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Entwurf von Softwaresystemen - Proseminar

Exercise sheet 10

Information

As a preparation for the upcoming SEPM-Proseminar, you have to create a small project with an interface for mobile devices. For this you are invited (but not required) to form teams:

- Come up with a team name for easier identification
- Send an email with your team name and a list of members (max 3) to your PS supervisor (Subject: "Group formation DoS")
- If your group members attend different proseminars, make sure that all PS supervisors receive your email!

If you do not like the proposed project, you are invited to follow your own ideas and participate in the Tyrolean App Contest[1]. Students participating in the contest receive additional 300 points if they fulfill the contest's requirements and follow the overall guidelines of the course.
We will use the play framework[2] as the MVC framework of choice. If you are already familiar with another MVC(!) framework supporting HTTP/REST access, you are free to use it - if you got the OK from the PS supervisor beforehand.

[1] `https://www.tirol.gv.at/data/app-wettbewerb/`
[2] `https://www.playframework.com/download`

Project Description

Inspired by the huge success of Tinder and Lyft, a rich Tyrolean farmer has come to you to build his "cool startup idea" (choose one):

- He pays you to build (Schi)Lift, a mobile App that allows tourists to rent seats in ski lifts on demand. His business model is that tourist are willing to pay surcharges if there is a long queue in front of the ski lift in order to skip the queue.
- He pays you to build Freezer, a mobile App that allows skiers to enter their interests (e.g. Politics, Rambo Movies, etc) and matches them with other skiers (using the app) so that they can meet during their ski lift travels and talk about a random topic. His business model is that people are willing to pay to utilize their ski lift rides for speed dating - combined with the anonymity of wearing helmets and ski masks.

The following exercises are due on: 12.1.2015.

Exercise 1 (Brainstorming - 0 point)

Chose the idea you want to implement (and fix your teams).

Exercise 2 (Setup - 10 points)

Setup your development environment and create a (public) gitlab/github[3] repository for your source code. Create an empty project and commit your first version to it.

Exercise 3 (Creation of Model classes - 20 points.)

Use UML to design a class diagram for the app idea of your choice. Make sure to consider the ski lift (meta-) data available at: `https://www.tirol.gv.at/data/datenkatalog/sport-und-freizeit/aufstiegshilfen-in-tirol/`.

Exercise 4 (Creation of Prototype Design - 70 points)

Based on your idea, generate a "Paper prototype" for the app that shows the functionality and initial design you intend to provide to users. You can use manually drawn GUIs

[3] You can use your own gitlab server, github, bitbucket or whatever versioning system you are comfortable with. *Public* means that we, the supervisors, are able to access it with one single checkout/clone etc command. If you want to make your repository private, provide your supervisor with username, password etc. Also, you do not have to submit your sourcecode to OLAT, just submit instructions on how the repository can be accessed.

or use wireframing tools such as Balsamiq[4]. You will be required during the proseminar to interactively demonstrate the tool using printed versions of the mockups.

[4] `https://balsamiq.com/`

The following exercises are due on: 19.1.2015.

Exercise 5 (Implementation of Model classes - 30 points)

Implement your model classes and write meaningful tests

Exercise 6 (Implementation of MVC - 40 points)

Extend your play app with a controller and simple views for managing the data stored in your app. Furthermore, import the ski lift data (mentioned in the third exercise) and make it query-able by users. You do not have to think about authentication at this point.

Exercise 7 (Extension of View - 30 points)

Extend your app's views by implementing HTML-based interactions. Include a menu to navigate the app and utilize HTML features for submitting and receiving content.

The following exercises are due on: 26.1.2015.

Exercise 8 (User management - 30 points)

Add user management to your app so that users can: register, log in, log out, save preferences. Also, limit your core functionality to registered users.

Exercise 9 (Final inspection - 70 points)

Provide your supervisor with several user stories that walk him through your app. You will get points for clever features, good UI, and an overall smooth experience. You will lose points if your app crashes, data disappears or glitches are found by the supervisor.

Installation instructions on ZID

To get you started, the following commands install and run the play framework on a ZID server:

```
1 #Connect to the server and start a ssh tunnel for port 9000 on your local
      machine to port 9000 on the ZID
2 #Note: ALL users connected to the ZID server can access port 9000 and if
      you are not the first to use this port, you have to change to another
      port
3 ssh -L 9000:0.0.0.0:9000 <your csa* account>@zid-gpl.uibk.ac.at
4 wget http://downloads.typesafe.com/typesafe-activator/1.2.10/typesafe-
      activator-1.2.10-minimal.zip
5 unzip typesafe-activator-1.2.10-minimal.zip
6 cd activator-1.2.10-minimal/
7 ./activator new
```

- Enter “5” for play-java
- Enter the name of your application
- Enter the created directory
- Start your app with “./activator run”