Learning to Program with F#
Exercises
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0.1 UML

0.1.1 Teacher's guide

Emne UML diagrams

Sværhedsgrad Let

0.1.2 Introduction

0.1.3 Exercise(s)

0.1.3.1: Draw the UML diagram for the following programming structure: A `Person` class has data property for a person's name, address, and telephone number. A `Customer` has data property for a customer number and a Boolean data property indicating whether the customer wishes to be on a mailing list.

0.1.3.2: Make an UML diagram for the following structure:

A `Employee` class that keeps data properties for the following pieces of information:

- Employee name
- Employee number

A subclass `ProductionWorker` that is a subclass of the `Employee` class. The `ProductionWorker` class should keep data properties for the following information:

- Shift number (an integer, such as 1 or 2)
- Hourly pay rate

A class `Factory` which has one or more instances of `ProductionWorker` objects.

0.1.3.3: Write a UML diagram for the following:

A class called `Animal` and has the following properties (choose names yourself):

- The amount of food needed daily (measured in kilograms)
- The weight of the animal (measured in kilograms)
- The maximum speed of the animal (measured in kilometres per hour)
- The current speed of the animal (measured in kilometres per hour)

The `Animal` class should have two methods (choose appropriate names):

- The first method should set the current speed of the animal proportionately to its food intake and maximum speed as follows: if the animal eats 100% of the amount of food it needs daily, the animal's current speed should be its maximum speed; if the animal eats 50% of the amount of food it needs daily, the animal's current speed should be 50% of its maximum speed, and so on.

- The second method should set the amount of food needed daily proportionately to the animal's weight as follows: the animal should eat half its own weight in food every day (if the animal weighs 50 kg, it should eat 25kg of food daily).

A subclass `Carnivore` that inherits everything from class `Animal`.

A subclass `Herbivore` that inherits everything from class `Animal`, and modifies the second method as follows: the animal should eat 40% of its own weight in food every day.

A class called `Game` consisting of one or more instances of `Carnivore` and `Herbivore`.