This comprehensive introduction to the principles of functional programming using F# shows how to apply basic theoretical concepts to produce succinct and elegant programs. It demonstrates the role of functional programming in a wide spectrum of applications including databases and systems. Coverage also includes advanced features in the .NET library, the imperative features of F# and topics such as text processing, sequences, computation expressions and asynchronous computation. With a broad spectrum of examples and exercises, the book is perfect for courses in functional programming and for self-study. Enhancing its use as a text is an accompanying website with downloadable programs, lecture slides, a mini-projects and links to further F# sources.