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	Autore	Nag Avishek
	Titolo	Stochastic Finance with Python : Design Financial Models from Probabilistic Perspective / / by Avishek Nag
	Pubbl/distr/stampa	Berkeley, CA : , : Apress : , : Imprint : Apress, , 2024
	ISBN	9798868810527
	Edizione	[1st ed. 2024.]
	Descrizione fisica	1 online resource (398 pages)
	Disciplina	005.133
	Soggetti	Python (Computer program language)
		Business enterprises - Finance
		Financial engineering
		Python
		Corporate Finance
		Financial Technology and Innovation
	Lingua di pubblicazione	Inglese
	Formato	Materiale a stampa
	Livello bibliografico	Monografia
	Nota di contenuto	Part I - Foundations & Pre-requisites -- Chapter 1 - Introduction -- Chapter 2 – Finance Basics & Data Sources -- Chapter 3 - Probability -- Chapter 4 - Simulation -- Chapter 5 – Stochastic Process -- Part II – Basic Asset Price Modelling -- Chapter 6 – Diffusion Model -- Chapter 7 – Jump Models -- Part III – Financial Options Modelling -- Chapter 8 – Options & Black-Scholes Model -- Chapter 9 – PDE, Finite-Difference & Black-Scholes Model -- Part IV - Portfolios -- Chapter 10 – Portfolio Optimization.
	Sommario/riassunto	Journey through the world of stochastic finance from learning theory, underlying models, and derivations of financial models (stocks, options, portfolios) to the almost production-ready Python components under cover of stochastic finance. This book will show you the techniques to estimate potential financial outcomes using stochastic processes implemented with Python. The book starts by reviewing financial concepts, such as analyzing different asset types like stocks, options, and portfolios. It then delves into the crux of stochastic finance, providing a glimpse into the probabilistic nature of financial markets. You'll look closely at probability theory, random variables,

Monte Carlo simulation, and stochastic processes to cover the prerequisites from the applied perspective. Then explore random walks and Brownian motion, essential in understanding financial market dynamics. You'll get a glimpse of two vital modelling tools used throughout the book - stochastic calculus and stochastic differential equations (SDE). Advanced topics like modeling jump processes and estimating their parameters by Fourier-transform-based density recovery methods can be intriguing to those interested in full-numerical solutions of probability models. Moving forward, the book covers options, including the famous Black-Scholes model, dissecting it from both risk-neutral probability and PDE perspectives. A chapter at the end also covers the discovery of portfolio theory, beginning with mean-variance analysis and advancing to portfolio simulation and the efficient frontier.