This Lecture

- Some notes on team working (Partly based on slides by Prof. Dave Elliman)
- Group meetings
- Software Development Methodology
- Assessment

Groups

- You have now been divided into groups of 5 to 6 students and assigned a supervisor and a project.
- If you are *not* in a group, but think you should be, let me know *urgently*.
- If you have tried but failed to get in touch with some member(s) of your group, let me know *urgently*.

Team Working (1)

Teams can be fun!
Team Working (2)

But sometimes they don’t work well . . .

- Inadequate organisation
- Low commitment
- Apathy
- Conflicts

Necessary Roles

- Motivator (initiator)
- Idea generator
- Team worker (“getting the job done”)
- Specialist (technical, writing, . . .)
- Coordinator (administrator)
- Censor (devil’s advocate)
- Mediator (supporter, mentor)
- Monitor (tester)
- Completer-finisher

Characteristics of teams that work

- Balance of member skills — and making good use of those skills
- Clear goals
- Clear responsibilities
- Good organisation
- Good communication, including listening
- Commitment to goals: willingness to put group goals before ego and/or comfort
- Mutual respect and valuing

Formal Roles (1)

Every group should elect a Group Leader:

- Overall planning and coordination.
- Motivator
- Arbiter
- Main point of contact
Additionally, the following are highly recommended:

- Editor
- Technical Lead
- Quality Assurance Lead
- Repository Master

Other useful roles:
- UI Designer
- Open Day Producer
- ...

**Editor responsibilities:**

- Document structure
- Layout (creates templates)
- Structure of writing process (e.g. draft deadlines, organisation of proof reading)
- Integration of contributions

**Technical Lead responsibilities:**

- System architect
- Identify key technical choices, pros and cons
- Lead programmer (as projects not too large)

**Quality Assurance Lead responsibilities:**

- Making sure requirements are testable.
- Planning for quality assurance, in particular testing.
- Writing test cases.
- Automation of testing, in particular regression testing
Formal Roles (6)

Repository master responsibilities:
- Overall responsibility for managing project site and repository
- Training everyone in how to use the site and associated tools
- Project website deadline. 2 Nov.

Formal Roles (7)

Note:
- Not all roles relevant all the time.
- Roles can be shared/further subdivided.
- One person can have more than one role.
- Role owners should not be expected to do all work associated with role. Rather, think “organiser”.
- Role owners not exempt from helping out with other aspects!

Everyone should pull their weight all the time!

Some tips
- Be positive: see challenges, not problems
- Work on the assumption that every team member really wants to do his or her best.
- If someone does not contribute effectively, try to find out why, and what can be changed to help.
- Attempt to handle conflicts within group, but ultimately, don’t be afraid to ask supervisor or module convener for help.
- A student’s perspective here: http://www.webcitation.org/66Tn1A07Q

Group Meetings

Two kinds of meetings:
- Informal meetings
  - Only the group members.
  - Usually one per week, more if necessary.
- Formal meetings
  - All group members plus the supervisor.
  - One meeting per week, about 30 min.
  - Compulsory!
    If you cannot make it, apologies to the meeting chair well in advance.
Informal Group Meetings (1)

Purpose: coordination and getting some real work done.

Typical activities:
- Develop a group-wide understanding of what the project is and a consensus about its aims.
- Organisational matters:
  - electing group leader
  - division of work
  - developing time plans
  - developing work procedures

Informal Group Meetings (2)

- Design discussions.
- Discussions about specific technical problems.
- Reviews and inspections:
  - design documents
  - reports
  - code
- Prepare for the formal meetings.

Informal Group Meetings (3)

Of course, a lot of work needs to be done outside meetings, individually or in small subgroups; e.g.:
- Background research
- Detailed design
- Writing design documents and reports
- Coding
- Testing & Debugging

Remember: If you don’t put in on average 9 h/week, you are not working hard enough! (Coffee-breaks not included. :-)

Formal Group Meetings

Purposes:
- Formally monitor progress by reviewing minutes from preceding formal meeting.
- Formally take major design decisions.
- Formally decide on what should be done over the next week, and who is responsible.
- Keep supervisor informed about where the project is going.
- Seek input from supervisor.
- Discuss problems.
Chairperson and Secretary

- There should be a **Chairperson** (or **Chair**) and a **Secretary** for each meeting.
- These roles should **rotate** within the group.
- The Chair **organises** and **leads** the meeting.
- The Secretary **records** what happened and what was decided during the meeting in the **minutes**.

The Chairperson

The Chair runs the formal meeting:

- Prepares a written agenda **prior** to the meeting, makes it available to the group and supervisor (via project site and/or e-mail), and brings printed copies to the meeting.
- Leads the meeting by following the agenda.
- Ensures that the meeting remains focused.

The Secretary

The secretary records the meeting:

- Takes notes during the meeting:
  - Who are present & apologies
  - Summary of major points
  - All decisions
- Compiles these notes into minutes **immediately after** the meeting.
- Makes the minutes available to all group members and the supervisor. They then check that the minutes correctly reflects the meeting.

Minutes (1)

- A written summary of a meeting is called the **minutes** of the meeting.
- The minutes help keeping the work organised and focused.
- The minutes should be **archived**: using the facilities for sharing documentation through the project site is a good idea.
**Minutes (2)**

The minutes should record:
- Date, time, and place of the meeting.
- Chair, Secretary, who is present.
- Apologies from those who are absent.
- The main points discussed during the meeting.
- All decisions.
- All action points.
- Date, time, place, Chair, and Secretary of the next meeting.

**Action Points**

- Each meeting generates a list of action points. Three parts:
  - **What** the task is.
  - **Who** is assigned to the task.
  - **When** the task should be finished.
- The purpose of the action point list is to:
  - provide a clear and concise record of the work that needs to be done
  - ensure that tasks are not forgotten
  - make it easy to ensure an evenly distributed workload.

**Example of Action Points**

- **John**: Find a good Visual Basic Book
  Done by: 11 Nov (next group meeting)
- **Mark and Sarah**: Fix the “sorting bug”
  Done by: 8 Nov (urgent)
- **All**: Finish interim report chapter drafts
  Done by: 18 Nov

It can be helpful to clearly identify particularly urgent action points to help ensure they get priority.

**Structure of the Formal Meetings (1)**

Typical agenda:
1. Opening of the meeting
2. Apologies
3. Review of progress since last meeting.
4. . . .
   . . . . .
   . . .
   n – 2. Any other matters
   n – 1. Next meeting: Date, Chair, and Secretary
   n. Closing of the meeting
Structure of the Formal Meetings (2)

• Progress review: be sure to follow up on all outstanding action points.
• Review of old action points and other discussion will generated further action points. Record them (e.g. on white board).
• Be sure to review all new action points towards the end of meeting to ensure everyone knows and understands what their tasks are.

Personal Logs

• In addition to the formal meeting minutes, it is useful to keep your own personal log.
• The log can be used to:
  - keep track of your tasks
  - record how your time is spent
  - note down any ideas you have
• The log is very useful
  - to organise your own work
  - in group meetings
  - when writing the individual reports

Software Development Methodology

• You can use any appropriate methodology.
• Agile methods have been found to work well in the context of the group projects.
• Be sure to use prototyping!

Why prototype?

G52GRP is a difficult module for many reasons:
• Large, unstructured task.
• New application domain.
• Medium- to large-scale software development will be a new experience to many of you.
• New people.

Prototyping can help with these!
How can prototyping help?

• Prototyping helps in understanding the problem domain and the key difficulties: *extremely valuable design input!*

• Prototyping gives insights regarding how to best structure the implementation: *helps large-scale software development.*

• A prototype is something concrete that everyone can try out and have opinions on: *ensures everyone is on the same page and pulls in the same direction.*

Assessment (1)

Collective Group Mark:

<table>
<thead>
<tr>
<th>Task</th>
<th>Marks [%]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group Project Site</td>
<td>5</td>
</tr>
<tr>
<td>Interim Group Report</td>
<td>15</td>
</tr>
<tr>
<td>Final Group Report</td>
<td>30</td>
</tr>
<tr>
<td>Software</td>
<td>20</td>
</tr>
<tr>
<td>Open Day</td>
<td>15</td>
</tr>
<tr>
<td>Presentation Day</td>
<td>15</td>
</tr>
</tbody>
</table>

Peer Assessment

Each group member evaluates all other group members along a number of dimensions:

• Research and Information gathering
• Creative input
• Co-operation within group
• Communication within group
• Concrete contribution
• Attendance at meetings

*Completely confidential and vetted by supervisor!*
Peer Assessment Form

<table>
<thead>
<tr>
<th>Research &amp; information gathering</th>
<th>None</th>
<th>Lacking</th>
<th>Adequate</th>
<th>Good</th>
<th>Excellent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Creative input</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
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Justification of assigned ratings:

Concrete contribution: Quality and quantity of concrete contribution to group deliverables: writing, coding, testing, open day display, preparations for presentations, etc.

How to Interpret the Form? (1)

• **Adequate** signifies having performed as well as can be expected. For example, a member who:
  - carried out a fair share of the work
  - were reasonable, approachable, friendly
  - attended most meetings, mostly on-time, absent only with good cause.

• **Good** and **Excellent** signify performance above and much above this level, respectively.

• **Lacking** and **None** signify performance below and much below this level, respectively.

How to Interpret the Form? (2)

• It is not uncommon that a couple of peers excel in one or two respects.

• It would be **unusual** for a peer of yours to be excellent in all respects.

• It would be **very unusual** for all of your peers to be excellent in all respects.

How to Interpret the Form? (3)

Assessment of a typical group mate:

<table>
<thead>
<tr>
<th>Research &amp; information gathering</th>
<th>None</th>
<th>Lacking</th>
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Justification of assigned ratings:

John generally pulled his weight throughout the project, delivering his fair share of work to a good standard in a timely way. However, he did take a bit of a backseat in the design discussions. On the other hand, he later greatly facilitated communication within the group. He missed a few meetings, but always with good cause.
How to Interpret the Form? (4)

- However, what is most important is that the form is used reasonably consistently within your group.
- You may thus want to consider discussing what the norms should be in your group.
- You may even want to firm up (some of) these norms as a written Group Working Contract that all team members then signs. E.g. agreeing on attendance expectations should be easy.
- Have these discussions early!

Effect of Peer Assessment: Example

- Group of five: Anna, Emma, Adam, John, Paul.
- Assume Collective Group Mark is 58, Emma got much better peer assessment than anyone else, Paul much lower, others broadly similar.
- Would yield Individual Marks for GW like:
  - Anna: 60
  - Emma: 71
  - Adam: 61
  - John: 58
  - Paul: 40
- Note: Average of individual marks = 58.