What else we did to asses the students

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Agenda

- Preliminaries
- Self-assessment
- Small exams
- Final marks

Preliminaries

- Commitment of our Chair to continuously asses students
- Soon → the explicit obligation
- Easier for students, easier for us (in the long term)
- Therefore,
  - everything that student do we shall take into consideration.
  - Points from assignments will be used to form the final mark (not just the prerequisite)

Complications

- Since assignments are done by teams, we should differentiate the influence of each particular person
  - Small surprise ad-hoc tests (worth one point) to repeat some parts of their solutions. The chance to increase the number of points, if the student really was included in the team solution.
  - Self-assessment of team members – promised to be used in ‘research purposes’ only

Not a “monolithic” exam at the end

- But rather several smaller ones, organized as tests.
- Small surprise ad-hoc tests (worth one point) where some part of the lecture should be ‘repeated’ (e.g., ‘what is considered as the ‘good’ cyclomatic complexity’)
- Small sudden questions (worth one to two points) to motivate them to discuss and follow the lecture (e.g. ‘what this uncommented, unstructured C++ program does?’)

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Self-assessment inside teams 1

- For each (other) of the team members, every person from the team answered the following questions, awarding between 0 and 25 points:
  - Did a team member read the assignment and the preparation material *before* the beginning of a meeting of a team?
  - Did a team member made an equal contribution to the final solution as the rest of the team?
  - Did a team member explicitly and creatively contributed to the final solution?
  - Was a team member cooperative during work?

Self-assessment 2

- Most of the students tried to "cover" for their non-working colleagues. Proof:
  - 67% of marks were maximal – 25 points;
  - additional 21% of marks were 20 points or more – again "excellent" marks;
  - two teams gave each other maximal number of points for each assignment, to each member;
  - another five teams gave each other such marks, that the average mark for each member of a team was higher than 20 points.
  - Some students complained that their team members do not contribute to the team solutions. However, they refused to report that officially or in self-assessment forms.

Self-assessment 3

- Still, after scaling, gained results were quite useful:
  - each team has easily distinguishable “best” and “worst” member;
  - the “best” member most freely gave “bad” marks to other members;
  - the “worst” member, on the other hand, gave the others all the “best” marks
  - there is an equal number of students starting “excellent” but going down to “bad”, and vice versa
  - the “worst” marks were given to students who didn’t attend classes regularly

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Small exams

- During the course, 3 tests are organized, each one with 20 questions, valued with 20 points.
  - In the future more smaller exams
  - 3-4 of all questions were also related to the assignments – another tool to distinguish between the team members
- Student may fail at most one small exam
- If not satisfied, he can take the analogous test later, during the examination period

Results

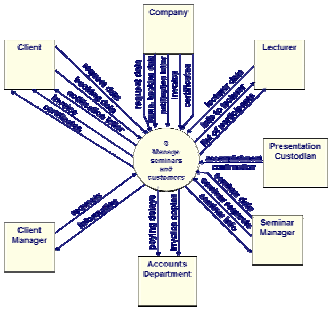
- Results were more or less divided into 4 groups, for each test:
  - about 15% achieved around 85-95% of correct answers
  - about 30% achieved around 75% of correct answers
  - about 25% achieved around 50% of correct answers
  - about 20% achieved less than 20% of correct answers
- Only around 60% of students took the first test. Later tests had higher attendance, up to 80%.

Did we do well?

- Students gaining the most points at tests, were at the same time students-members of teams that had the most points at assignments.
- Students from the teams with the worst results, had 0 to 50% of the points, or hadn't attend the tests.
- (Almost) ALL members of the best teams gained the most points at tests.

Some questions - 1

- There were different types of questions at the tests. For example, open questions:
  - State the basic 4 phases of a waterfall model and its biggest flaw.
- Questions of a "practical" nature:
  - Analyze and critically review given part of a requirement specification for "Seminar Organization" v3.0, and create a report giving all eventual errors, ambiguities, and imprecisements.
- or
  - Reconsider correctness of a given diagram



Some questions - 2

- Questions where *one* correct answer should be selected:
  - On what kind of notation is based data dictionary:
    - Bacus-Naur form
    - Syntax tree
    - Function tree
    - Decision tables
- Questions where *all* correct answers should be selected:
  - Which documents are result of a planning phase:
    - dictionary
    - product model
    - preliminary requirements specification
    - cost estimation
    - GUI prototype
    - project plan

Some questions - 3

- We have more
- Towards the repository?

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Final mark - definitions

- We sum all earned points.
- However points are in two different groups:
  - Theory (with accompanying small test and ‘sudden’ questions) are worth 60%
  - Assignments (with accompanying small tests) are worth 40%
- We also take in the consideration the following definitions:
  - Small exam passed = earned more than 50% of points on a small exam
  - Assignments passed = earned more than 50% of points for all of the assignments in total
  - Earned final mark = passed *at least* 2 small exams earning *at least* 50% points in total + passed assignments
    - If the student passed only two of small exams, his/her maximum mark can be no more than 7

Final mark – contd.

- Final mark: First 10% the highest mark, then 25%, 35%, 25%, 10%, with small modification depending on where the border line is (see later!)
- Whoever did not take part in the continuous assessment, will take the classical exam
  - The whole or
  - The missing parts

Examples-1

- Of maximum 62 points on assignments:
  - The best team won 57 points
  - The worst successful team won 34
  - The team of Živana and Filip: 56 points
  - 43 out of 49 successfully solved the assignments: 3 did not because of force-majeure and 3 (the whole team) won just 29 points and completely missed the last assignment
- Ad-hoc tests and sudden questions (max. 6)
  - The best persons won 4 points
  - The worst persons won 0 points
  - Živana and Filip / Filip and Živana won 4 and 2
  - Of three small tests (‘proving the team solutions’) only two won 0 points.

Examples-2

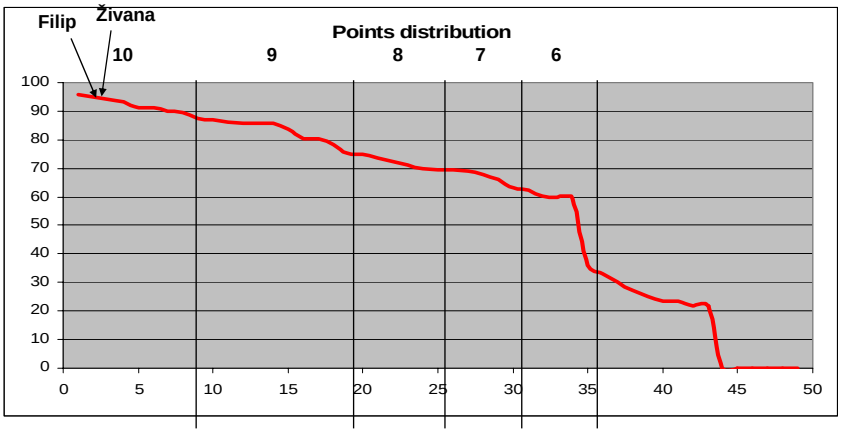
- Small exams – test (max. 60)
  - The best person won 57 points
  - The worst successful person won 31 points
  - Živana and Filip / Filip and Živana won 56 and 53
  - 28 students passed all three tests
  - 6 students – 2
  - 9 students less than 2
  - 6 students did not take any test

Final marks, again

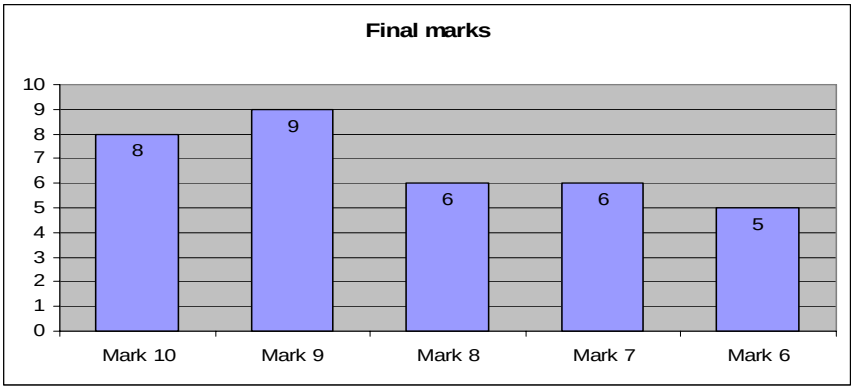
- Plan: Final mark: First 10% the highest mark, then 25%, 35%, 25%, 10%, with small modification depending on where the border line is (see now!)
- Implementation (34 of 49 passed the exam, > 69%):

Mark	**Percent (successful)**	**Percent (all)**
10	24%	16 %
9	26 %	18 %
8	18 %	12 %
7	18 %	12 %
6	14 %	10 %
5		30 %

Points distribution among students



Marks distribution among students



What else?

- Wait how distribution will look like after the September exam
- Deeper analysis of self-assessments inside teams: cross-analysis between self-assessment marks, final marks, number of points, number of points, number of points on ad-hoc tests,…