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Skills to test

Skill Test Matrix

Skill	SDE	SSE	TL	EM
Problem Solving skills				
Understand and dissect simple problems quickly	Must have	Must have	Must have	Must have
Understand and dissect complex problems quickly	Should have	Must have	Must have	Must have
Knowledge of standard problem-solving techniques (eg. Design patterns)	Bonus	Should have	Must have	Must have
Algorithmic skills				
Knowledge of standard sorting, searching algos	Must have	Must have	Must have	Must Have
Come up with solutions with minimal space / time complexity	Should have	Must have	Must have	Must Have
Come up with multiple scenarios & best solutions for each	Bonus	Bonus	Must have	Must Have

Familiarity with graph theory, graph traversals etc	Bonus	Bonus	Must have	Must Have
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Data Structures

Sound Knowledge of basic data structures – Arrays, Hashmaps, Binary tree, Heaps, Linked Lists, Stacks, Queues	Must have	Must have	Must have	Must Have
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Should be able to apply basic data structures given problems & write correct code for handling the data structures	Must have	Must have	Must have	Must Have
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Sound Knowledge advanced data structures – BTrees, B+Trees, Tries, Graphs	Bonus	Should have	Must have	Should have
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Understanding of trade-offs between various basic data structures etc	Should have	Must have	Must have	Must have
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Advanced Knowledge of implementation/internal working of data structures - Hashmaps, Binary tree, B-Tree, B+Tree etc	Bonus	Should have	Must have	Should have
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Coding

Should be able to write clean bug-free code for simple coding exercises	Must have	Must have	Must have	Should have
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Should be able to write code for solving simple recursive problems	Must have	Must have	Must have	Should have
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Should be able to find bugs in code, with simple hints	Should have	Must have	Must have	Must have
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Should be able to design/refactor code to ensure reuse & proper separation	Should have	Must have	Must have	Must have
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Should be able to write abstract interfaces for high level services	Bonus	Should have	Must have	Must have
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Should be able to come up with Unit test cases for a code sample	Should have	Must have	Must have	Must have
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RDBMS

Basic RDBMS knowledge – Simple queries	Must have	Must have	Must have	Must have
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Advanced RDBMS knowledge – DB design	Bonus	Should have	Must have	Must have
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Query optimization	Bonus	Should have	Must have	Must have
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RDBMS tuning	Bonus	Should have	Must have	Should have
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Replication and Clustering	Bonus	Should have	Must have	Should have
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RDBMS Scalability	Bonus	Should have	Must have	Should have
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Design and modeling

Strong knowledge of OOPs fundamentals	Should have	Must have	Must have	Must have
Design patterns and application thereof	Bonus	Should have	Must have	Must have
Understanding of KISS – Keep it Simple Stupid, YAGNI – You Aint Gonna Need It, DRY – Dont Repeat Yourself , SOC – Separation of Concepts, Loose Coupling etc	Bonus	Should have	Must have	Must have

Web application development

Basic HTML and CSS	Should have	Must have	Must have	Must have
Basic Javascript	Should have	Must have	Must have	Must have
Protocol level knowledge of HTTP	Bonus	Must have	Must have	Must have
Advanced HTML and CSS	Bonus	Should have	Must have	Bonus
Advanced Javascript	Bonus	Should have	Must have	Bonus
Understanding of MVC architecture	Bonus	Must have	Must have	Must have

Automated Testing

Understanding of unit testing	Bonus	Must have	Must have	Must have
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TDD	Bonus	Should have	Must have	Must have
Writing code conducive to Automated testing	Bonus	Should have	Must have	Should have
Planning and writing functional tests	Bonus	Should have	Must have	Should have
Planning and writing stress tests	Bonus	Should have	Must have	Should have
Knowledge of unit and functional testing frameworks for relevant platforms	Bonus	Should have	Must have	Must have

Scaling

Write and plan stress tests to determine scalability	Bonus	Bonus	Must have	Must have
Ability to identify scalability and performance bottlenecks quickly	Bonus	Bonus	Must have	Must have
Ability to determine whether an application is / will be disk bound, memory bound, cpu bound, network bound etc	Bonus	Bonus	Must have	Must have
Understanding of all layers from the hardware to the application to determine bottlenecks	Bonus	Bonus	Must have	Must have
Knowledge of scaling techniques on the application side such as Async IO, caching,	Bonus	Bonus	Must have	Must have

multi-threading etc

Knowledge of scaling techniques on the data side such as Identifying optimized data structures, caching strategies, Horizontal / Vertical partitioning, replication / clustering	Bonus	Bonus	Must have	Must have
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Knowledge of scaling techniques on the app server side such as clustering and load balancing	Bonus	Bonus	Must have	Must have
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System Administration

Basic Unix commands and shell operation (including grep, awk, sed, regex and shell / perl scripting)	Bonus	Should have	Must have	Must have
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Usability

Ability to design intuitive UI	Bonus	Should have	Must have	Must have
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Communication Skills

Good grammar - written and oral	Must have	Must have	Must have	Must have
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Ability to understand discussions well	Should have	Must have	Must have	Must have
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Ability to articulate a concept / subject well	Should have	Must have	Must have	Must have
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Good command over vocabulary	Should have	Should have	Must have	Must have
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Architecture

Understanding of deployment architectures and their trade-offs	Bonus	Bonus	Must have	Should have
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Capacity Planning

Ability to plan and conduct capacity planning exercises	Bonus	Bonus	Must have	Must have
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Soft Skills

Likeable / people's person	Should have	Must have	Must have	Must have
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Ability to garner respect amongst peers by demonstrable knowledge and actions	Bonus	Should have	Must have	Must have
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Proactive mentor who loves to impart and share knowledge	Bonus	Should have	Must have	Must have
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Attract and Recruit 'A' players	Bonus	Bonus	Must have	Must have
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Train and grow team	Bonus	Bonus	Must have	Must have
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Contribute to process evolution	Bonus	Bonus	Must have	Must have
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Motivate and inspire the team	Bonus	Bonus	Must have	Must have
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Misc

Humility	Must have	Must have	Must have	Must have
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