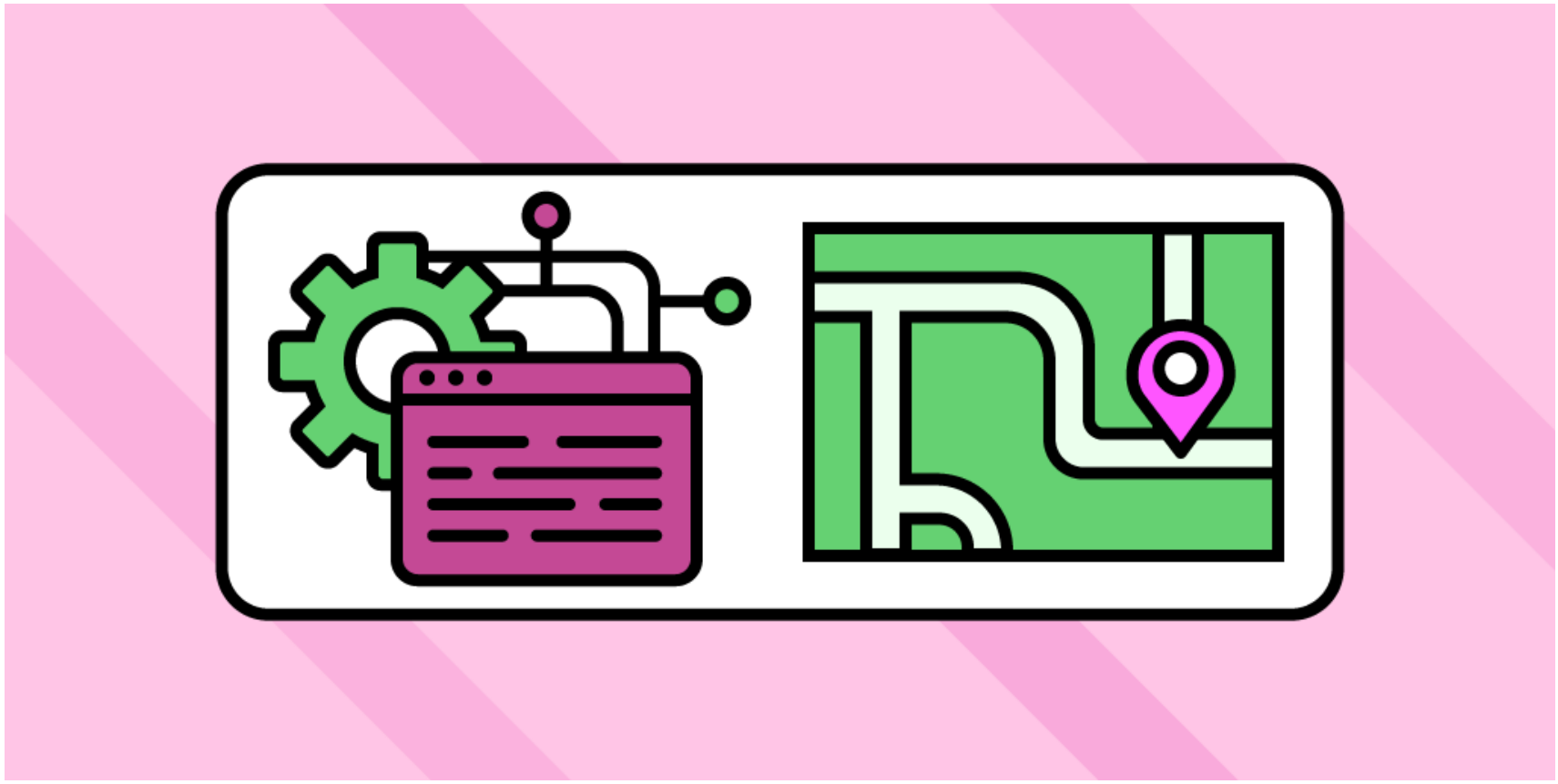
Roadmap to a software engineer career



As an SWE, you can:

- Earn great compensation
- Join an evergreen profession
- Work on exciting problems

Swipe for more

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Steps to a SWE career

1 Make a career plan

Choose a specialization and how you'll learn skills
🕒**Timeline**: Variable

2 Get an education

🕒**Timeline**: 12 weeks to six years

3 Get real-world experience

E.g., internships, hackathons, coding projects (open source, anyone?)
🕒**Timeline**: A few months

Steps to a SWE career

4 Earn a certification (optional)

E.g., Certified Secure Software Lifecycle Professional, Professional Software Developer

🕒**Timeline**: Could take multiple years.

5 Prepare for your job search

E.g., Build a GitHub portfolio, practice coding problems, study interview questions, network

🕒**Timeline**: A few weeks to a few months

6 Search for SWE jobs

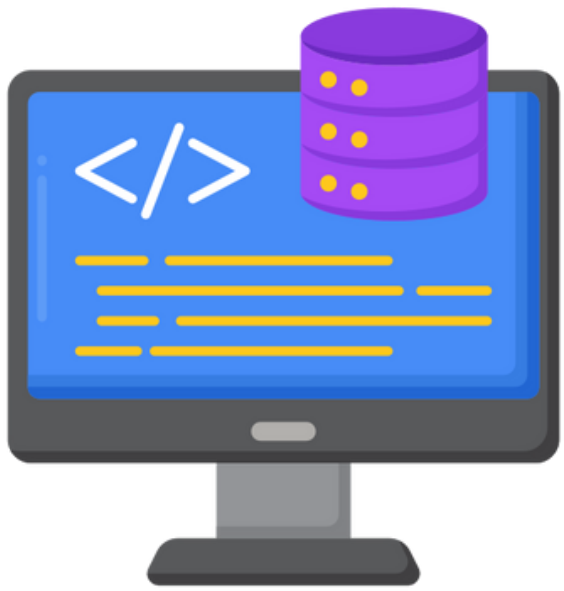
Use Indeed, Glassdoor, Dice, etc., and keep track of applications

🕒**Timeline**: 1-2 months

What's required?

Specialization	Technical skills	Education and experience
Front-end developer 	• HTML + CSS • Programming languages (JavaScript) • Front-end frameworks and libraries (Angular, React, Vue) • Version control (Git + repository services like GitHub) • RESTful services and APIs • Testing frameworks • Graphic design • Web security	• CS or related degree helpful • Bootcamp grads and self-taught developers also get hired • Entry-level positions generally available

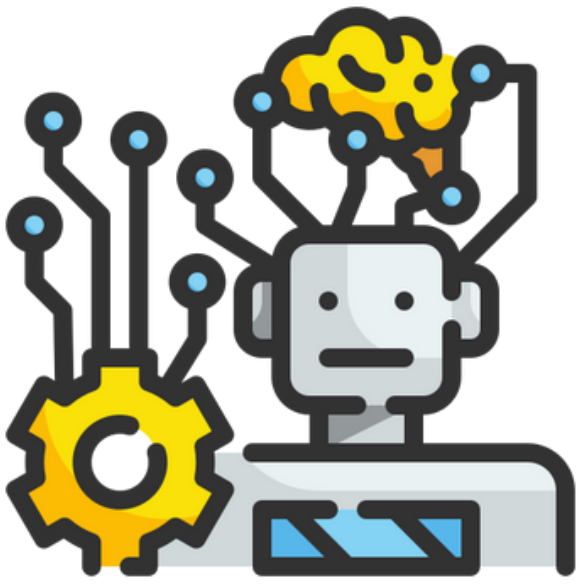
What's required?

Specialization	Technical skills	Education and experience
Back-end developer 	• HTML + CSS • Programming languages (JavaScript, Python, PHP, Java, SQL) • Back-end frameworks and libraries (NodeJS, Django, Laravel) • Relational databases (PostgreSQL, MySQL) • NoSQL databases (MongoDB, Cassandra, Firebase) • Version control (Git + repository services like GitHub) • APIs • Testing frameworks • Web security	• CS or related degree often expected • Bootcamp grads and self-taught devs also get hired • Entry-level positions generally available

What's required?

Specialization	Technical skills	Education and experience
Full-stack developer 	• Both front-end and back-end skills	• CS or related degree often expected • Bootcamp grads and self-taught devs also get hired • Entry-level positions generally available

What's required?

Specialization	Technical skills	Education and experience
Machine learning engineer 	• CS fundamentals (algorithms, data structures) • Programming languages (SQL, Python, C++, Java, R) • Data modeling • ML modeling • Mathematics, probability, and statistics • ML algorithm optimization • Cloud computing (AWS, Azure, Google Cloud) • Other ML topics (deep learning, neural network architectures, natural language processing)	• CS science or mathematics degree usually expected • Advanced degrees sometimes expected • Entry-level positions usually not available • Career changes into these roles possible with relevant experience

What's required?

Specialization	Technical skills	Education and experience
Data engineer 	• Programming languages (SQL, Python, Java, R) • Relational databases (PostgreSQL, MySQL) • NoSQL databases (MongoDB, Cassandra, Firebase) • ETL (extract, transform, and load) systems • Data storage (e.g., data lakes, data warehouse) • Automation & scripting • Machine learning concepts and tools • Big data tools (Hadoop, Kafka) • Cloud computing (AWS, Azure, Google Cloud) • Data security	• CS science or mathematics degree usually expected • Entry-level positions usually not available • Career changes into these roles possible with relevant experience • Certifications helpful (e.g., IBM Certified Data Engineer, Google's Certified Professional)

What's required?

Specialization	Technical skills	Education and experience
Security engineer 	• Computer networking and network security Operating systems • Programming languages (Python, C++, Java, Ruby) • Computer hardware and software • Virus protection software • Data management and database platforms • Security protocols and standards	• CS or related degree often expected • Entry-level positions generally available

Join the conversation!

What do you want to become?

What have you already accomplished?

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