

# LINQ

Unit Slides

Matthijs van der Veer



# What is LINQ?

- Language Integrated Query
- Makes data retrieval very readable
- Comes in both method or query syntax
- Solves common problems
  - Filter data
  - Order data
  - Project data
  - Create aggregations



## Query syntax

```
// Sample data
List<int> numbers
    = new List<int> { 1, 5, 2, 8, 3, 7 };

// LINQ query using query syntax
var evenNumbers = from number in numbers
                  where number % 2 == 0
                  orderby number
                  select number;
```



# Method syntax

```
// Sample data
List<int> numbers
    = new List<int> { 1, 5, 2, 8, 3, 7 };

// LINQ query using method syntax
var evenNumbers = numbers
    .Where(i => i % 2 == 0)
    .OrderBy(i => i);
```



# Deferred vs Immediate execution

- Deferred execution only runs when data is actually used
- Immediate execution runs right away
- Deferred allows for chaining multiple operations
- Lazy evaluation
- Deferred execution can have side effects!



# Common LINQ operations

- Where() allows you to select items that satisfy a condition
- Select() for projecting items
- Count() to count items
- Max(), Sum(), Min(), to create aggregations



# Advanced LINQ operations

- Distinct() for unique items
- You can join multiple data collections to create a new one
- GroupJoin() vs Join()
  - Join creates a new collection of items
  - GroupJoin will create a collection of groups