



## Project Management II

Lecture : 6  
Date : 13-10-2005

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University of Crete, Fall 2005



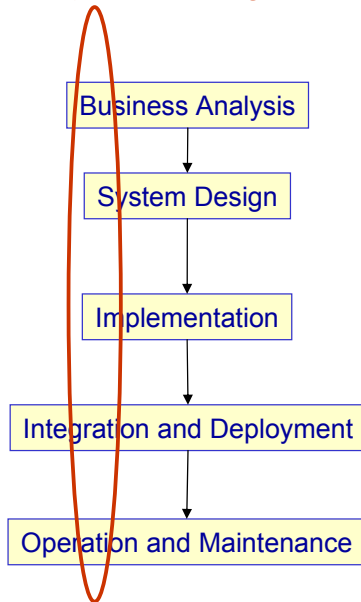
## Outline

- *Reminder*
  - *Project Planning and Project Management*
- **Related Issues and Practices**
  - Selecting a CASE tool
  - Adopting Standards
  - Assessing and Managing Risk
  - Deciding a Directory structure for all project artifacts
  - The Project Plan Document
- *Examples of planning-related artifacts from a real project*



## Reminder: Project Planning

### Project planning



- If you can't plan it, you can't do it
- Activity of estimating the project's deliverables, costs, time, **risks**, milestones, and resource requirements
- Includes the selection of development methods, **processes**, **tools**, **standards**, team organization
- A moving target
- Typical constraints are time and money



## Reminder: Project Planning

### 1. At project initiation, the **system's value** to the organization is identified

- A system request describes in brief the **business need**, and it explains how a system that supports the need will create business value. The IS department works together with the person or department that generated the request to conduct a **feasibility analysis** which examines key aspects of the proposed project:
  - **technical / economical / organizational feasibility**
- The system request and feasibility study an approval committee (or steering committee) which decides whether the project should be undertaken.

### 2. Once the project is approved it enter into **project management**

- the project manager creates a workplan, staffs the project and monitors and controls the progress. Deliverable: project plan
  - [A] Identifying Project Size
  - [B] Creating and Managing the WorkPlan
  - [C] Staffing the Project
  - [D] Coordinating project activities



## CASE Tools

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***See Tutorial 1 (Oct 10, 2005)***



## Standards

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# Standards

- **Motivation**
  - When several persons work together, things may become very confusing
  - We can avoid this by adopting standards that team members follow. This also enhances the communication between the team
- **Examples**
  - **Formal rules for naming files**
  - **Forms indicating goals reached**
  - **Programming guidelines**
  - **Templates for meeting**
    - **agendas**
    - **minutes and memos**
    - **project reviews**



# Examples of standards

- **Standards for Documentation**
  - *The project name and date should appear in the header*
  - *Every document should have table of contents*
  - *Every document should be based on a agreed template*
    - *Agenda.dot, minutes.dot, projectReview.dot, testLog.dot, requirementsDocument.dot*
- **Standards for Coding**
  - *Each source file should have a header that lists the programmer, the last date of update and the purpose of the code*
  - *Indentation should indicate loops, if-then-else, case statements, ..*
  - *Every program should have at least one comment every 5 lines of code*
- **Procedural standards**
  - *Every Friday at 14:00 the progress of each task should be reported*
  - *The project manager should approve every change in the requirements document*



## header.java

```
/**
 * $<remove me>Id$
 *
 * Copyright by FASTAXON-project group
 *
 * This code is licenced under VTT Public licence
 * See http://opensource.erve.vtt.fi/LICENSE.txt
 *
 * Description:
 * Author:
 * Last Update:
 */

//In order to get CVS keyword substitution to work remove <remove me>
//from above
```



## Javadoc.java

```
/**
 * $Id: javadoc.java,v 1.1 2003/10/14 20:48:26 htorndro
 * Exp $
 *
 * Copyright by FASTAXON project group
 *
 * This code is licenced under VTT Public licence
 * See http://opensource.erve.vtt.fi/LICENSE.txt
 */

//Class and Interface Documentation Tags
/**
 * A class representing a window on the screen.
 * For example:
 * <pre>
 * Window win = new Window(parent);
 * win.show();
 * </pre>
 *
 * @author Sami Shaio
 * @version %I%, %G%
 * @see java.awt.BaseWindow
 * @see java.awt.Button
 */
class Window extends BaseWindow {
    ...
}
```

```
//Constructor and Method Documentation Tags
/**
 * Returns the character at the specified index. An index
 * ranges from <code>0</code> to <code>length() -
 * 1</code>.
 *
 * @param index the index of the desired character.
 * @return the desired character.
 * @exception StringIndexOutOfBoundsException
 *         if the index is not in the range
 *         <code>0</code>
 *         to <code>length()-1</code>.
 * @see java.lang.Character#charValue()
 */
public char charAt(int index) {
    ...
}

//Field Documentation Tags
/**
 * The X-coordinate of the component.
 *
 * @see #getLocation()
 */
int x = 1263732;
```



## Risk Management



## Risk Management

*Risk management is the process of  
assessing and addressing  
the **risks** that are associated with developing a project*



## Recall: Risk Factors

- **Requirements**
  - poorly understood requirements at scheduling time
  - customer changes requirements
  - IS staff insist on unnecessary features
- **Technological**
  - unsuitable target deployment environment
  - unsuitable development tools
  - New tools, no technology standards
- **Skill**
  - inadequate participation by users in development process
  - poor project management
  - poorly trained developers
- **Political/Environmental**
  - weak upper management commitment
  - changing environment, technological environment, government action



## Risk Assessment Document

The team creates (and keeps updated) a document that

- lists all associated risks
- estimates the probability of each risk
- predicts the potential impact of each risk on the project
- proposes actions to reduce and address the risk
  - (a couple of paragraphs)



## Example of Risk Assessment Document (1/2) (for the 1st iteration of a phased project)

T-76.633						<b>Probabilities:</b>	<b>Loss impacts:</b>	<b>Priorities:</b>		
risk register						1. Highly probable	1. Very high	1. Critical		
Name of person filling in the data		Tero Leppänen				2. Probable	2. High	2. Major		
Name of group:		Muntaja				3. Possible	3. Medium	3. Medium		
Project:		Fastaxon I1				4. Unlikely	4. Low	4. Minor		
						5. Highly unlikely	5. Very low	5. Trivial		
ID	Area	Risk Factors	Risk Event	Risk Effects	Owner	Probability	Loss impact	Priority	Controlling actions	Action Status
1	Project management	1. The group is working while studying. 2. Some group members have family with small children.	1-2 persons leave the project.	1. Too much work for rest of the group. 2. Some parts of the project become unknown to group.	Project manager	5	2	4	1. Project manager will monitor the workload for individual members. 2. Assign backup person for every task.	Ongoing
2	Schedule	1. Project schedule is fixed by course 2. The group is working while studying	Project deadlines are exceeded	The group fail to pass the course	Risk management board	4	1	4	1. Assign responsible person for handling the course deliveries. 2. Set internal milestones inside iterations.	Done
3	Technical skills	The group has limited knowledge of Java	1. Coding is slow 2. Quality of code is poor	The group fails to meet the customer goals	Project manager	2	2	2	1. Plan schedule so that there is enough time to study the new tools. 2. Arrange learning sessions between head architect and rest of the group 3. Quality manager monitors SW quality	Done
U. of Crete, Information Systems Analysis and Design					Yannis Tzitzikas, Fall 2005					15



## Example of Risk Assessment Document (2/2) (for the 1st iteration of a phased project)

4	FT theory	1. Theory behind FT is new and difficult to understand	1. Requirements are not clear. 2. Group fail to prioritize features	The group fails to meet the customer goals. FT software failed to build.	Account manager, Project manager	3	2	3	1. Monitor progress of the project. 2. Arrange reviews and meetings between customer and group	Ongoing
5	Tools	New tools and techniques	Lots of time is spend for learning tools and evaluating techniques	Important tasks are delayed. Project does not meet schedule	Project manager	3	3	3	1. Try to test whole repertoire of tools during I1 2. One person is evaluating tool first and he prepares instructions to others 3. Try to use 'standard' techniques	Done/ongoing with new tools
6	Tools	Tool combatibility problems	Lots of time is spend for tool combatibility problems	Important tasks are delayed. Project does not meet schedule	Project manager	2	3	3	1. One person test tools first and he prepares instructions to others 2. Do not use too exotic tools 3. Try to use 'standard' techniques	Done/ongoing with new tools
7	Architecture	Architecture selection effects to GUI development more than expected	1. User interface requirements are not fulfilled 2. Too much time spend to UI development	1. Schedule slips 2. Architecture change or GUI requirement change	Project manager	3	3	3	GUI design will be verified as soon as possible, latest in the beginning of the I2	Done
8	Architecture	Architecture is not well understood by all group members.	1. Much time spent on waiting other peoples results. 2. Rework	1. Workload does not deviate evenly. 2. Schedule slips	Head architect	2	2	2	1. Arrange internal workflow and architecture training session. 2. Tasks managed in a way that minimizes dependencies.	Done I1, Ongoing with I2, I3 and DE
9	Architecture	Customer has some strong opinions of technical issues	Customer steers too much technical selections	1. Architecture selection is not optimal 2. GUI is poor	Account manager	4	4	5	1. Make early releases for customer to show how selections affect 2. Negotiate with customer. Prepare arguments.	Done
10	Project management	Intertask dependencies are not clear.	1. Much time spent on waiting other peoples results. 2. Rework	1. Schedule slips 2. Workload does not deviate evenly	Project manager	2	2	2	Iteration planning is done with co-operation with Head architect.	Done with I1 and I2. Ongoing with I3 and DE
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*We should update the risk assessment document regularly*



**Example of Risk Assessment Document (1/2)**  
(for the **2nd iteration** of a phased project)

T-76.633 risk register				Probabilites:	Loss impacts:	Priorities:				
Name of person filling in the data				Hannu Törnroos	1. Highly probable	1. Very high	1. Critical			
Name of group:				Muuntaja	2. Probable	2. High	2. Major			
Project:				Fastaxon I2	3. Possible	3. Medium	3. Medium			
					4. Unlikely	4. Low	4. Minor			
					5. Highly unlikely	5. Very low	5. Trivial			
ID	Area	Risk Factors	Risk Event	Risk Effects	Owner	Probability	Loss impact	Priority	Controlling actions	Action Status
1	Project management	1. Important work cannot be divided to small tasks 2. Work is divided unevenly	Architect and GUI responsible can't handle the workload	1. These persons have to make extra hours (>190) 2. Schedule slips due the waiting of their work.	Project manager	2	2	2	1. Make sure architect and GUI responsible do only tasks that can't be done by anyone else 2. Use Yannis in coding to reduce architects workload.	Ongoing
2	Schedule	1. Project schedule is fixed by course 2. The group is working while studying	Project deadlines are exceeded	Iteration grade drops due missed DL	Project manager	4	2	4	1. Assign responsible person for handling the course deliveries. 2. Set internal milestones inside iterations.	Ongoing
3	Dev/test environment	Dev/test environment installation is hard	Much time spent in setting up new/broken environments	1. Schedule slips. 2. Developers testers will become frustrated work morale drops	Test Manager	3	3	3	1. Fix installation instructions 2. Gather instructions in one manual.	Assigned to Pekka Uusitalo
4	FT theory	1. Theory behind FT is new and difficult to understand	1. Requirements are not clear. 2. Group fail to prioritize features and Design	The group fails to meet the customer goals. FT software failed to build.	Account manager, Project manager	3	2	3	1. Monitor progress of the project. 2. Arrange reviews and meetings between customer and group	Ongoing



## Example of Risk Assessment Document (2/2) (for the 2nd iteration of a phased project)

5	Software quality	1. Requirements document does not offer enough data for writing test cases 2. Testing is apart from rest of the project	Testers are testing obsolete/wrong functionality.	Software quality is bad (or quality is in wrong places)	Test Manager	3	2	3	1. Try to read reqs. data "between the lines" 2. Arrange meeting to clarify requirements in testing point of view	Done/ongoing with I3
6	Project management	Requirements are in too abstract level	Coders misunderstand reqs	Important tasks are delayed. Project does not meet schedule	Project manager	2	2	2	1. If something is unclear ask Mika immediately. 2. If Mika does not know the answer ask Yannis immediately. 3. Project manager to cc:-field of all FX emails.	Ongoing
7	Requirements	Project group did not know the substance well enough during reqs. elicitation	Important reqs were missed during reqs elicitation	1. Rework to already implemented functionality 2. Some requirements have to be dropped to have time for new ones.	Project manager	3	2	3	1. Strict discipline in change management 2. Follow the SCM process defined in project plan.	Ongoing
8	Architecture	Architecture is not well understood by all group members.	1. Much time spent on waiting other peoples results. 2. Rework	1. Workload does not deviate evenly. 2. Schedule slips	Head architect	2	2	2	1. Arrange Pair programming session 2. Tasks managed in a way that minimizes dependencies.	Pair programming sessions arranged by both GUI&model coding "teams". Task management ongoing with I3 and DE
9	Requirements	1. New requirements elicited during work 2. Changes are not officially approved by customer	Unplanned functionality implemented instead of planned	1. Less time for the important stuff 2. Unplanned functionality won't be documented (and thus won't get tested)	change management board	1	3	2	1. Strict discipline in change management 2. Prioritize new reqs with customer before implementation	Ongoing
10	FX theory	1. Navigation tree and Check/Validity algorithms are not used	The most important part of SW does not work	1. System is useless	Architect	3	1	1	1. Prioritize algorithm work ahead of everything else 2. Use Yannis in	Ongoing



## Deciding a Directory Structure



## Example of a directory structure (1/2)

```

projectName/
  development/
    source/
      lib/
      lib_x_project/
      storage_manager/
        project_x/
        project_y/
      expression_builder/
        project_x/
        project_y/
      share/
    database/
      design/ (DB design etc.)
      content/ (DB contents for testing)
    testing/
      test cases/
      test diaries/
      test logs/

```

```

bin/
  release/
    rel_1_0_0/
      doc/
      client/
        bin/
        src/
        doc/
      server/
        bin/
        src/
        doc/
      database/
        design/
        content/

```



## Example of a directory structure (2/2)

```

doc/
  specifications/
    requirement specifications/
    design specifications/
    architectual specifications/
  templates/
    src/
      IDE project templates
      src file templates
    doc/
      minutes template
      etc...
  development environment specifications/
  development HW.txt (?)
  operating systems.txt (?)
  development SW.txt (?)
  dev env installation manual.txt

```

```

development instructions and standards/
  developers guide.txt (?)
  testers guide.txt (?)
  followed standards.txt (?)
manuals/
  installation manuals/ (?)
  user manuals/ (?)
quality assurance/
  inspection materials
    checklists/
    minutes/
    reports/
change management/ (?)
  error reports/ (?)
  change requests/ (?)
administrative documents/
  meeting minutes/
  iteration plans/ (project plans)
  maintenance plans/ (?)
  quality assurance plan/ (?)
  configuration management plan/ (?)
  agreements/
marketing materials/ (?)

```



## The Project Plan Document: A typical outline (1/5)

*For a project to be developed in phases*

1. Introduction
2. Stakeholders and staffing
3. Goals and end criteria
4. Resources and budget
5. Work practices and tools
6. Phasing
7. Risk management plan



## The Project Plan Document: A typical outline (2/5)

1. Introduction
  - Purpose and scope of the project
  - The system and its environment
  - Rights of project outcome
  - Terminology and definition
2. Stakeholders and staffing
  - Project group (roles)
  - Other stakeholders
3. Goals and end criteria
4. Resources and budget
5. Work practices and tools
6. Phasing
7. Risk management plan



## The Project Plan Document: A typical outline (3/5)

1. Introduction
2. Stakeholders and staffing
3. Goals and end criteria
  - Goals of the customer
    - core functions and properties of the system, top-10 goals
    - work practices, schedule, documentation
    - verification criteria
      - objective (measurable criteria preferred)
      - subjective (customer evaluates ...)
  - Goals of the project group
  - Project abort criteria
  - Project end criteria
4. Resources and Budget
5. Work practices and tools
6. Phasing
7. Risk management plan



## The Project Plan Document: A typical outline (4/5)

1. Introduction
2. Stakeholders and staffing
3. Goals and end criteria
4. Resources and Budget
  - Personnel
  - Materials (hardware and software resources)
  - Budget (monetary costs)
5. Work practices and tools
  - Practices
  - Tools
  - Standards
6. Phasing
  - schedule, milestones, iterations plans (goals, deliverables, tasks)
7. Risk management plan



## The Project Plan Document: A typical outline (5/5)

1. Introduction
2. Stakeholders and staffing
3. Goals and end criteria
4. Resources and Budget
5. Work practices and tools
6. Phasing
7. Risk management plan
  - Risk mgmt practice
    - who is responsible for risk mgmt?
    - How risk mgmt is done?
    - How often and by whom risks are reviewed
  - Risks
    - risks, effects, controlling actions



*Examples from a real project*



## Examples from a real project

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### Outline

- Project Information
- Meeting Agendas
- Meeting Memos
- Project Reviews
- Project Plan Document (v1, v2, v3)



## About the Project

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- Customer: VTT
- Team: 7 graduate students
- ...



## Meetings should have an agenda

### *The agenda of the 2nd meeting of a real project*

- FASTAXON: AGENDA for customer meeting 2  
2.10.2003 16:30-18:00 VTT, Tekniikantie 4B
1. Select minutes keeper and chairman
  2. Summary of project current status: Tero (5 min)
  3. Project plan, discussion and comments (30 min)
    - roles and responsibilities
    - goals
    - abort and end criterias
    - work practicies
    - phasing
    - iterative and incremental process
    - risks
  4. Schedule (5 min)
    - general
    - next tasks
  5. Requirements: Mika (40 min)
  6. Summary and next meeting (5 min)



## Meetings should have an agenda

### *The agenda of the 3rd meeting of a real project*

- FASTAXON: AGENDA for customer meeting 3  
09.10.2003 16:30-18:00 VTT, Tekniikantie 4B
1. Select minutes keeper and chairman
  2. Summary of project current status: Tero (3 min)
  3. Goals of customer (20 min)
    - discussion about customer goals
    - describe goals
    - find meters for goals
    - prioritise goals
  4. GUI example presentation: Yannis (30 min)
  5. Faceted Taxonomy theory: Yannis (20 min)
  6. Discussion about development tools (15 min)
    - Pentti's proposal
  7. Other issues
  8. Summary and next meeting





## Keeping Notes in Meetings

(MEETING 2.10.2003) 1/2

### *Minutes of the 2nd meeting*

MEMO FASTAXON PROJECT MEETING 2.10.2003

Place: VTT 3. floor

Present: Raimo Launonen, Yannis Tzitzikas, Tero Leppänen, Mika Hakkarainen. Pekka Korhonen, Esko Simpanen, Hannu Törnroos, Pekka Uusitalo, Pentti Vänskä secretary

1. All agreed Tero to be the chairman and Pentti the secretary.
2. Tero started discussing about project's status. First version of Project plan and requirements document has been made.
3. Tero explained all sections of project plan. Tero told also Tapani's comments about the plan. He told that Tapani wants for example more general goals in goals section. Raimo suggested that good documentation is also a goal.
4. It was agreed that CVS-documentation occasionally will be copied to the VTT's fileserver..



## Keeping Notes in Meetings

(MEETING 2.10.2003) 1/2

5. Tero explained what we shall do in the near future:
  1. finish project plan
  2. finish requirements plan
6. Mika explained requirements document status. Some changes must be done into use cases. General system overview picture will be added into document. Mika suggested new meeting concerning requirements plan's changes. It was agreed that meeting will be on Monday 31.10. at 16.30 and place is VTT's meeting room.
7. Mika suggested that we would have sauna party on 31.10. Raimo promised to take care of arrangements.



## Minutes of Meeting 15/1/2004 (1/2)

### Three months later

Time 15.1.2004 16:30-18:30, Place VTT

Present: Raimo Launonen, Yannis Tzitzikas, Tero Leppänen, Mika Hakkarainen. Pekka Korhonen, Esko Simpanen, Hannu Törnroos, Pekka Uusitalo, Pentti Vänskä secretary

1. Release I2\_1 was presented by Mika
2. Status of project was presented by Mika and Tero:
  - Project is one week behind of schedule.
  - Implementation of Navigation tree generator and validity checker is not started as planned.
  - Release I2\_1 is ready with planned functionality, but it is not fully tested.
  - Project group has spend more than hours than planned for release I2\_1. It seems that some functionality or features should be dropped to keep project in schedule and hours of project group at reasonable level.
  - Development of algorithms is now bottle-neck of project, implemention GUI can't continue before model has those algorithms.



## Minutes of Meeting 15/1/2004 (2)

3. It was decided to change Object indexer user interface change as optional requirement. It will be implemented later, if there is time in I3/DE.
4. There has been misunderstanding about data structure of taxonomy. Project group has assumed that taxonomy is allways a tree, but it might also be DAG. However 99% of taxonomies are trees. Yannis told that data structure of taxonomy does not affect to algorithms (validity checker and navigation tree generator). Because lack of hours, it was decided to leave implementation as it is now (only trees are supported). It should be quite easy to change this later on if wanted.
5. Yannis mentioned that group should concentrate functionalities of system rather than testing and exection handling. Yannis was also wishing closer co-operation.
6. Mika presented some minor changes to requirements document. Mika will make new revision of requirements document and supply it to Yannis for acceptance.
7. Mika, Hannu and Esko made plans how they are going to share development work of GUI
8. PekkaK, Pentti and Yannis are going to continue development of algorithms (validity chaker and navigation tree generator). Development of algorithms will be done parallel.



## Project Reviews (απολογισμός/επιθεώρηση)

- Contents
  - Project Review I1
  - Project Review I2
  - Project Review I3
  - Final Demo



*Fastaxon: Project review I1*

# T-76.115 Project Review

**Muuntaja**  
**I1 Iteration**

**3.12.2003**



- Project status (5 min)
  - Summary of status
  - Achieving the goals of the I1 iteration
- Completed work (20 min)
  - Architecture selection (3min)
  - Demo (5 min)
  - Test plan (3 min)
  - Quality Metrics (5 min)
  - Technical specification (3 min)
- Used work practices (2 min)
  - Risk management
- Plans for the next iteration (10 min)
  - Content of I2
  - Hour budget
  - Plans for I2



- Goal 1: To have defined and verified architecture for FASTAXON system
  - OK. Architecture is selected and verified
- Goal 2: Increase understanding of domain
  - OK. Knowledge increase during project
- Goal 3: To have detailed technical specifications of system behaviour
  - OK. Technical specification is done
- Goal 4: To have business-level class model
  - Not completed yet. Technical specification contains model of architecturally significant classes. Diagram will be completed during I2



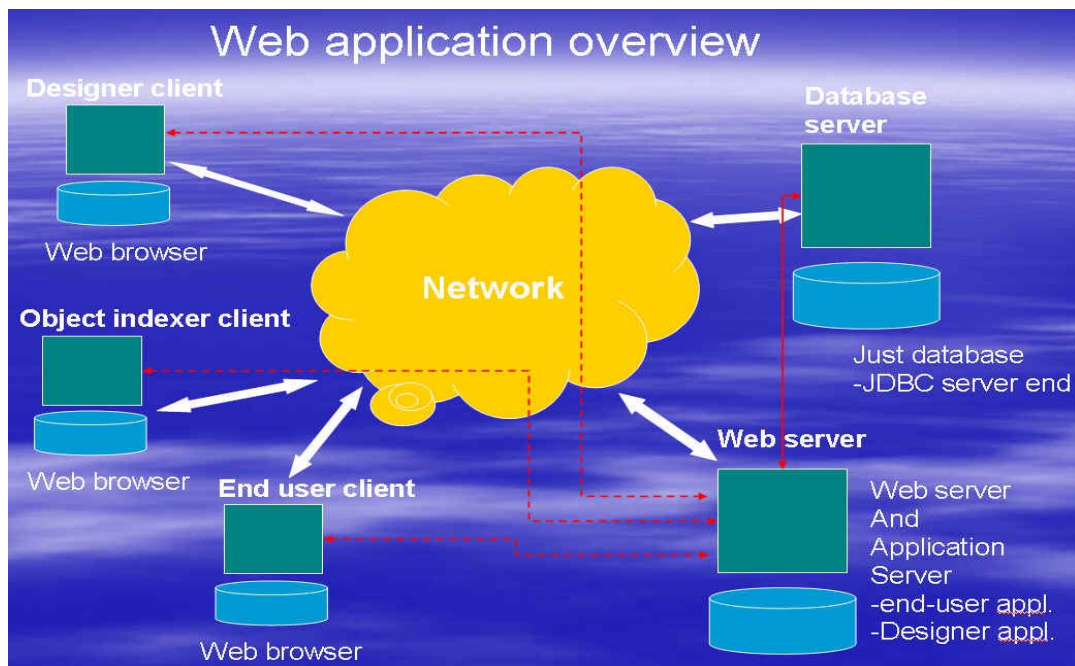
## Status of planned deliverables of the iteration

- Project Plan
  - OK. Updates:
    - Customer goal: EDBT demo release 7.3.2004
    - I2 planning
    - Risk management
    - Build management chapter updated
- Requirements document
  - OK. Updates:
    - Some minor changes due selected architecture
    - User concurrency properties matrix added
- Technical Specification
  - OK.
- Test Plan, Test Report
  - OK.
- Installation instructions for architecture modules and database
  - Not OK. Installation instructions will be given in I2



## Architecture selection

- Web browser-based architecture was selected





# Test Plan and Test Results

- Test Plan document describes how testing process is managed
- Testing of each iteration is planned at the end of the previous one
- I1 Architecture prototype FXR\_1\_1 was tested



# Quality metrics: Bug Metrics

	I1	I2	I3	DE	Total
<b>Reported</b>	3				3
<b>Closed</b>	0				0
<b>Open</b>	3				

	Blocker	Critical	Major	Minor	Trivial	Total
<b>Total open</b>	0	0	1	2	0	3
<b>This iteration reported</b>	0	0	1	2	0	3

- Description of open bugs
  - #58 (Major): FXR\_1\_1 did not pass smoke test
    - Installation instructions of 3rd party SW were incomplete
    - Accurate instructions and installation package must be done for I2
  - #74 (Minor): Project name exists.
  - #75 (Minor): Taxonomy name exception.



Java code lines calculated recursively starting from directory

`FT\WEBINF\src\fi`

is

$25 + 19 + 42 + 18 + 23 + 394 + 62 + 46 + 134 + 110 + 177 + 51 + 95 + 24 + 147 + 41 = \mathbf{1408}$



- First version of Technical Specification is ready
  - Describes the application and defines environment of the product from software and hardware point of view
  - Contains main principles of the design and defines main architecture for the system.
  - Database description
  - Defines user interface
  - Class hierarchy of the system, Class diagram and main responsibilities of the classes
  - Methods for error handling



- Risk management
  - Risk Management Board (RMB) has one meeting during I1
  - 3 new risks was identified:
    - Tool compatibility problems. By testing tools during I1 decreases risks.
    - Selected architecture affects GUI development. GUI design must be verified as soon as possible, latest at the beginning of I2.
    - Understanding of architecture and tools. Pentti will give teaching session at the beginning of I2.
  - Complete risk list is a part of Project Plan
  - Risk list contains 7 risks, their effects and controlling actions
  - Risk Management Board observers risks continuously
- Personal Assignment Plans



- Implementation 2 (I2) contains two releases
- Release I2\_1
  - Designer GUI and application
  - Ready for customer testing 12.1.2004
  - User can: Create and update project, create and update taxonomies, create and update facets, assign facets and taxonomies
- Release I2\_2
  - End user and Object indexer GUI and application, Rest of the Designer
  - Ready for customer testing 2.2.2004
  - Navigation tree generator and check validity algorithm
  - Design of critical algorithms is started at beginning of I2
- Learning session will be arranged at wk 50
  - Architectural dependencies
  - Usage of tools
  - Whole development process is proceed
  - Roles





# Plans For Iteration I2: Hour budget

## Realized hours 30.11.2003

	I1 Plan	I1 Real 30.11.2003	I1 Est	Dif
Mika	35	32	35	0
PekkaK	40	29	32	-8
Tero	30	31	32	2
Esko	30	19	25	-5
Hannu	35	41	43	8
PekkaU	30	41	43	13
Pentti	40	35	40	0
<b>Total</b>	<b>240</b>	<b>228</b>	<b>250</b>	<b>10</b>

## Plan at the end of PP iteration

	PP	Subtotal	I1	I2	I3	DE
Mika	55	55	35	45	35	20
PekkaK	25	25	40	70	35	20
Tero	55	55	30	40	30	35
Esko	35	35	30	50	45	30
Hannu	45	45	35	45	35	30
PekkaU	40	40	30	50	50	20
Pentti	25	25	40	70	35	20
<b>Total</b>	<b>280</b>	<b>280</b>	<b>240</b>	<b>370</b>	<b>265</b>	<b>175</b>
<b>Effort share</b>	<b>21 %</b>	<b>21 %</b>	<b>18 %</b>	<b>28 %</b>	<b>20 %</b>	<b>13 %</b>

## Latest plan (inc. realized hours, estimates and other updates)

	PP (R)	I1 (E)	Subtotal	I2	I3	DE
Mika	54	35	89	46	35	20
PekkaK	22	32	54	73	43	20
Tero	60	32	92	38	25	35
Esko	45	25	70	55	35	30
Hannu	48	43	91	45	30	24
PekkaU	40	43	83	48	40	20
Pentti	38	40	78	68	29	15
<b>Total</b>	<b>307</b>	<b>250</b>	<b>557</b>	<b>373</b>	<b>237</b>	<b>164</b>
<b>Effort share</b>	<b>23 %</b>	<b>19 %</b>	<b>42 %</b>	<b>28 %</b>	<b>18 %</b>	<b>12 %</b>



# Plans For Iteration I2: Goals and Deliverables

- **Goals**
  - To have first functional prototype of FASTAXON system
  - To fulfill and test functional requirements labelled 'must' for designer, end user and object indexer. See chapter 7 of [15].
  
- **Deliverables**
  - Installation instructions for FASTAXON system (including 3rd party SW)
  - Test case specifications
  - Test report of FASTAXON software release I2 2
  - Updated documents: Requirements, Technical specification, Project plan



## Plans For iteration I2: Main tasks

- 373 hours total
- Navigation Tree Generator and Check Validity Algorithm
  - Pentti and PekkaK
  - 46 hours total
- Learning Session at wk 50
  - 4 \* 6 hours = 24 hours
- Release I2\_1
  - Model 24 hours
  - GUI 24 hours
  - Controller 24 hours
- Release I2\_2
  - Model 15 hours
  - GUI 15 hours
  - Controller 15 hours



## Plans For iteration I2: Deadlines

- Learning Session wk 50
- Release I2\_1 for testing 5.1.2004
- Release I2\_1 for customer 12.1.2004
- Release I2\_2 for testing 26.1.2004
- Release I2\_2 for customer 2.2.2004
- I2 delivery 9.2.2004



# T-76.115 Project Review

## Muuntaja I2 Iteration

12.2.2004



## Agenda

- Project status (15 min)
  - Summary of project status (Tero, 2 min)
  - Status of planned goals of I2 iteration (Tero, 2 min)
  - Changes to the project during I2 (Tero, Mika, 8 min)
  - Status of planned deliverables (3 min)
- Completed work (12 min)
  - Demo (Hannu, 6 min)
  - Quality Metrics and bugs (PekkaU, 6 min)
- Used work practices (Tero, 4 min)
  - Learning session
  - Pair / group programming sessions
- Plans for the next iteration (Tero, 8 min)
  - Content of I3
  - Hour budget
  - Plans for I2



## Status of planned goals of the I2 iteration

- Goal 1: To have first functional prototype of FASTAXON system
  - OK. Prototype with limited features is ready, tested and delivered.
- Goal 2: To fulfill and test functional requirements labelled 'must' for designer, end user and object indexer.
  - NOT OK



## Changes to project during I2

- Development of Release I2\_1 took more time than expected
- Common resources was used for developing model and critical algorithms
- Development of critical algorithms (check validity and navigation tree generator) was started too late
- GUI development was delayed, because algorithms were not ready
- Customer meeting was held at 15.1.2004 and rest of the I2 was re-planned:
  - > It was decided to change Object indexer user interface as optional requirement to keep project in schedule and hours of project group at reasonable level
  - > Some minor requirement changes was also accepted for decreasing workload. Some functional requirements was marked as optional
  - > Due nature and usage of FASTAXON, it was also stated to consider more functionalities of software rather than testing, exception handling and productionalizing
  - > Aid of Yannis should be utilized more for testing and reviewing of algorithms and other code



## Changes to project during I2

Fastaxon: Project review I2  
2/2

- There was misunderstanding of the structure of taxonomy. In general, taxonomies are DAGs, not TREES as Muuntaja was assumed.
- However, TREE is special case of DAG. Most of the taxonomies are TREES
- Current implementation of FASTAXON system supports only TREES, but it is quite easily changeable to support DAGs as well
- Because lack of hours, it was decided to mark TREE->DAG change as optional. It will be implemented during I3 if there is time
- Because most of taxonomies are TREES system can be used as planned



## Status of planned deliverables of I2

Fastaxon: Project review I2

- Requirements document
  - OK. Updates:
    - FRIDs
    - Use Cases
- Technical Specification
  - OK. Updates:
    - Database
    - GUI
- Project Plan
  - OK. Updates:
    - I3 planning
    - Risk management
    - Action point register was dropped, because it was not used
    - Line-up of CCB was changed
    - Winter holidays added
- Test Plan, Test Specification, Test Report
  - OK.
    - I2 reporting
    - I3 test plans
- Installation instructions for architecture modules and database
  - OK.



# Quality metrics: Bug Metrics

	I1	I2	I3	DE	Total
Reported	3	8			11
Closed	3	3			6
Open	0	5			5

	Blockers	Critical	Major	Minor	Trivial	Enhancement
Total Open			1	2	1	1
This iteration reported			1	2	1	1



# Quality metrics: Bug Metrics, summary IIST

ID	Sev	Result	Summary
58	maj	FIXE	FXR_1_1 did not pass smoke test
74	min	FIXE	Project name exists
75	min	FIXE	Taxonomy name exception
176	enh	FIXE	Installation problem
177	enh		UI buttons and links
178	tri		Project with no name.
179	min		Taxonomy without a name
180	maj		Not possible to change name of a project or taxonomy
181	min		A facet with no name
182	enh	FIXE	Project are user specific
183	min	INVA	Only taxonomies inside the project are visible.



## Used Work Practices

Fastaxon: Project review I2

- Learning session
  - At the beginning of I2 Pentti was teaching architecture and tools to others
  - Whole development process was tested and reviewed
  - Covered issues: architectural dependencies, usage of tools, roles, development process
  - Need for this kind of session was identified during risk management of I1
- Pair / group programming sessions
  - Several sessions during I2
- Risk management
  - Risk Management Board has three meetings during I2
  - Complete risk register is a part of Project Plan
  - Risk register contains 11 risks, their effects and controlling actions
  - Risk Management Board observes risks continuously



## Plans For Iteration I3

Fastaxon: Project review I2

- Implementation 3 (I3) contains one release
- Rest of the 'must' features are implemented
- 'Optional' requirements are prioritized by customer, they are implemented if there is time
- Test releases are delivered to customer (Yannis) in weekly basis
- Ready for testing at 1.3.2004
  - Muuntaja testing (PekkaU)
  - Customer testing (Yannis)
  - Peer Testing (eGo)
- Final release at 7.3.2004
  - EDBT 2004 Demo
- Documentation and reporting deadline 15.3.2004
- Review 18.3.2004



# Plans For Iteration I3: Hour budget

## Realized hours 6.2.2004

	I2 Plan	I2 Real 6.2.2004	I2 Est	Dif
Mika	46	49,5	53	7
PekkaK	72	47,15	50	-22
Tero	38	31	36	-2
Esko	55	37	45	-10
Hannu	45	41,5	45	0
PekkaU	48	17	30	-18
Pentti	68	106	113	45
<b>Total</b>	<b>372</b>	<b>329,15</b>	<b>372</b>	<b>0</b>

## Plan at the end of I1 iteration

	PP	I1	Subtotal	I2	I3	DE
Mika	55	32	87	46	35	20
PekkaK	22	32	54	72	43	20
Tero	60,5	35	95,5	38	25	34,5
Esko	45	25	70	55	35	30
Hannu	48,5	43	91,5	45	30	24
PekkaU	39,5	43	82,5	48	40	20,5
Pentti	37,5	40	77,5	68	28	15,5
<b>Total</b>	<b>308</b>	<b>250</b>	<b>558</b>	<b>372</b>	<b>236</b>	<b>164,5</b>
<b>Effort sha</b>	<b>23 %</b>	<b>19 %</b>	<b>42 %</b>	<b>28 %</b>	<b>18 %</b>	<b>12 %</b>

## Latest plan (inc. realized hours, estimates and other updates)

	PP (R)	I1 (R)	I2 (E)	Subtotal	I3	DE
Mika	55	33	55	143	36	12
PekkaK	22	30,25	52	104,25	49	36,75
Tero	60,5	32,5	32	125	32	33
Esko	45	25,5	40	110,5	34	45,5
Hannu	48,5	41,25	50	139,75	35	15,25
PekkaU	39,5	52	30	121,5	44	24,5
Pentti	37,5	35	120	192,5	48	10
<b>Total</b>	<b>308</b>	<b>249,5</b>	<b>379</b>	<b>936,5</b>	<b>278</b>	<b>177</b>
<b>Effort sha</b>	<b>23 %</b>	<b>19 %</b>	<b>28 %</b>	<b>70 %</b>	<b>21 %</b>	<b>13 %</b>



# Plans For Iteration I3: Goals and Deliverables

- **Goals**
  - To have all 'must' requirements of FASTAXON system fulfilled
  - To have as many as possible 'optional' requirement implemented
  - Peer testing with eGo
  
- **Deliverables**
  - Updated installation instructions for FASTAXON system (including 3rd party SW)
  - Manual
  - Test plan and Test report of FASTAXON software Release I3
  - Updated documents: Project plan, Requirements, Technical specification, Test Specification
  - Version history document (delivered together with installation package)





## Plans For iteration I3: Main tasks

Fastaxon: Project review I2

- 278 hours total
- Model (Pentti and PekkaK)
  - End user context
  - Expression editor
  - IsValid
- GUI / Controller (Mika, Hannu, Esko)
  - End User GUI
  - Expression editor
- Testing
  - Peer testing (PekkaU)
  - Customer tests (Yannis)
  - Muuntaja tests (PekkaU)
- Documentation
  - Manual
  - Installation manual
  - Version history



## Plans For iteration I3: Deadlines

Fastaxon: Project review I2

- Expression editor wk 8
- End user functionality wk8 / wk9
- Release for testing 1.3.2004
- Testing wk 10
  - Customer testing
  - Muuntaja testing
  - Peer testing
- Release I3 7.3.2004
- Peer test reporting 10.3.2004
- I3 delivery 15.3.2004



# T-76.115 Project Review

## Muuntaja I3 Iteration

18.3.2004



## Agenda

- **Project status (8 min)**
  - Summary of project status (PekkaU, 3 min)
  - Status of planned goals of I2 iteration (PekkaU, 2 min)
  - Changes to the project during I3 (PekkaU, Mika, 2 min)
  - Status of planned deliverables (PekkaU, 1 min)
- **Completed work (12 min)**
  - Demo (Esko, 6 min)
  - Quality Metrics and bugs (PekkaU, 6 min)
- **Used work practices (PekkaU 5, min)**
  - Peer Testing
- **Plans for the next iteration (PekkaU, 8 min)**
  - Content of I3
  - Hour budget
  - Plans for DE



## Status of planned goals of the I3 iteration

- Goal 1: To have release at 1.3. for customer and peer testing
  - NOT OK. Prototype, with limited features for peer testing was delivered 9.3.
- Goal 2: To have demonstration SW for EDBT 2004 conference 7.3.
  - NOT OK. Demonstration was cancelled.
- Goal 3: To have rest of the requirements labelled 'must' to be implemented
  - NOT OK. Critical bugs in Expression Builder.
- Goal 4: To have as many as possible of the requirements labelled 'should' and 'optional' to be implemented
  - None of the should or optional requirements were done.
- Goal 5: Fully fixed requirements
  - OK. There are no requirement changes during I3
- Goal 6: Peer testing
  - OK. Peer testing was done with eGo



## Changes to project during I3

- We finally managed to make fastaxon work
- There was problems with model at the end of I3
- Data was not updated to model
- Yannis was giving help for debugging...
- Due overrun of hour budget, updating of technical documents was decided move to the DE-iteration
- Peer testing was done at VTT
- Quality testing was done with version fxr\_3\_1
- Meanwhile problems with data update were solved...
- DEMO!



## Status of planned deliverables of I3

- Requirements document
  - OK. To be updated during DE
- Technical Specification
  - OK. To be updated during DE
- Project Plan
  - OK. Updates: DE planning, risk management
- Test Plan, Test Specification, Test Report
  - OK.
    - I3 reporting
    - DE test plans
- Installation instructions for architecture modules and database
  - OK.
- Version History
  - OK.
- User Manual
  - First version done
  - Finalization during DE



## Quality metrics: Bug Metrics

	I1	I2	I3	DE	Total
Reported	3	8	6		17
Closed	3	3	4		10
Open	0	5	2		7

	Blockers	Critical	Major	Minor	Trivial	Enhancement
Total Open		1	4	1	0	1
This iteration reported		1	3	1	0	1



- Peer Testing
  - Was done together with eGo
  - Used Method: session based exploratory testing
  - PekkaU was testing eGo eSurvey (2 sessions + reporting)
    - 8 new bugs were reported and some comments given to existing.
  - Juha Koivula was testing Fastaxon ( 1 session in VTT + reporting)
    - 4 new bugs were found (3 major and 1 enhancement)



- DE-iteration is planned to contain only one release
- Rest of the 'must' features will be implemented
- Test releases are delivered to customer (Yannis) before release if needed
- Ready for testing at 27.3.2004
  - Muuntaja testing
  - Customer testing
- Final release at 30.3.2004
- Internal deadline for documentation 3.4.2004
- Course deadline for documentation 5.4.2004
- Final demo 7.4.2004 15-16 @VTT?



## Plan For Delivery Round

Fastaxon: Project review I3

	Total to I2	I3 Real 10.3.2004	DE Est	Dif
Mika	141,5	72	14	-37,5
PekkaK	104,5	25	31	29,5
Tero	128	18	32	12
Esko	115,5	30	30	14,5
Hannu	144	34	23	-11
PekkaU	124	34	31	1
Pentti	213,5	48	16	-87,5
<b>Total</b>	<b>971</b>	<b>261</b>	<b>177</b>	<b>-79</b>



## Plans For Iteration DE: Goals and Deliverables

Fastaxon: Project review I3

- **Goals**
  - To have all 'must' requirements of FASTAXON system fulfilled
  - Document open defects of software
  - Give final demonstration of Fastaxon software
- **Deliverables**
  - Test report of FASTAXON software release DE
  - Updated requirements document (Final version)
  - Updated tech. specification (Final version)
  - Updated User Manual (Final Version)
  - Updated Installation Guide (Final version)
  - Final report
  - Progress report (slideshow)



- 177 hours total
- Model
  - 25 hours
- Testing
  - 10 hours
  - Customer tests (Yannis)
  - Muuntaja tests (N.N)
- Personal assignments
  - 44 Hours
- Documentation
  - 60 hours
  - User manual
  - Installation manual
  - Version history
  - Final Report
  - Finalization of tech documents



# T-76.115 Final Demo

## Muuntaja DE Iteration Project Review

7.4.2004



## Agenda

- Project summary (Tero, 10 min)
  - What was done?
  - How the goals was reached?
  - Statistic
    - Hour budget
    - Software size
- Technical presentation of FASTAXON (Hannu, 5min)
- Demo (Yannis, 20 min)
- Steering group comments and questions (5 min)
  - Future of Fastaxon



## What was done?

- Muuntaja group developed FASTAXON system, which is a realization for Faceted taxonomies and Compound Term Composition Algebra
- FASTAXON is a system for building very big taxonomies and taxonomy-based catalogues in a quick, flexible and scalable manner.
- FASTAXON allows
  - Creating and updating faceted taxonomies
  - Specifying the meaningful compound terms of a faceted taxonomy
  - Creating and browsing taxonomy-based Catalogues
- System contains two user-interfaces
  - Designer user interface for creating, indexing and maintaining
  - End-user user-interface for browsing





## How The Goals Was Reached?

- At the beginning of project Goals were set:
  - Customer goals
  - Muuntaja Group goals
  - Personal learning goals of project group



## Statistic: Hour Budget

- Total overrun of hours was 4%
  - Budget: 1330h
  - Realized: 1390h
- Share of workload was not optimal
  - Mika's and Pentti's hours were overrun heavily



## Statistic: Hour budget

Iteration	Mika	PekkaK	Tero	Esko	Hannu	PekkaU	Pentti	Total	Share
Total, plan	190	190	190	190	190	190	190	1330	100 %
<b>PP</b>									
Plan	55	25	55	35	45	40	25	280	21 %
Realized	54	22	61	45	49	40	38	307	23 %
Left after	136	168	130	145	142	151	153	1023	77 %
<b>I1</b>									
Plan	36	40	27	25	32	30	40	229	17 %
Realized	33	30	33	26	41	52	35	250	19 %
Left after	103	138	97	120	100	99	118	774	58 %
<b>I2</b>									
Plan	46	73	38	55	45	48	68	373	28 %
Realized	55	52	35	45	55	33	141	415	31 %
Left after	49	86	62	75	46	66	-24	359	27 %
<b>I3</b>									
Plan	36	49	32	34	35	44	48	278	21 %
Realized	90	28	18	27	39	54	41	296	22 %
Left after	-42	58	44	48	7	12	-64	63	5 %
<b>DE</b>									
Plan	14	31	32	30	23	31	16	177	13 %
Realized	17	15	28	22	15	14	12	123	9 %
Left after	-59	43	16	26	-8	-2	-76	-60	-4 %
<b>Total, realized</b>	<b>249</b>	<b>147</b>	<b>174</b>	<b>165</b>	<b>198</b>	<b>192</b>	<b>266</b>	<b>1390</b>	<b>104 %</b>

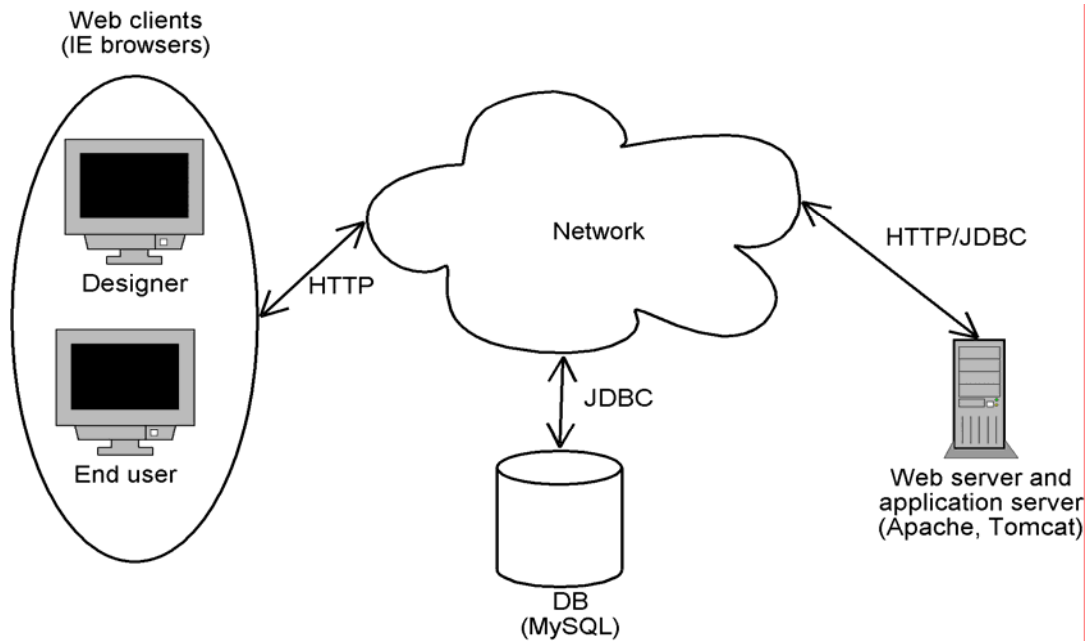


## Statistic: Software size

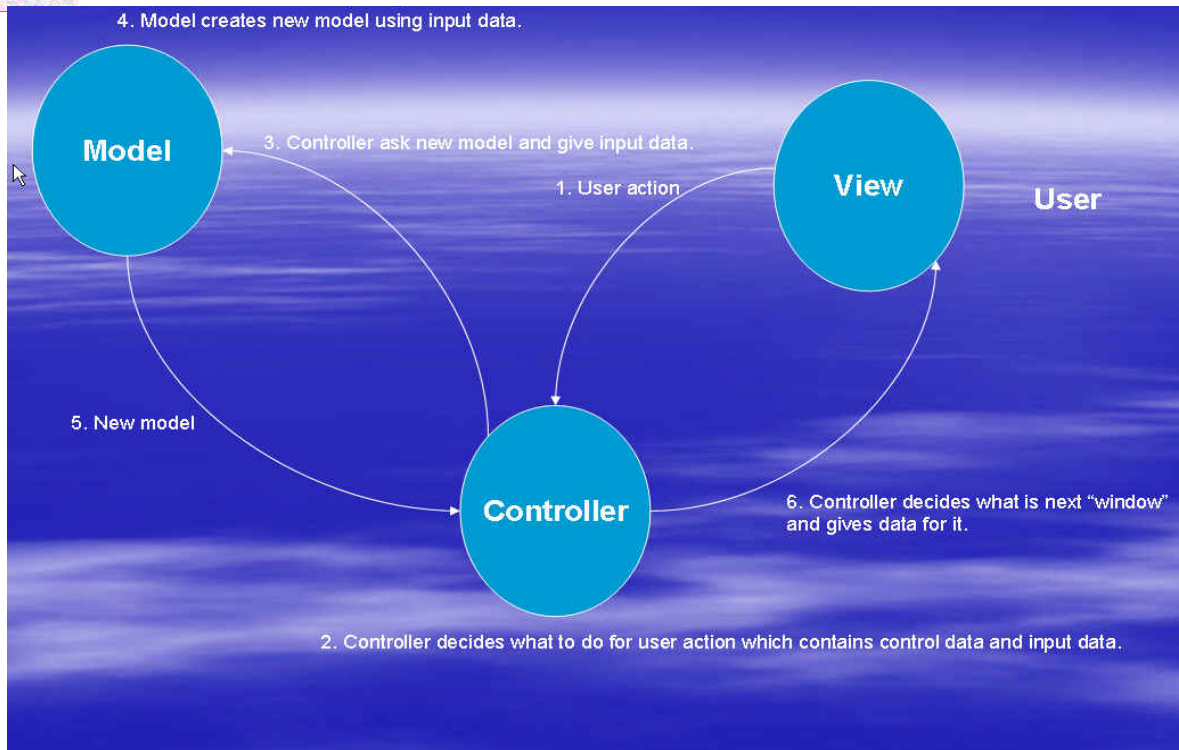
- FASTAXON system consist of three parts:
  - JSP pages
    - 32 pages
    - Total size of JAVA-files generated from these JSP pages is 4234 LOC
    - Calculation is a bit inaccurate it gives some track of the code size
  - Model
    - 69 JAVA-files
    - 5412 LOC
  - Controller
    - 8 JAVA-files
    - 1246 LOC
- Total code size is 10892 LOC
- $10892 \text{ LOC} / 1390 \text{ h} = 7,84 \text{ LOC/h}$
- Productivity was high



# Technical architecture 1/2



# Technical architecture 2/2





Next:  
Document: **Project Plan**



*The end*