

Google Interview Prep Guide for Software Engineers

Developed in consultation with
Google Directors, PMs, and Engineers



If you are a software engineer preparing for Google's engineering interviews, this guide is for you!

Developed in consultation with Google Directors, PMs, and Team Leads, it has all the information and resources you need and is sure to give you an edge in your next interview.

Google has one of the most competitive and challenging interviews for engineers. Even engineers with outstanding professional experience find it difficult to get past [Google's grueling technical rounds](#).

Having a good prep strategy in place is key to giving yourself [the best chance at acing Google's technical rounds](#).

Discover what Google does uniquely in its interviews

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01

What does Google look for in potential recruits?

Recruiters at Google are driven by the single-minded mission of hiring the best of talent. Given that Google accepts 0.2% of applicants who apply (according to CNBC), you must wonder what qualities to exhibit in order to make the cut.

Here's what recruiters and hiring managers at Google look for before making a hiring decision:

Problem-solving abilities

- Problem-solving and analytical skills are crucial traits recruiters look for in candidates.
- Your **openness to accepting suggestions**, ability to brute-force and approach solutions from multiple angles, and arriving at optimal solutions are areas that are closely tested by recruiters.

Communication

- Your ability to **clearly convey what's on your mind** is a key evaluation area.
- Expressing yourself with clarity and articulating coding and design solutions with confidence can set you apart from the competition.
- Communication is an important aspect in behavioral and leadership interviews too. Your responses to leadership principles and behavioral questions can make or break your offer.

Coding and design

- Can you translate your solution into error-free, workable code?
- Can you design systems that are efficient and work in line with expectations?
- Displaying robust coding and design capabilities is critical to acing Google's tech interviews.

Verifying your code and design

- Recruiters look at your ability to cite good test cases to explain the working of your design and code.
- They also observe your ability to discuss Big-O complexities for your approach and solutions.
- Demonstrating the aptitude to spot and fix bugs in your code is an important trait to have as well.
- Hiring managers are keen to understand your ability to debug and verify your code/design.

Googliness and cultural fit

- Through behavioral and leadership interviews, recruiters evaluate if you fit into Google's culture and philosophy, popularly called the Googliness indicator.
- Questions in behavioral interviews are typically around Google's core workplace values, including integrity, inclusion, diversity, cooperation, and mutual respect.



Resources

[How Google hires only the best software engineers](#)

[How to Display "Googlyness": Sample Questions and Tips](#)

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- For junior software roles, the emphasis is more on coding (data structures and algorithms), while for senior and managerial roles, systems design carries more weight.
- For IC roles at Google, coding is an important evaluation area, even for senior roles (L5/L6 and above)

02

Software Engineering levels at Google

Tech professionals at Google are classified under various [band levels](#) based on years of experience and designation.

Interview rounds and questions can vary based on the corresponding band levels. Hence, it is crucial to understand what to expect at your target band level.

Here's a quick look at the band levels in Google's organizational structure:

Software Engineering IC Roles		
Levels	Approximate Experience	Designation
L3	0-1 year	SE II
L4	2-4 years	SE III
L5	6-10 years	Sr. SE
L6	10+ years	Staff SE
L7	10+ years	Sr. Staff SE
L8	10-15 years	Principal SE
L9	15+ years	Distinguished SE
L10	15+ years	Google Fellow
L11	15+ years	Senior Google Fellow

Software Engineering Manager Roles

Levels	Designation
L5	SE Manager I
L6	SE Manager II
L7	SE Manager III
L8	Director
L9	Senior Director
L10	Vice President
L11	VP II

Product Manager/Technical Product Manager Roles

Levels	Designation
L2	Associate PM I
L3	Associate PM 2
L4	PM 1
L5	PM 2
L6	PM 3
L7/8	Senior/Group/Director PM
L9/10	Senior Director/Vice President



Learn more about the factors considered for leveling at Google:
[Software Engineer Job Levels at Google](#)

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Interview rounds can differ based on the band level you're applying to. So make sure to understand what the process is like for your particular band level and accordingly plan and direct your prep.

03

Profile shortlisting — What happens after you apply for the role?

After you apply for the role, recruiters at Google use automated filtering techniques to screen resumes based on job-specific keywords. So, as a rule of thumb, make sure that your [resume and LinkedIn profile](#) have the right keyword distribution before you apply.

The number of applicants is usually high at L3 and L4. So if you're applying to these band levels, the competition is stiff. L5 and above have a fairly dry pipeline of candidates. At L3 and L4, recruiters use one or two additional preferred qualifications to eliminate and shortlist profiles for the interview.

Candidate resumes are assessed by Google recruiters based on the following parameters:

- **Quantifiable impact, contributions, and accomplishments:**
This includes measurable impact on outcomes in roles that you've donned, academic awards, patents filed, scholarships, conference presentations, etc.

- **Skillset and relevant experience:** Recruiters check if these areas of your profile meet the requirements of the role.
- **Insights on projects worked or managed:** This is more relevant for leadership roles
- **Employee referrals:** Candidates referred by existing Google employees are given preference over those who apply through other recruitment channels.
- **Suitability to other roles:** Candidates referred by existing Google employees are given preference over those who apply through other recruitment channels.

If your profile is shortlisted, you'll go through a short 15-20 min HR screening round. This is an informal call where recruiters assess your communication skills, past professional experience, skills, and other relevant areas.

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- Discussions on hiring requirements and open positions happen on an annual or bi-annual basis, depending on the requirements and goals of the department in question.
- VPs/Directors approve all hiring requirements based on annual budget allocations.
- Hiring requirements are finalized by team leads and managers in coordination with recruiters.
- Job descriptions are created by hiring managers in coordination with recruiters.

04

Preparing your resume for Google — Increasing your chances of getting shortlisted

Recruiters don't spend too much time scanning your resume. So if your resume doesn't convey what they want to see, it is unlikely that you'll be called for an interview.

Here's how you can make your resume stand out:

- **Cover letter:** Don't spend too much time on your cover letter initially. Cover letters aren't quite a necessity until you reach the hiring manager rounds, where committee members want more clarity.
- **Keep the resume short:** Recruiters don't spend too much time looking at every detail. The shorter and crisper, the better the impact your resume will make.
- **Highlight important projects:** List important projects that had steep learning curves and definitive outcomes. Emphasize actions taken, consequent outcomes, and pertinent metrics to give a complete picture. Use the STAR method to portray project-related information in the best possible manner.

- **List your Github profile information** (or any other open-source platform) at the top of your resume to enable recruiters to quickly scan through your programming portfolio.
- **List coding competitions/ hackathons:** If you've participated in coding competitions or hackathons, highlight that in your resume.

Here's a list of resources to help you build your resume:

- [Why software engineers need a good resume](#)
- [How to structure your resume](#)
- [15 tips to create an ATS- and recruiter-friendly resume](#)
- [How to list experience](#)
- [How to list education](#)
- [How to list skills](#)
- [How to list projects](#)
- [7 resume-building tips to create a stellar software engineer resume](#)
- [Top 7 FAQs on software engineer resumes answered!](#)

05

The Interview process at Google — What to expect?

The interview process at Google is built to evaluate candidates on multiple technical areas. At the end of the technical rounds, candidates go through a behavioral and leadership interview before a hiring decision is made.

Round 1: The Technical Phone Screen

What you can expect:

- Conducted by a hiring manager and recruiter, and typically lasts **45-60 min**
- Evaluates your approach to problem-solving
- **Questions:**
 - Situational questions based on hypothetical professional events
 - Behavioral questions around past professional experiences

Breakdown by band level:

For IC roles

Increased emphasis on coding, regardless of the band level

For L3 and L4 band levels

- 1-3 DSA interview questions (typically easy- to medium-level problems)
- No behavioral questions during the Technical Phone Screen interview

For L5 and L6 band levels

- 1-2 DSA questions (medium-, hard-level difficulty)
- 1 systems design question
- 1 behavioral/leadership question

For managerial roles

- No coding questions during the Phone Screen
- Behavioral questions
- Questions around leadership attributes, past projects, and vision

Tips for the Phone Screen interview:

- Be prepared to solve 1-2 problems in core data structures and algorithms, and expect follow-up questions on your approach.
- Highlight **skills that align** with the target role.
- You will be asked a few **questions about past projects in your resume**. Make sure you have good, descriptive answers to these questions.
- Be honest about your skills and show a **learning mindset**.
- While answering questions, adopt a **conversational tone**.
- Hiring managers will expect you to ask **good clarifying questions**, so don't hold yourself back if you have questions on problem approaches/aspects pertaining to the role.

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- Adopt a proactive approach while answering questions by **associating past project-related and professional experiences**.
- Acclimate yourself to **writing code on a tool or a shared screen**.

Round 2: The On-site Interview

What you can expect:

- Conducted by team members who are at the same band level or one level above
- Comprises **4-5 rounds that include coding, design, and behavioral interviews**
- Assesses your analytical, coding, systems design, and problem-solving abilities

Breakdown by band level:

For L3 and L4 band levels (Individual Contributors)

- 3-4 DSA rounds
- 1 Googliness/Leadership interview
- Usually conducted by a peer from the same team; final rounds conducted by the hiring manager/team lead

For L5, L6, and L7 band levels (Individual Contributors)

- 2 DSA rounds
- 2 Systems Design rounds
- 1 Googliness/Leadership interview
- Open-ended questions to assess technical and leadership abilities
- Conducted by Program/Product/Technical Product Managers
- Domain-specific questions are asked in the coding/design rounds

For Engineering Managers

- 1 Coding/code review round
- 2 Systems Design rounds
- 1 Technical leadership round
- 1 People management interview

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- For hiring at L6 and above, a final panel interview is conducted, and includes the hiring manager, senior team members, an EM, and a Senior Google fellow.
- As of April 2020, all Google on-site interviews are conducted over Google Hangouts video calls.
- During the interview, each interviewer is assigned one functional area and 1-2 Googliness/Leadership principles. Each interviewer will focus on a specific attribute, like Project Management, Technical Expertise, Behavioral, etc.

Evaluation criteria in on-site interviews:

Coding:

- Level of code quality
- Ability to present multiple solution approaches
- Articulation of the problem solution
- Openness to suggestions from the recruiter/hiring manager/tech lead
- Code review quality and testing of code
- Communication/Whiteboard skills
- Problem-solving
- Testing of code (very important)

Systems Design:

- Functional areas - API Design, Components, Schema Design
- Non-functional areas - Observability, Scalability, and Availability
- Analyzing requirements (asking questions)
- Simplifying complex code to simple workflow
- Solving deep-dive questions on a system around how to implement, scale, overcome dependencies, specify parameters, and perform active user support



The on-site typically takes an entire day and can be pretty taxing. Here are some tips to ensure you are mentally and physically prepared for D-day:

[12 things to keep in mind before your on-site interview](#)

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For ICs focused on design-heavy roles, additional areas such as resource constraints for memories and hard disks are evaluated during the on-site.

Team matching at Google

Team matching is an exercise where candidates are mapped to specific teams based on their professional skills and personal traits (as evaluated by Google's hiring panel). This is to ensure you're mapped to a team you can comfortably gel with.

These calls usually take place after the Hiring Committee approves you, and you can expect 2-3 calls before you're matched to a team. The calls typically involve informal discussions, where recruiters try to understand specific professional attributes, personal interests, and personality traits.

Here are a few things to keep in mind while prepping for team-matching calls:

- Prepare for open-ended and behavioral questions
- Prepare a short elevator pitch to briefly and concisely showcase your skills
- Do some research on the potential team, hiring managers, and product areas to be able to answer questions better
- Ask questions about day-to-day operations, projects, success path, and career development and progression
- Follow up with the recruiter regularly to get mapped as quickly as possible

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In some cases, the Team Matching call may be conducted before the On-site. This happens when recruiters identify a particular skill set or domain expertise during the initial phone or technical interview.

A Hiring Manager is aligned to do a quick interview with the candidate (this Hiring Manager may become a part of the entire hiring process).

What you should know about Google's interview panel

Thousands of engineers apply to Google throughout the year. Managing and interviewing so many applicants requires a highly organized and coordinated hiring process.

- Google interviewers are trained to conduct interviews for different rounds, including telephonic interviews, design interviews, coding interviews, and behavioral interviews
- Interviewers in hiring panels are spread across multiple band levels — typically from L4 to L9
- Panel members are usually one level above the interviewee
- Google has an automated system that decides interviewers based on availability, training, role-preferences, and band levels

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Interview panels for each role are different and are carefully chosen. Senior roles usually have interview panels consisting of VPs/Directors and Senior Google Fellows.

06

What you need to know about Google interview questions

Google has one of the most challenging technical interviews in the world. Here's how they maintain their difficulty levels:

- Interviewers refer to a question bank that lists **1000+** curated questions.
- Google keeps track of interview questions that are leaked online, so the list is regularly updated.
- Questions are categorized based on roles and levels for interviewers.
- Interviewers can also share feedback on questions asked on the portal for further updates, as the same questions cannot be used to evaluate all candidates.

Categories of interview questions:

Google has one of the most challenging technical interviews in the world. Here's how they maintain their difficulty levels:

- **Coding:** Writing code with correct syntax in either C, C++, Java, or Python
- **OO design:** Defining basic OO concepts and coming up with classes to model a simple problem
- **Scripting and regexes:** E.g., Finding phone numbers in 50,000 HTML pages
- **Data structures:** Demonstrating basic knowledge of the most common data structures
- **Bits and bytes:** Answering questions related to bits, bytes, and binary numbers
- **Systems design:** Building a scalable system with low latency
- **Domain questions:** Questions specific to the domain (e.g., front-end, full-stack, etc.). For L5/L6, these questions are asked in coding/design rounds.
- **Behavioral questions: Questions around professional** challenges, work-life balance, past projects, leadership principles, and workplace-related situations.

Data structures and algorithms topics:

- [Trees](#) and Graphs
- Graph Algorithms
- [Arrays](#), Strings, and [Linked Lists](#)
- Dynamic Programming Concepts
- Hash tables, [Recursion](#), and [Sorting Algorithms](#)

Brush up on your Sorting skills with IK's Free Sorting Algorithms Course:

- On-demand course material from FAANG+ instructors
- Proprietary problem-solving techniques
- Bonus sessions by Omkar Deshpande (Head of Curriculum, IK, ex-Walmart Labs, Stanford Ph.D.)

[Enroll now!](#)

Scalable systems design topics:

- Online Processing Systems
- Batch Processing Systems
- API Modeling and Concurrency
- Sharding, Caching, and Loading
- Databases and Network Protocols

07

How to Prepare for the Google Interview

Cracking Google's tech interview requires a solid strategy that covers every area of the interview. These tips will help guide your prep and implement a strategy that will see you through.

Approaching problems

- Before you code, make it a habit to iterate before jumping to the solution
- Present multiple solutions and say why you're choosing a particular approach
- Ask questions if you're unsure about the approach and be vocal about the direction you're taking while solving
- Recruiters award you points not just for getting the solution right but also for clever and insightful solution approaches
- Don't jump into the Big-Os immediately. Carefully analyze them for the problem and think out loud.

Planning your prep

We recommend you begin your prep at least 12 weeks before your interview. Given the vastness of topics to cover (coding, design, domain-related concepts), starting your prep early can make a big difference.

- **Junior developer and IC roles:** Coding is a crucial part of the interview. Spend 5-7 weeks covering Data Structures and Algorithms.
- **Senior developer and managerial roles:** Systems design concepts are extremely important. Devote 3-4 weeks to brush up on systems design concepts.
- **Behavioral interview:** Preparing succinct responses to behavioral questions should be as much of a priority as coding and systems design. Spend at least 1-2 weeks on it.
- **Mock interviews:** Spend the last 1-2 weeks practicing mock interviews to up your game.



This [Google Interview Prep Plan](#) can help you optimally structure your interview prep.

Get good with data structures

Knowing your way around popular data structures and writing workable code is an important skill to develop. This skill is extensively evaluated in Google's technical interviews.

- For data structures, learn insertion, implementation, deletion, and look-up for each data structure.
- Practice numerous problems; aim to solve at least one problem a day.
- Start by solving the easy problems and move on to the harder ones.

Master the important algorithms

- Learn how to implement algorithms in quick time (preferably less than 10 minutes), as coding interviews are usually time-bound.
- Some algorithms you should master: Binary Search, Depth-First Search, Breadth-First Search, Merge Sort, Quicksort, and Graph Algorithms.

Know your programming language

Brush up on core programming concepts in the language of your choice and practice implementing/manipulating each data structure.

The Big-Os

Don't rush into deciding the Big-Os. Carefully analyze time and space complexities for each problem that you solve.

Understanding and tackling behavioral questions

- Questions around Googliness and behavioral attributes/tendencies are key areas that influence hiring decisions at Google's interviews.
- Spend at least a week or two practicing responses to Googliness and behavioral interview questions.
- While preparing your responses, use the [STAR method](#) to structure your answers in an organized and clarity-driven fashion.

Practicing mock interviews

Mock interviews are a great way to understand areas where you're lacking. Exposing yourself to an interview environment (simulating the experience through mocks) can work wonders in relieving interview-related stress and anxiety.

Interview Kickstart offers a minimum of 15 mock interviews in all of its technical courses. You can practice mocks with FAANG hiring managers and get critical insights on how to improve your interviewing skills.

Our instructors, being closely associated with the interview process at FAANG and Tier-1 companies, know what recruiters and hiring committees look for while evaluating candidates.



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