Advanced Programming (I00032) 2021
Advanced iTasks

Assignment 10

Goal

The goal of this assignment is to make you confident with using shared data sources and multiple users in iTask. This is done by creating a multi-user application where users can create tasks for each other and execute these tasks after login. Although you make a multi-user application, it is not required to assign tasks to user with `@:` nor to use the type `worker` from iTask. Everything can easily be achieved by using a couple of appropriate shares.

You can use this iTask-program as a multiple uses application by creating several windows (or tabs) in your browser and direct each of them to `localhost`. In each of these windows you can login as another user. The generated web-server will handle all events appropriately and generate the specified interface for each user.

By design this assignment is underspecified and has lots of freedom. Our solution contains about sixty lines of code. If you need much more it is most likely too complex. Finding the most compact solution is not a goal on its own.

1 Login

The first thing a user of your program does is logging in. The user either provides the name and password of an known user, or creates a new login by providing an unique login-name and associated password. It is more illustrative to implement your own login-type than to find out how the native types of iTask work. Use the type `Login` to create and store logins[1].

```
:: Login =
    {userName :: String
    ,password :: String
    }
```

The type `Password` can be convenient to hide the password entered by the user, it will be displayed as a sequence of circles.

It is not required to have a possibility to remove logins from the system.

2 Job Creation and Execution

After logging in the user can either create a new to-do item for a non-empty list of users. These users are indicated by their name. These items can be represented by `ToDo`.

[1] You can make your own variant from the types proposed in this assignment.

```
:: ToDo =
    {todo  :: String
    ,limit :: Date
    ,names :: [String]
    }
```

The system should ensure that only existing users can be selected in the creation, preferably by a `ChooseFromCheckGroup`.

A user can also execute a to-do item by selecting it from a sorted list of items assigned to this user. The user presses to confirm that the selected task is done. As soon as one of the assigned users has executed an item, it will disappear for all users listed in this to-do item.

Most likely it is most convenient to store a single list of `ToDo`-items in your application.

Deadline

The deadline for this exercise is May 17, 2021, 10:30 (just before the next lecture).