## Functional Programming

Materials:

Practice 1 | Solutions
- Topic: Haskell basics, function definitions
- Mandatory reading: learnyouahaskell.com Section “Baby’s first functions”
- Further reading: Real World Haskell Chapter “Types and Functions”

Practice 2 | Solutions
- Topic: data types, function types, polymorphism
- Mandatory reading:
  learnyouahaskell.com Section “Believe the type”
  learnyouahaskell.com Section “Tuples”
  learnyouahaskell.com Section “An intro to lists”
  learnyouahaskell.com Section “Type variables”

Practice 3 | Solutions
- Topic: currying, overloaded functions
- Mandatory reading:
  learnyouahaskell.com Section “Curried functions”
  learnyouahaskell.com Section “Typeclasses 101”

Practice 4 | Solutions
- Topic: overloaded functions, conditional expressions, guards
- Mandatory reading: learnyouahaskell.com Section “Guards, guards!”

Practice 5 | Solutions
- Topic: pattern matching
- Mandatory reading: learnyouahaskell.com Section “Pattern matching”
- Further reading: Real World Haskell Section “Pattern matching”

Practice 6 | Solutions
- Topic: lambda functions, higher order functions (map)
- Mandatory reading:
  learnyouahaskell.com Section “Maps and filters”
  learnyouahaskell.com Section “Lambdas”

Practice 7 | Solutions
- Topic: higher order functions, list comprehensions
- Mandatory reading: learnyouahaskell.com Section “I’m a list comprehension”

Practice 8 | Solutions
- Topic: recursion

- Mandatory reading: learnyouahaskell.com Sections “Hello recursion!”, “Maximum awesome” and “A few more
- recursive functions”
- Further reading: Real World Haskell Section “How to think about loops”

Practice 9 | Solutions
- Topic: higher order functions
- Mandatory reading: learnyouahaskell.com Chapter “Higher order functions”
- Further reading:
- Real World Haskell Sections “Transforming every piece of input”, “Mapping over a list”, “Selecting pieces of input”
- Real World Haskell Section “Why use folds, maps, and filters?”

Practice 10 | Solutions
- Topic: defining new data types.
- Mandatory reading: learnyouahaskell.com Section “Algebraic data types”
- Further reading: Real World Haskell Section “Defining a new data type”

Practice 11 | Solutions
- Topic: defining parametric data types
- Mandatory reading: learnyouahaskell.com Section “Type parameters”

Practice 12
Topic: type classes
- Mandatory reading: learnyouahaskell.com Section “Type classes 102”