OOProg Chapters Overview

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| **Prog** | General programming. Focus on general programming constructs, with limited focus on Object-Orientation. |
| **Prog01** | Data Types  Variables  Arithmetic  Logic  Code Quality (Part I)  Type Conversion  Screen output  Functions |
| **Prog02** | Conditional Statements  Repetition Statements  Debugging (in Visual Studio)  Data Structures  Code Quality (Part II) |
| **Prog03** | Run-Time Complexity  Data Structures  Recursion  LINQ (Fundamentals and Advanced) |
| **Prog04** | The **Task** class (managing CPU-bound operations)  Programming with **async** and **await**  Concurrent Data Access |
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| **OOProg** | Object-Oriented programming. Focus on the Object-Oriented pro­gramming para­digm. |
| **OOProg01** | The Object Concept  State and Behavior  Public and Private  The Class Concept  Using Object of an Existing Class  Code Quality  Object Creation  Value and Reference Types  Class Definition Elements  Class Collaboration  Static |
| **OOProg02** | Has-a and Is-a Class Relations  Inheritance  Exceptions  Generics  Function Types |
| **OOProg03** | The Open/Closed Principle  Dependency Injection  Creational Design Patterns (Factory Method and Abstract Factory)  Structural Design Patterns (Adapter and Proxy)  Behavioral Design Patterns (Template Method and Chain of Responsibility) |
| **OOProg04** | *Indexers*  *Making Classes Enumerable*  *Operator Overloading*  *Extension Methods*  *…?* |
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| **AppDev** | Focus on development of full applications. |
| **AppDev01** | Introduction to GUI and Event-driven Applications  Introduction to GUI Controls  XML and XAML  Simple GUI Controls  Layout Controls  Control Properties  Data Binding  Collection View Controls and Data Binding  Commands |
| **AppDev02** | Introduction to MVVM Architecture  MVVM for a Single Domain Object  MVVM for a Collection of Domain Objects  Data View Model Classes  Commands and MVVM  Generalisation of Classes |
| **AppDev03** | Menu-based Navigation  Button-based Navigation  Application-specific View Model Classes  Working with Domain Data |
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| **Misc** | Various supporting topics. |
| **Start** | The Programming Process  Software Tools  Code Organisation  Introduction to Visual Studio |
| **DB** | (database-related exercises) |
| **Persist** | File-based Persistency  Accessing a Relational Database using Entity Framework Core 2.x  Deploying a Database to the Cloud (Azure) |
| **UnitTest** | Benefits of Automated Tests  Unit Test Case Structure  Unit Test in Visual Studio  Live Unit Test  Code Coverage  Testing in Complex Scenarios |
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