



**SOURCE**  
TECHNOLOGY  
#DISCOVERTECHPOTENTIAL

# THE EVOLUTION OF THE KOTLIN MARKET

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# INTRODUCTION

The Kotlin market is growing and is expected to continue growing in the future, according to Devjobscanner, 10,027 Kotlin jobs were advertised in 2022, making it the 11th most in-demand programming language. Clearly, it's becoming an ever-popular choice for developers and employers.

**The reasons for this growth can be attributed to the following factors:**

## **Increased adoption by Android developers**

- One of the main reasons for the growth of the Kotlin market is its increasing popularity among Android app developers.

## **Improved safety and performance**

- Kotlin provides improved safety features and better performance compared to Java, which is the traditional language for Android app development.

## **Collaboration in a vibrant community**

- The Kotlin community is a thriving and supportive group of developers and users who are passionate about the language and its applications.

## **Opportunities for growth & development**

- As Kotlin continues to gain popularity and become more widely adopted, there will be increasing opportunities for Kotlin developers to grow and advance in their careers.

Some of the most exciting firms globally are adopting the language from tier one investment banks to unicorn startups. Moving from Java to Kotlin is the most common transition but the excitement behind Kotlin has meant that we are seeing firms migrate from other languages, including PHP and Ruby.

Within this report, you will find the results of our survey – The Evolving Kotlin Market. This report has been created based on the responses of developers from around the world who participated in our survey in Jan & Feb 2023.

Our insights cover a wide range of topics, including programming languages, interview processes, technologies, demographics, and employer value propositions important to the talent within this community.

Source Technology are proud to be partners of KotlinConf23<sup>1</sup>.



# KEY TAKEAWAYS

**101,923**

Kotlin talent pool  
across Europe

**50% Contract**

**49% Perm**

**73%**

of developers would  
either not revert to  
Java or expect to be  
paid more

**27%**

work in the

**Financial  
Services**  
Industry

**94% Male**

3% Female

3% Non- Binary

**53%**

work with the

**Spring Boot**  
framework

**40%**

Back – end

**60%**

Android

**40%**

Fully Remote

**34%**

Remote first +  
collaboration

**76%**

Outside IR35

**24%**

Inside IR35

## Data Source

This Market Update is drawn from our online survey; our own internal data; collected, stored, and processed through our CRM and information collected using the LinkedIn Talent Insights tool. The data is processed on the basis of the internal division that facilitated the introduction, and so personal location data is not processed, nor are details of nationality.

## Disclaimer

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# TALENT LOCATION

The pool of Kotlin talent is growing as the popularity of the language continues to increase. More and more developers are learning Kotlin and incorporating it into their skill sets, as it becomes a more in-demand language for both Android and non-Android development. According to the Stack Overflow developer survey, 17,435 developers would like to transition from languages such as Java and JavaScript to Kotlin.

The talent pool across Europe varies, with the highest population of developers in the UK and in Ukraine.

***Out of the Kotlin talent pool across Europe (101,923 people), 60% are Android and 40% are Backend focused.***

Location	Professionals
Germany	6,132
London, UK	5,363
Ukraine	4,966
Paris, France	3,908
The Randstad, Netherlands	3,335
Madrid, Spain	2,673
Romania	2,526
Warsaw, Poland	2,223
Lisbon, Portugal	1,748

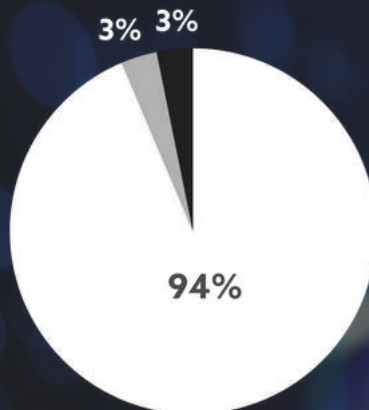




# GENDER & DE&I ACROSS THE KOTLIN COMMUNITY

## Gender

- Male
- Female
- Trans-gender
- Non-Binary
- Prefer not to answer



It is well-known that the technology industry as a whole has struggled with gender diversity and has historically been male-dominated.

The diversity data remains low, however there are developments being implemented to see an improvement.

## DE&I across the Kotlin community

Diversity and inclusion (D&I) are important topics in the technology industry, and the Kotlin community is no exception. In recent years, the Kotlin community has made efforts to increase diversity and inclusion. Some of the initiatives include:

### Women in Kotlin:

Women in Kotlin is a community initiative that aims to support and empower women who use or want to use Kotlin. The group organizes events, workshops, and meetups to provide opportunities for women to network and share knowledge.

### KotlinConf Diversity Tickets:

JetBrains, the company behind Kotlin, offers diversity tickets to KotlinConf, the annual Kotlin conference. These tickets are reserved for underrepresented groups in tech and provide an opportunity for them to attend the conference.

### Kotlin User Group Diversity Initiative:

The Kotlin User Group Diversity Initiative aims to increase diversity and inclusion in Kotlin user groups around the world. The initiative provides resources and support to organizers who want to create more diverse and inclusive user groups.

### Accessibility in Kotlin:

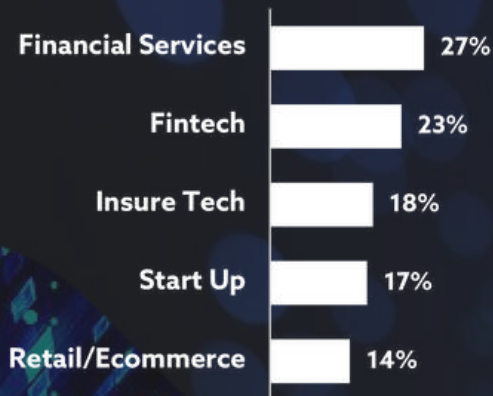
The Kotlin community has also started to focus on accessibility in Kotlin. This includes ensuring the language and tools are accessible to people with disabilities.

Overall, the Kotlin community is taking steps towards improving diversity and inclusion. These efforts are important for creating a more welcoming and supportive community for everyone.



# INDUSTRY

## Industry Popularity

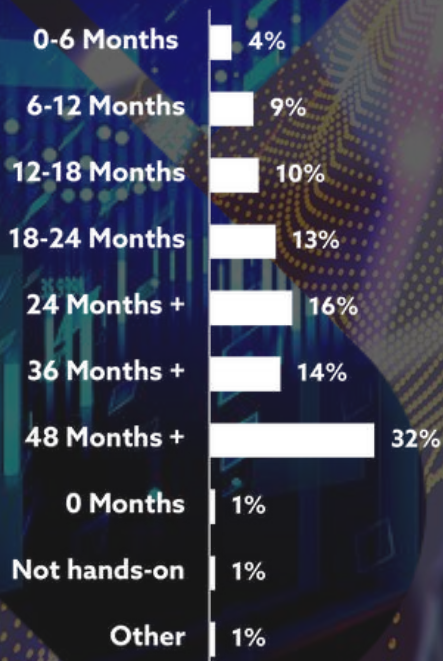


The most popular industries for Kotlin adoption so far appear to be Financial Services, ecommerce and Start-Ups, with 35.1% of survey respondents working in financial services.

Finance companies leading the way isn't surprising given the safety and reliability of Kotlin, which has several safety features built into the language that help developers write more reliable and error-free code.

For example, null safety features reduce the risk of null pointer exceptions, which can cause serious problems in financial applications. The language also includes immutable data types and type inference, which help prevent common programming errors.

## Time working with Kotlin



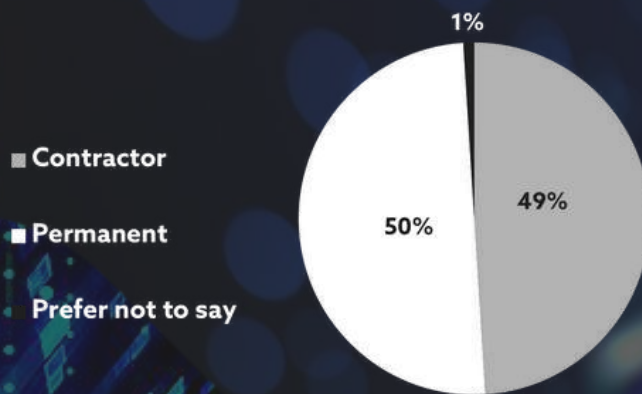
32% of respondents have been using Kotlin for over 48 Months.

36% of respondents had less than 2 years of experience, demonstrating how quickly the Kotlin language has been adopted.



# WORKER STATUS

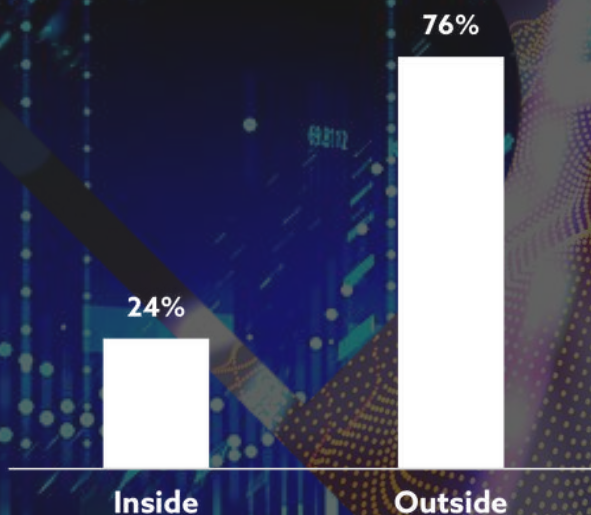
## Contractors & Permanent



Our data suggests there is an even split between Kotlin developers working in permanent roles and those working in contractor / freelance positions.

This provides a healthy balance and gives the Kotlin community options to work in a way that suits them best.

## If in the UK, are you inside or outside IR35?



A particularly interesting statistic is that the majority of UK-based respondents in the Kotlin space work outside IR35.

One possible reason for this is that Kotlin is being adopted for new greenfield projects which require independent consultants.



# COMPENSATION

## Permanent

Permanent	UK (£)	Germany (€)	Netherlands (€)	USA (\$)	Switzerland (€)	Remote EU (€)
Junior	40 – 60K	55 – 70K	55 – 70K	60-90K	60-80K	30-50K
Mid	60 – 80K	70 – 90K	70 – 90K	90-120K	80- 100K	50-70K
Senior	80 – 130K	90 – 140K	90 - 140K	120-160K	110-140K	70-100K

## Contract

Contract	UK (£)	Germany (€)	Netherlands (€)	Switzerland (€)	Remote EU (€)
Range	550-1000	600-1150	600-1150	800- 1200	400-650
Typical	650	800	800	1000	550

The results from the survey varied in terms of average salary across developers, the most popular salary banding falling between €60,000 - €70,000 / annum.

There are contributing factors affecting salaries, such as location, years of service & company size.

Across Europe, the highest salaries fall in locations such as London, Berlin & Amsterdam.

Nevertheless, Kotlin developers can generally expect to earn salaries that are competitive with other software developers in the mobile app development space.

### Notes:

\*All figures quoted in local currency

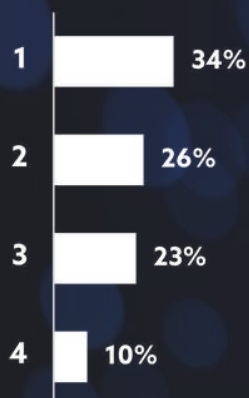
\*Taken from data from the survey, our CRM and market expert input. Focuses on markets we serve to ensure accuracy.

\*Contractor rates not quoted in US as a permanent focused market and we don't have enough data points



# INTERVIEW PROCESS

## Interview Stages



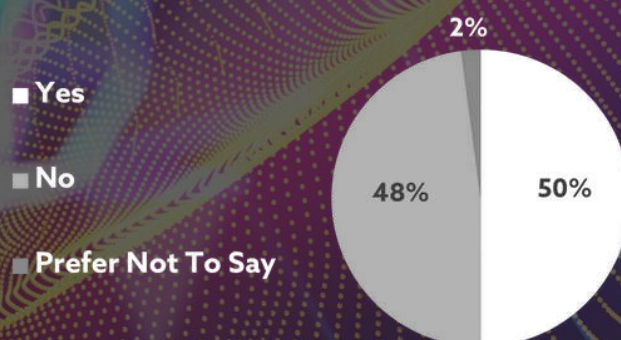
34% of people said they only had to complete 1 interview stage to secure their most recent role.

Equally, just over 20% of respondents also had 2 or 3 stages in their most recent interview process for the position.

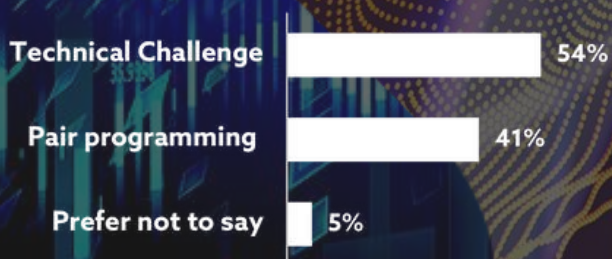
50% of Kotlin developers surveyed highlighted that during their interview for a Kotlin position, they had to complete a live pair programming exercise.

The vast majority of Kotlin jobs require either a remote technical exercise or a pair programming exercise to be completed as part of the process.

## Interview had live pair programming exercise



## Pair Programming vs Technical Challenge Preference



54% of those asked said they would prefer a remote technical challenge over a pair programming exercise as part of their interview process. Therefore the split is relatively even.

Companies could consider offering the choice between the two to ensure inclusivity. Having said that, if a job involves pair programming day to day, it seems reasonable to include a pair programming exercise in the interview process.



# HEAR FROM THE RECRUITMENT EXPERT



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## **Common challenges faced by candidates during the interview process**

The first is when technical challenges are included during interviews. These are often referred to as 'pairing interviews'; it seems that the sentiment from some developers is that these exercises are often "really live-coding with an audience", which can create a stressful situation. A compromise would be to allow the interviewees to choose an activity to complete live in the interview; that way, they can prepare slightly more.

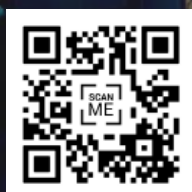
Another frustration of developers is LeetCode style problems and technical challenges not representing the daily activities. One Kotlin Developer complained about 'companies expecting you to have memorised every algorithm ever invented when the job is building REST APIs'. The solution to this problem seems straightforward – design your technical exercise to reflect a typical task of the engineer you're hiring.

Poorly written job descriptions were a further frustration about the recruitment process. Engineering leaders must ensure they put thought into job descriptions and avoid being generic.

### **In my experience, good developer job descriptions should include the following:**

- Encapsulate the specific role and what problems the developer will solve rather than the skills alone.
- Talk about the working environment, not just the technology stack – what principles do you stand by?
- Distinguish between 'must have' and 'nice to have' skills and ensure that 'must have' skills are essential and won't unnecessarily reduce the pool of potential applicants.
- Sell the benefits of the position and be transparent in salary and benefits packages.
- Clearly state the location and remote working options. 'Hybrid' is too vague – specify the minimum number of days required in the office if not fully remote.

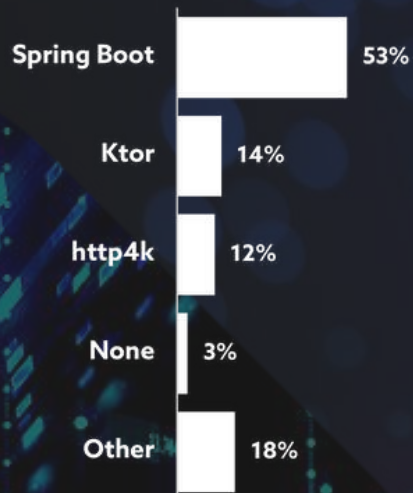
Connect with Ben on LinkedIn:





# KOTLIN FRAMEWORKS FOR BACK-END DEVELOPMENT

With the increasing adoption of Kotlin for Back-end, we wanted to explore the common frameworks/ libraries being used.



Spring Boot emerged as the most popular framework for Kotlin Back-end developers, which isn't surprising given that it is a mature and well-tested framework with a large and active community that supports and contributes to its development. Ktor is the next most popular, offering a lightweight yet powerful API for building web applications, and it supports a wide range of features, such as routing, authentication, and serialisation. Ktor has a focus on performance and scalability, and it is built on top of Kotlin's coroutines, which enables non-blocking and asynchronous programming.

Http4k is gaining popularity and came out as the next most popular and seems to be gaining much traction with large investment banks, retailers and publishing giants using the framework to build web applications.

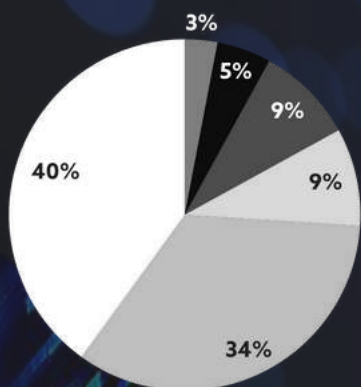
To learn more about http4k, you can listen to co-creator David Denton's interview with Ben Dale here:





# HYBRID WORKING

## Hybrid Working Arrangements



- Full-time office
- Hybrid 2 day / week
- Hybrid 4 day / week
- Full-time remote

- Hybrid 1 day / week
- Hybrid 3 day / week
- Remote first + collaboration days

73.2% of Kotlin developers surveyed work fully remote or 'remote first' with occasional office collaboration days. This allows companies to widen their search for talent rather than focus on one city. Full-time office jobs appear to be becoming a thing of the past, with only 3.1% of respondents working full-time in an office.



# KOTLIN EVP

## What employer value propositions are most important for this talent?

What's important for you when looking for a new job?

In order of importance – here's what's important to the Kotlin developers when looking to find a new job.



Work-Life balance was the highest ranking result for employer value proposition. Talent across the community values a balance between their work and personal life to ensure they remain productive, motivated and healthy.

Compensation & benefits ranked second respectively. Fair and competitive compensation is vital for attracting, retaining & motivating top talent.



# ACTIONABLE INSIGHTS

## **Competitive compensation and benefits:**

- As the demand for Kotlin talent increases, companies must ensure they offer a competitive compensation package to attract and retain talent. Regular salary benchmarking exercises and pay reviews are advised.

## **Interview Process:**

- Having an organized and streamlined interview process is essential. Provide clarity on timelines and ensure technical tests are relevant to expected daily work. Where possible, give candidates the option of doing the tech stage at home or in a live setting and providing feedback (positive or constructive) is also a must.

## **Flexible Working:**

- Workers in the Kotlin community want flexibility. Employers need to think strategically about the frequency of in-office requirements and offer their workforce true flexibility around managing their day to achieve a work-life balance that suits them. Offering blocked time where developers can work on personal projects is also recommended.

## **Job Descriptions:**

- Ensure you invest time building out a compelling job specification. You need to enable the reader to understand what is in it for them, what challenges they would be solving and what success in the role would look like. Detail the full tech stack but be clear about what skills are essential and what could be learnt on the job.
- Try to humanize the job specification by providing links to a careers page that features interviews with potential new colleagues describing what they like about the company and culture. Be open about your company culture and what you stand for.
- Finally, be transparent about salary benchmarks, benefits packages and how much time employees are required to be on site.



# COMPANIES USING KOTLIN

Kotlin has gained popularity among many companies and developers due to its concise syntax, features & interoperability with Java.

As part of our research building this report the Source Technology team interviewed several engineering leaders. These interviews have enabled us to gather valuable insights and perspectives on the growing Kotlin Market.

- Page 17: Interview with [Luke Curtis](#) from [Personio](#).
- Page 18: Interview with [Jason de Carvalho](#) from [Fluro](#).
- Page 19: Interview with [Massimiliano Mazzarolo](#) from [Lastmintute.com](#).
- Page 20: Interview with [Johnny Bosauder](#) from [Bitbot Technology](#).
- Page 21: Interview with [David Denton](#).

Summaries of these Interviews are on the following pages, and links to the full interviews are available on our website here:





# INTERVIEW WITH PERSONIO



Personio are an HR Tech Unicorn with 8,000 customers and 1,700 employees globally.

Personio started using Kotlin around 2021 when they moved to a more microservices architecture, initially dabbling with it before fully committing. They transitioned from PHP Laravel monolith and are now predominantly using Kotlin for microservices communicating across their stack.

They chose Kotlin as an industry standard, with support from big players such as JetBrains, Google, Facebook and Netflix. The main challenges they faced were upskilling engineering teams and ensuring good infrastructure support for running the stack on JVM through Kubernetes and Docker. They primarily use the Spring Boot framework but also have other services that don't require it depending on the use case.

## Highlights

### 2021

Personio started using Kotlin in 2021 when they moved to a more microservices architecture.

### Spring Boot

Personio opted for Spring Boot as their framework and didn't want to re-invent the wheel. They felt it integrated really nicely with Kafka which is a big use case for them.

### 2 Months

Typically it takes Personio 2 months for developers without prior Kotlin or Java experience to become proficient. Most developers moved from PHP.

### Munich Dublin Amsterdam

Are the main locations for their Kotlin Developer Talent.

### Top 3 Benefits to Personio

Interoperability with other platforms  
Talent Alignment  
Flexibility of the code.

### 40%

Their codebase is roughly 40% Kotlin, 10% in Golang, and the rest still in PHP monolith.

Access the full interview here:





# INTERVIEW WITH FLURO



Fluro are a technology-led consumer lender, offering unsecured personal loans via our full suite of products. They have lent more than £250m of loans since launching in 2014. Fluro transitioned from PHP to Kotlin due to its larger talent base and better performance with concurrency issues. They considered Java but found Kotlin to be more efficient with great interop with all of Java's ecosystem. Fluro has used Kotlin for projects, including customer portals, pricing services, external data integration, and payout automation.

Currently, 20% of their codebase uses Kotlin, with a goal of reaching 100%. The biggest challenge was getting PHP developers accustomed to the new language and approach to development operations management techniques needed for production operations in comparison to interpreted languages like PHP.

The conversation is about hiring Kotlin engineers and the challenges involved. The company prefers candidates with strong coding skills and project ownership, but has had difficulty finding enough qualified candidates. They have tried a pair programming exercise as part of their interview process, but some candidates struggle to complete it within the allotted time.

## Highlights

### PHP

Fluro transitioned from PHP to Kotlin due to its larger talent base and better performance with concurrency issues.

### 20%

Currently, 20% of Fluro's codebase uses Kotlin, they are looking to reach 100%.

### Pair Programming

They have tried a pair programming exercise as part of their interview process.

### Efficiency

Kotlin allows for greater flexibility while reducing complexity overheads, making it easier on development teams' productivity levels over time.

### Better Quality Code

During system re write modernization efforts & improved developer ease-of-use.

### 50% Split

Fluro's workforce is a 50% split between Kotlin & PHP developers.

Access the full interview here:





# INTERVIEW WITH LASTMINUTE.COM

lastminute.com

Lastminute.com is a travel and leisure company that provides a wide range of products and services, including flights, hotels, car rentals, vacation packages, activities, and tickets for events. Ben Dale and Max discuss the adoption of Kotlin at lastminute.com, which began in late 2018 for both server-side and Android development.

The main benefits lastminute.com have found from using Kotlin are its functional style programming capabilities, reduction in lines of code with no change to programming styles, and improved developer experience. Barriers experienced include compiler speed when using TDD practices, as well as a lack of IDE support compared to Java.

Lastminute.com use Spring Boot as their framework due to legacy applications already running on it but they are starting to experiment with co-routines. Max discussed the progress of moving to Kotlin for JVM applications, noting that it may take an average developer a month to become proficient in the language.

## Highlights

### 2018

Lastminute.com started using Kotlin in 2018, for server-side development and for Android development.

### < 30%

With Kotlin, there is 30% less code to maintain than Java.

### Spring Boot

Lastminute.com are using a customised version of Spring Boot as their framework.

### Java

Their main language is still Java, and then with the option to learn Kotlin as a plus.

### Compiler Speed Overheads

Are the current barriers to Kotlin.

### 1 Month

In one month an average developer can take on Kotlin as a language.

Access the full interview here:





# INTERVIEW WITH BITBOT TECHNOLOGY



Bitbot Technology are a London based Technology startup with skills in Technology Leadership, Data Science/AI, Architecture and Engineering across many industries.

Ben Dale interviews Johnny from Bitbot Technology. They talk about the use of Kotlin in various companies and the frameworks used with it. They also compare Kotlin to other languages like Scala and discuss its benefits, including simplicity, readability, ease of adoption, and community support.

Front-end engineers are showing interest in Kotlin due to its aspects of functional programming and strong typing. This is bridging the gap between front-end and back-end languages, with some engineers transitioning to full-stack or back-end development using Kotlin.

## Highlights

### 2017

Bitbot started using Kotlin in 2017.

### Spring Boot

They typically use Spring Boot as a framework, but have explored Spring Native Grail VM and Ktor and Micronaut.

### Code

Bitbot started using Kotlin as it reduced code, and the code was more readable & understandable.

### Microservices

From an applications angle and Back-end perspective, microservices is most popular.

### Front-end

They've seen front-end engineers show interest in Kotlin because it's got aspects of functional programming and strong typing.

### 20-100%

Between 20-100% of Bitbot's code base is written in Kotlin for server-side.

Access the full interview here:





# INTERVIEW WITH DAVID DENTON



David Denton is a London-based Engineering Lead, Trainer and Open Source fanatic. He's been tippy tapping for about two decades, building software and teams delivering projects working in Finance, Publishing, Internet Provision and the COVID-prevention business. He is the co-creator of http4k, a functional toolkit for building HTTP applications in Kotlin, and spends far too much time thinking about Lego. This interview explores http4K, the web library written in Kotlin, why it was developed and the key benefits of using the library.

## Highlights

### Simplicity

From an applications angle and back-end perspective, microservices is most popular.

### Front-end

They've seen front-end engineers show interest in Kotlin because it's got aspects of functional programming and strong typing.

### Developer Experience

Our key beliefs is to keep things simple, no magic involved.

Access the full interview here:





# SOURCE TALKS: ON KOTLIN

Source Talks: On Kotlin is our Meetup group, we launched the group in 2021 with the aim to bring together people across the Kotlin community to connect, socialize, and engage.

Our group has been recognised by JetBrains, and we are proud to be part of the JetBrains user group support program.

The group is based in London, but we welcome a global audience to join! We have connected 300+ people across the Kotlin community.

## Previous events include:



### On Kotlin #5

Keynote speakers: David Denton & Andrey Breslav

David Denton: Smash Your Adapter Monolith With The Connect Pattern and Q&A.

Andrey Breslav, lead designer of the Kotlin language gives an overview of the language.



### On Kotlin #4

Keynote speakers: Michele Sollecito and Aditya

Sofat, Duncan McGregor and Dmitry Kandalov

Michele Sollecito and Aditya Sofat - Coroutines and flows in Kotlin.

Duncan McGregor and Dmitry Kandalov -

Dependency Injection: Refactoring from Spring to Kotlin



### On Kotlin #3

Keynote speakers: Anthony Accioly: Founder of 7RTC, Software Engineer

Exploring the aspects of Kotlin including Generics + declaration-site variance, destructuring declarations, extension functions and standard scope functions.



You can find our Meetup group here:







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# ABOUT US

Source Technology, founded in 2015, is an International Recruitment business specializing in Technology Recruitment. We operate across Europe in the UK, Nordics, Benelux, DACH regions, and the USA.

We are the technology experts of Source Group International (SGI).

Our core purpose is to source exceptionally talented technology people for ambitious businesses, from SMEs to major multinational organizations. For candidates and contractors, we proactively support, guide, and mentor around career development and opportunities, many of which are exclusive to us. For clients, we provide advisory services as well as access to passive tech candidates, often in niche areas.

We recruit on a contract, permanent, and retained search basis in the following market areas:



**Data**



**Cyber Security**



**Cloud**



**Development**

For more information about Source Technology & to see our current vacancies, head to our website here:







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