 'Go to file', 'Add file', and 'Code'. The file list includes folders for Chapter1 through Chapter8, and files for .gitignore and README.md. Each item shows a brief description of its content and the time it was last updated.

File/Folder	Description	Last Updated
Chapter1	Optimize file CheckPermutation.py to be more Pythonic.	4 years ago
Chapter10	Reformatted all files using autopep8.	5 years ago
Chapter2	Fix loop detection. Closes #24	4 years ago
Chapter3	Add 3.3 stack of plates	4 years ago
Chapter4	Added some docs	4 years ago
Chapter8	88 permutations with dups (#30)	4 years ago
.gitignore	Python solutions for Chapter 2	5 years ago
README.md	Update README.md	4 years ago

While we're on the subject of books...

— — —

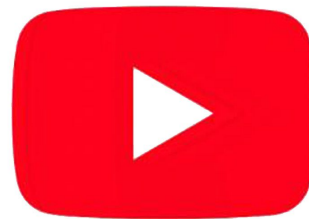
- Recently released a book:
Best Practices for Software Engineers
- Provides soft-skills advice
- Ideal for internships
- Guide for junior developers



YouTube

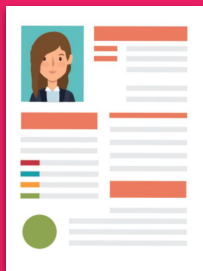
— — —

- Free programming tutorials
- Search for how to build an application for your Github site:
 - Email client
 - Chat app
 - Blogging website
 - Bug tracking application



YouTube

What is personal branding (very briefly)?



CV

A powerful marketing
document

- Links to Github / LinkedIn / blogs / stackoverflow
- Objective
- Employment History
- Education
- Courses
- Publications / Patents
- Voluntary work / culture building
- 1 page for students, unless there's extensive internship experience



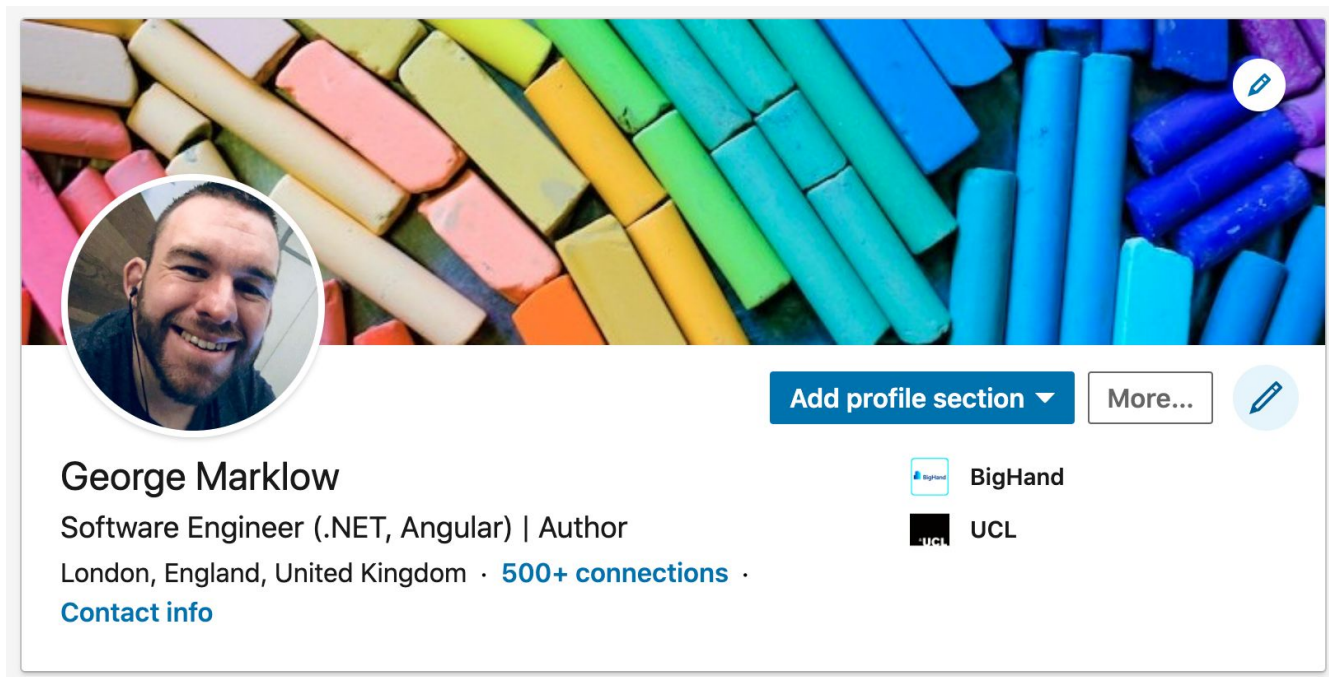
LinkedIn

Your shop window

- Photo and banner
- Summary
- Key skills
- Description of each company + skills + duties
- Extend the limitations of your CV, adding more information
- Always send a message when attempting to connect with someone

Example LinkedIn profile header

— — —



Questions?



Contact

— — —



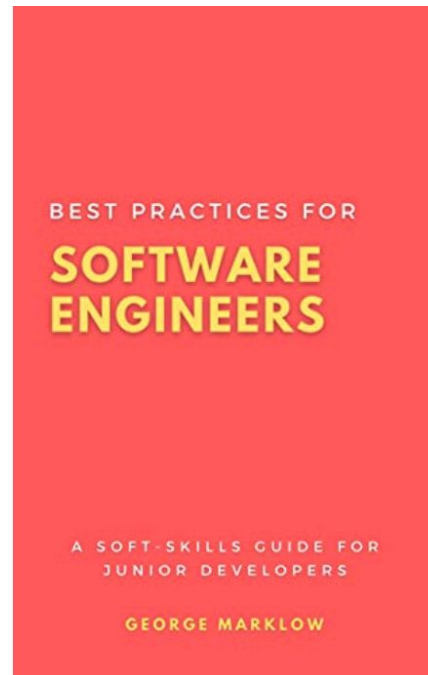
<https://www.linkedin.com/in/georgemarklow/>



<https://github.com/georgemarklow/>



<https://medium.com/@marklowg>



Final words

Thank you
Good luck

