Programmering og Problemløsning
Datalogisk Institut, Københavns Universitet
Arbejdsseddel 12 - gruppeopgave

Jon Sporring

2. januar - 10. januar.
Afleveringsfrist: fredag d. 10. januar kl. 17:00.

Emnerne for denne arbejdsseddel er:

- objektorienteret programmering

Opgaverne er delt i øve- og afleveringsopgaver. I denne periode skal I arbejde i grupper med jeres afleveringsopgaver. Regler for gruppe- og individuelle afleveringsopgaver er beskrevet i "'Noter, links, software m.m."'→"'Generel information om opgaver"'.

Øveopgaver

12ø.0 Write a Person class with data attributes for a person's name, address, and telephone number. Next, write a class named Customer that is a subclass of the Person class. The Customer class should have a data attribute for a customer number and a Boolean data attribute indicating whether the customer wishes to be on a mailing list. Demonstrate an instance of the Customer class in a simple program.

Afleveringsopgaver

Sporring, "Learning to program with F#", 2017, Chapter 21.4 describes a simplified version of Chess with only Kings and Rooks, and which we here will call Simplechess, and which is implemented in 3 files: chess.fs, pieces.fs, and chessApp.fsx. In this assignment you are to work with this implementation.

12g.0 The implementation of availableMoves for the King is flawed, since the method will list a square as available, even though it can be hit by an opponents piece at next turn. Correct availableMoves, such that threatened squares no longer are part of the list of vacant squares.

12g.1 Extend the implementation with a class Player and a derived class Human. The intention is to prepare for a future derived class Computer, not to be implemented at the moment. The derived classes must have a method nextMove, which returns a legal movement as a codestring or the string "quit". A codestring is a string of the name of two squares separated by a space. E.g., if the white king is placed at a4, and a5 is an available move for the king, then a legal codestring for moving the king to a5 is "a4 a5". The codestring (for humans) is obtained by a text dialogue with the user.

12g.2 Extend the implementation with a class Game, which includes a method run, and which allows two players to play a game. The class must be instantiated with two player objects either human or computer, and run must loop through each turn and ask each player object for their next move, until one of the players quits by typing "quit".

12g.3 Make an extended UML diagram showing the final design including all the extending classes.

Afleveringen skal bestå af

- en zip-fil
- en pdf-fil

Zip-filen skal indeholde en src mappe og filen README.txt. Mappen skal indeholde fsharp koden, der skal være en fsharp tekstfil per fsharp-opgave, og de skal navngives 12g0.fsx osv. De skal kunne oversættes med fsharpc og den oversattte fil skal kunne køres med mono. Funktioner skal dokumenteres ifølge dokumentationsstandarden. Filen README.txt skal ganske kort beskrive, hvordan koden oversættes og køres. Pdf-filen skal indeholde jeres rapporten oversat fra LaTeX.

God fornøjelse.