



Preface	5
1. Installation and Package management	5
2. Data Types and Operations	6
2.1 Data Types	6
2.2 Operations	9
3. Statements and Functions	10
3.1 If-Else	10
3.2 Loops	11
3.2.1 For	11
3.2.2 While	11
3.4 Functions	12
4. Data Structures	13
4.1 Lists	13
4.2 Iterators	15
4.3 Generators	16
4.4 Dictionaries	16
4.5 Tuples	17
5. Object Oriented Programming	18
5.1 Class	18
5.2 Constructor	20
5.3 Methods	21
5.4 Get-Set Methods	22
5.5 Properties	23
5.6 Inheritance	24
5.7 Abstract Class	26
6. Unit Tests	28
7. SOLID Principles	33
7.1 Single Responsibility Principle	33
7.2 Open-Closed Principle	35
7.3 Liskov Substitution Principle	36
7.4 Interface Segregation Principle	37
7.5 Dependency Inversion Principle	40
8. NumPy Basics	43
8.1 NumPy Array	44
8.2 Reading and Updating Elements, Rows and Columns with Indexes	46
8.3 NumPy Array Initialization	48
8.4 Operations with Scalars	52
8.5 Linear Algebra with NumPy	53



8.6 Basic Statistics with NumPy	54
8.7 Trigonometry with NumPy	55
9. Pandas	55
9.1 Pandas Series	56
9.2 Pandas DataFrames	57
9.3 Reading Operations	58
9.4 Dropping rows/columns	60
9.5 Sorting and Ranking	60
9.6 Basic Statistics with Pandas	61
9.7 Using Functions with DataFrames	64
9.8 Manipulate Data from CSV	64
9.9 Manipulate Data from SQL	65