python 3 essentials

For absolute beginners and curious cats

Marieanne C. Leong

1st Edition

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To my tech wizards across Europe.

More to come. More to be.

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Preface

Digital data has been growing exponentially over the past decades. We have seen tremendous digital transformation that have created numerous incredible opportunities for our economies and societies. Digital data has become the major key to innovations, especially unprecedentedly accelerated by the COVID-19 pandemic, in both social and scientific domains, ranging from healthcare, e-Commerce, bioinformatics, logistics, education, telecommunications, *etc.*

It is no doubt, therefore, that digital skills, especially that of data science, is one of the most in-demand skill sets of the 21st century!

Inspired and trained by physicists and computer scientists across Europe during the time of my PhD, I felt compelled to share the wonderful world of (Python) programming with my colleagues, students and the wider society so as to increase the overall digital literacy and revolutionise the way data and analysis are managed and used. This book is intended for absolute beginners or programmers who are new to the Python language.

The book provides a brief introduction on Python programming with an emphasis on its versatility and capabilities that not only makes it the perfect programming language for beginners, but that it can also be used in various fields of work. The book also provides several easy and advanced ways to install the Python interpreter on your computers, and the various platforms on which you can use Python on. The main content of this book discusses the fundamentals of Python that can hopefully help you get started and familiarised with Python or programming in general.

This book is primarily written for academics and university students who are just starting to or thinking about taking the leap into the world of programming to revolutionise and enhance their work, especially when dealing with the ever growing research data, or to future-proof their skill sets in this digital age. In particular, this book serves as the "go-to" book for quick (offline) reference.

The book is also useful for hobbyists or practically anyone who wants to learn to code. Learning to code or doing programming is a great exercise for your brain. It can teach you to understand the world and solve the problems that we encounter in our everyday life. As Python is a versatile and beginner-friendly programming language, it can be used in many projects such as in photography, gaming or web development like I do for myself.

Whether you're a total beginner to programming, or a seasoned programmer who wants to learn about Python, I sincerely hope that this book can help you get started, warmed up to and familiarise with the Python language and/or programming.

Author

Marieanne C. Leong

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This acknowledgement wouldn't be complete without mentioning the two people who, during the global pandemic lockdown, have unknowingly encouraged me to bring to life my childhood memories of future dreams, which has led to the creation of this book as a first step - thank you so much, Calan and Diego!

Author's Biography

Marieanne Leong is a senior lecturer in Universiti Malaysia Kelantan (UMK), Kelantan, Malaysia. Formerly, she was an undergraduate student in UMK where she obtained her Bachelor's degree in Natural Resources Science in 2013. She then completed a PhD in Atmospheric Science at the University of Leeds, United Kingdom in 2018. Her work focuses specifically on the thermodynamic implications of climate change on convective clouds. She performed numerical modelling of deep convective clouds using the state-of-the-art Weather Research Forecast model in her PhD and assessed how the clouds respond to climate warming. Her PhD training has led her to the world of data and she is increasingly motivated to adopt machine learning skills in climate change assessment as a step up from numerical modelling. Currently, she is undertaking research on the impacts of land use change on the hydroclimate in Malaysia, and in her free time, writes guide books on scientific computing using Python with an aim to increase digital literacy among the academics and students in tertiary education, as well as in the wider society in Malaysia so they are better equipped to brace the digital transformation era.