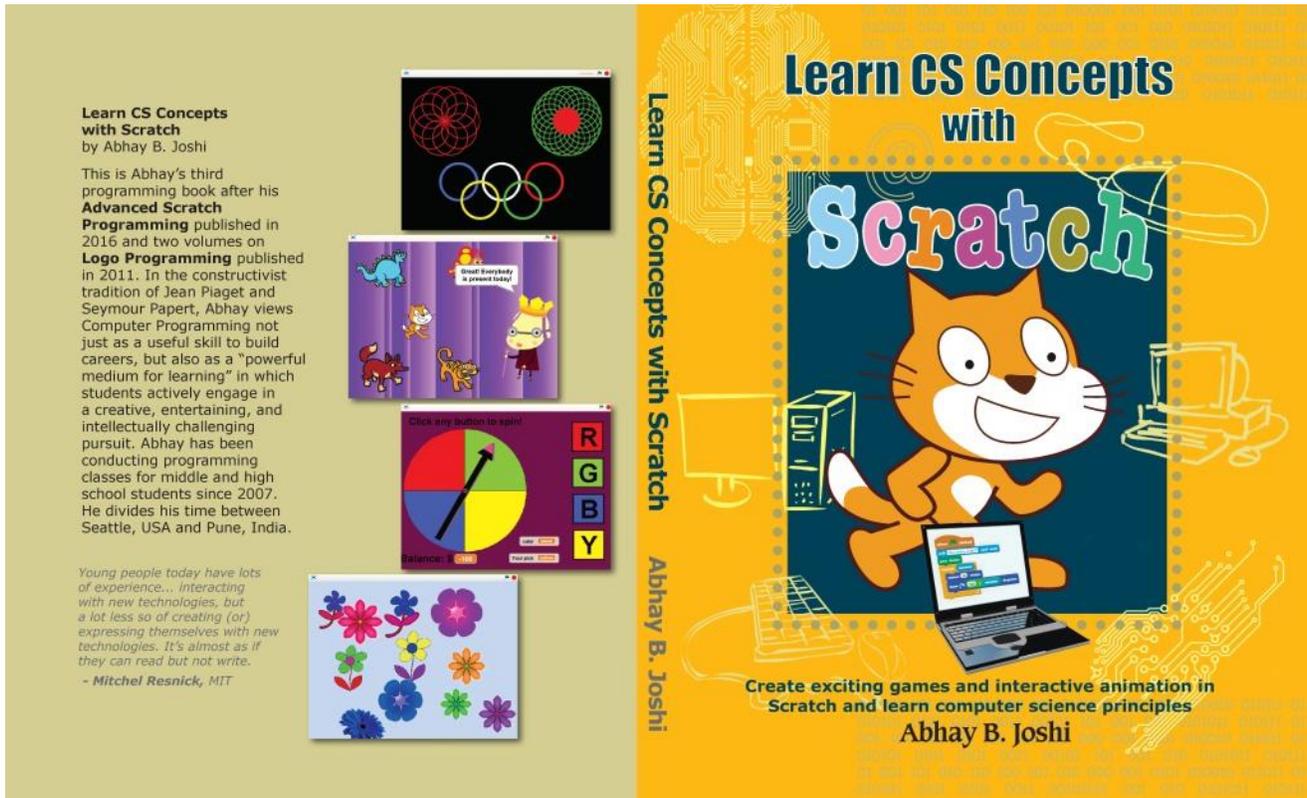


LEARN CS CONCEPTS WITH SCRATCH



Who this book is for:

This book is perfect for students who are keen to learn CS concepts and have no prior programming background. In addition to learning a lot of Computer Science concepts, you will do a series of interesting projects and programming activities. You will work on a few big projects, and you will also write many small “practice programs”. You will learn and apply concepts of computer programming and computer science when you write these programs.

There is a lot of material on Scratch Programming on the Internet, including videos, online courses, Scratch projects, and so on. This book is meant to offer a more organized and tutorial-like treatment to learning Scratch. It is also focused more on learning CS concepts rather than Scratch itself.

How to get your copy:

Digital format: This book is available on Amazon Kindle at all Amazon sites.

Print format: The book is available in print format on Amazon.com (US only).

To order your printed copy in India, please write to abjoshi@yahoo.com. The cost is INR 300 (Rs. 250 + Rs. 50 for shipping). You could mail your cheque to “Abhay Joshi, 14-A, Silver Spring, Panchavati, Pashan Road, Pune 411008” or do an NEFT transfer to:

Bank: HDFC Bank Ltd, Bhandarkar Road, Pune – 411004
Bank Account: 00071930002428
Bank IFSC code: HDFC0001578

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Contents:

Through a series of tutorials and a variety of interesting programming projects, you will learn the following Scratch and CS concepts:

Scratch User Interface Paint editor Sequence Motion commands Simple looping (repeat, forever) Absolute motion Relative motion Smooth motion using repeat Nested looping XY geometry Concurrency Basic sound commands Events Reset script Costume-based animation Multiple backdrops Graphic effects User interaction using keyboard Conditions: YES/NO questions Sensing touch	Conditionals (IF) Conditionals (IF-Else) Stopping scripts Synchronization using broadcasting User interaction using mouse pointer Conditionals (Wait until) Variables – numbers Variables as sliders Relational operators (=, <, >) Variables as remote control Built-in variables - properties Motion - direction and bouncing Arithmetic operators (+, -, *, /) and expressions User input (ASK) String variables String operations: - Join, letter, length of Variables – as counters Random numbers Algorithms STAMP - creating images	Conditional looping (repeat until) Object oriented programming (OOP): - using clones Motion – piggybacking another object Pen art Procedures Procedures with inputs Recursion Logic operators (AND, OR, NOT) Conditionals (nested IF) Random numbers: - Mapping to a set of things Keyboard events (polling) Mouse events (polling) User input (buttons) User input validation Variables – lists Variables - local/global scope Using variables as gates Variables - as timer
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Author's background

This is Abhay's third programming book after his **Advanced Scratch Programming** published in 2016 and two volumes on **Logo Programming** published in 2011. In the constructivist tradition of Piaget and Papert, Abhay views Computer Programming not just as a useful skill to build careers, but also as a "powerful medium for learning" in which students actively engage in a creative, entertaining, and intellectually challenging pursuit. Abhay has been conducting programming classes for middle and high school students since 2007. He divides his time between Seattle, USA and Pune, India.

Abhay has had 20 years of working experience in the software industry, which includes running his own software services business called Disha Technologies for about 12 years.

Abhay has an MS in Computer Engineering from Syracuse University.