PROJECT CASE: LYNGBY EVENING SCHOOL (LES)

LES is an evening school under the Law on Leisure Education[1]. LES offers adult education (participants must be over 18) in a wide range of general topics - from languages to cooking and meditation. The school administration consists of a full-time principal and two-half-day office assistant. Teaching jobs are non-permanent positions where teachers are hired to teach a class with a predetermined number of teaching hours. LES also keep track of teachers who currently do not teach at the school. Their teacher register therefore currently consists of 258 names spread across the whole spectrum of topics that the school offer. The teaching season runs from September to May and is divided into two semesters: Autumn semester (1.9 - 31.12) and spring semester (1.1 - 1.5).

Planning activities begin two months before semester start. The topics are organized in specific courses. In order to keep up a variation in the course offerings, LES has a policy that the same topic is offered for a maximum of three consecutive years. The topic is hereafter removed from the list. LES makes such a cleanup prior to each semester. A school committee consisting of the principal and the teachers who have taught 20 hours or more in the previous semester deals with suggestions for new subjects. A simple majority vote decides whether a proposal can be approved. The courses may have different lengths, however, at least 20 hours.

Once the administration has an overview of the topics to be offered the forthcoming semester, course planning can begin. Multiple courses can be created for each subject. The number of courses to be created is assessed on a case-by-case basis, based on the demand of the course in recent semesters. For statistical purposes, LES stores information on courses that have been held for the last two years. For the teacher who is about to teach a course, it is a prerequisite that he or she has completed the Adult Pedagogical Basic Course or is in possession of another educational education of at least the same extent. When hiring a teacher to teach a course, LES mainly contacts teachers who have previously taught similar courses. It also happens that people themselves approach LES to seek a teaching position. In this case, the principal assesses the person’s qualifications and possibly offers the teacher a course. Until now, the principal has registered the person in the teacher register if the person is considered suitable. In order for this register not to grow too large, they clean it up each year, removing all teachers who have not received a salary for the last 5 years.

As previously mentioned LES starts course planning two months before the season starts and uses a total of one month for this. During the same period, the program must be prepared, put online and distributed physically. The courses are grouped under different main categories such as in "Language" and "Motion and Movement". It is different what is recorded about courses in the different categories, for example, under 'Language' there will be a need to save the language and a level, while under 'Motion and Movement' there will be a need to save the type. Rooms for the individual course are identified from a room list, where the location and type of premises are shown. When the program is completed, it is announced to current and former students.

A very busy period follows hereafter: As soon as the course programs are publicly available, participant registrations begin to flow in. A number of conditions must be met, before a course can start up. A course requires a minimum of 12 participants. More precisely, the rule is formulated in such a way that at least 12

[1] In Danish: Folkeoplysningsloven

paying participants must be on a course no later than the third meeting. LES registers enrollments as soon as a registration and payment is received. As a rule, the LES initiates the teaching if, prior to the course start, there are 9 registrations - with the risk that the course may have to be canceled later.

Each teacher can teach a number of courses, but to ensure a high quality, LES has set some limits to that: A teacher can at any given time teach three courses at most.

Once the season has started, a quiet period follows for the administration until the planning of the next semester begins.

Groups

You must work on the project in groups of 3-4 students.

Counselling & reviews

Monday 29/4 is project day.

Status meetings will be on Monday 6/5 and 13/5 where your project work is reviewed (and you have the opportunity to ask questions about the project). For each meeting you must prepare: a. Demo and status so far (product), b. How do you work (process), c. What's next (plan)

A review schedule where you register your own timeslot for each review date is here.

Hand-in

You must specify a Github link to your artifacts on Moodle. Deadline: May 24th 2019 12.00 (noon).

You solution must include test code, source code and a text document with evaluation and reflections on your work (see details below).

Exam

The project is mandatory (30 study points) and your solution will be part of the examination.

Programming language & Tools

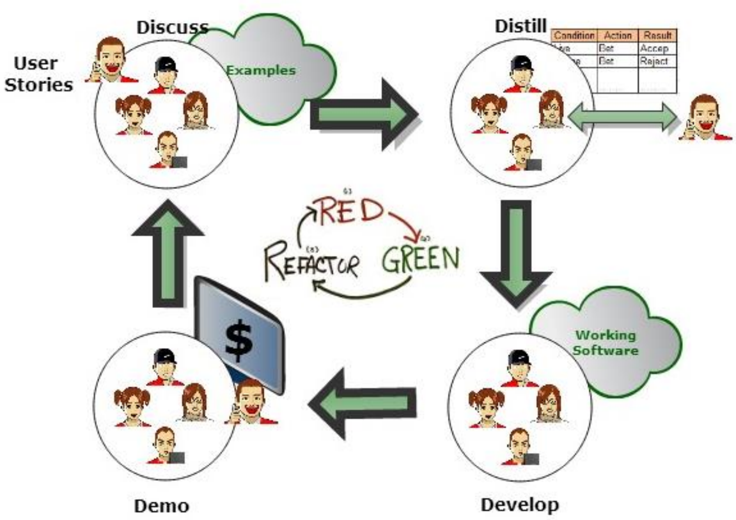
Your solution and test automation does not have to be based on Java, but please get approval of other options by the teachers before you start the project.

WHAT ARE YOU SUPPOSED TO DO IN THE PROJECT?

The idea is that you iteratively and incrementally implement *parts* of the user stories, you identify in the project case description. Focus of the project in on “testing quality into a software product” perceived from two objectives: ‘Are we building the right thing?’, and ‘Are we building it right?’

We urge you to work in a test-first manner, where tests at any level are designed before software implementation. At system level, writing tests early means communicating a lot with business stakeholders and automation becomes a useful side effect[2]. This process is illustrated below.

from User Stories to Business value



At code level, we also want you to pursue a test-first approach with Red-to Green bar Strategies in Classic and Mockist styles chosen appropriately depending on context.

It is required that components and user stories can be tested independently of each other, with as much test automation as possible (in respect to the Test Pyramid). A Continuous Integration chain must be set up. In consequence hereof, you will (hopefully) not need a bug tracking system as bug fixing will happen in immediate response to CI servers alerts when running its jobs (tests, coverage, coding standards etc.).

Remember that test automation in itself does not guarantee software quality, so you must apply relevant test design techniques as needed.

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[2] Each group acts as business stakeholder for another group regarding interpretation of unclear specification, decision making on which user story to prioritize next, approval of a story as done etc. Groups, however, write their own automated acceptance tests ☺

EVALUATION AND REFLECTIONS

As a minimum, you must reflect on and discuss the topics listed below in regards to your work and your solution. Feel free to add more elements.

Team collaboration
How do you visualize and communicate to all team members what is going on in the project (what is the team working on at the moment, what impediments may be in its way, how much work has been completed, and whether or not the regressions tests are currently passing)?

Test automation strategy
What criteria do you apply to make your automation effective and efficient?

Non-functional requirements
How do you deal with non-functional issues?

Testability
How testable is your solution? What are the reason(s) it turned out so testable/not testable.

Test design techniques
Which techniques have you used and how useful have they proven?