

# Advanced Programming (I00032) 2018

## iTasks combinators

### Assignment 5

## Goal

After making this exercise you should be able to make multi-user iTask applications. You can use Shared Data Sources to make a persistent state that is shared by the users. You can use combinators to compose tasks to more complex tasks.

## 1 Questionnaire

In this assignment you are going to make tasks to manipulate a single list of multiple-choice questions. There is a single iTask program that allows different views on the list of questions. The first step in this program is to enter the username and function of this user. The different functions are:

```
:: Function = Student | Teacher | Admin
```

The default function of a user is `Student`. Any name of least 3 characters is allowed. The program should allow multiple simultaneous users. They all share the same list of questions and see updates of these list when they occur.

A sufficient datatype for the questions is:

```
:: Question =  
  {question :: String  
   ,answers  :: [String]  
   ,correct  :: Int  
  }
```

### 1.1 Teacher

For a teacher the program displays an edit list for the existing questions. There is a grid showing the existing questions. The teacher can select one of these questions to manipulate it. The available buttons are:

- **Append** this adds a new question after the selected question;
- **Delete** remove the selected question from the list.
- **Edit** update the selected question.
- **First** add a new questions and add it as the first question.
- **Clear** edit the selected question where all fields are cleared.

- Quit stop the task.

Each edit action can be cancelled by pressing the **Cancel** button. After each edit action the system shows the new grid and continues. It is possible that several teachers manipulate the questions simultaneously. They see each others updates as soon as possible. Hint: see for instance the **Edit shared todo list** in the basic examples.

Choose an item to edit		
Question	Answers	Correct
like FP?	[Yes, No]	0
How many algebraic types do you need for basic generic programming?	[one, two, three, four, more]	3
<div> Append Delete Edit First Clear Quit </div>		

## 1.2 Administrator

The administrator can just update the list of questions as a list using a basic editor for the questions. Just like the teachers she sees their updates immediately and they see the updates of the administrator.

## 1.3 Student

A student has to make the current list of questions one-by-one in the order they are stored. For each question the student sees the question and a grid of possible answers. The student selects an answer and after confirming the answer she gets the next questions. At the end of the list of questions the students gets a small overview over the number correct answers and fails.

question
How many algebraic types do you need for basic generic programming?
select answer
one
two
three
four
more
Continue

## Deadline

The deadline for this exercise is October 15, 2018, 10:30h (just before the next lecture).