Conclusion: end report

DaCoPAn2

Course
581260-4 Software Engineering Project (6 cr)

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Change Log

Version	Date	Modifications
1.0	06.05.2005	First and last version

Contents

1 Introduction

This is the conclusion document of the DaCoPAn2 Software Engineering Project, which took place at the Computer Science Department of the University of Helsinki in the Spring of 2005. The project was a follow-up of the DaCoPAn Software Engineering Project of 2004 and was based on the Animator subsystem produced by the DaCoPAn Helsinki Group. The DaCoPAn Animator is a network traffic visualization tool which draws various animations based on data collected and analyzed from actual network communications. The DaCoPAn2 project's goal was to enhance some aspects of Animator 1.0, and to develop an altogether new animation type to complement the existing ones. In the group's own view, these goals were achieved well, as the produced software satisfies all the requirements set for it, and the project was finished in time.

This document evaluates various aspects of the software process in light of the guidelines declared in the original Project Plan [1].

The document begins with an evaluation of the groups working procedures followed by an analysis of different quantitative issues including the schedule of the project, the distribution of working hours, and the project size. It concludes with an informal final summary of the group's own evaluation of their work and the project.

2 Organization and working procedures

This section evaluates how the actual working methods and conventions of the group turned out and how they possibly differed from what was planned.

2.1 Group organization and roles

In the beginning of the project, the roles described in the project plan were assigned to the group members. However, although these roles were acknowledged during the work process, they did not impose any strict constraints on each individuals' contributions. When the roles included some concrete responsibilities like communicating with the customer or maintaining the CVS environment, the role holder accomplished their tasks well.

The role of the Test manager was not assigned during project planning, and was left to be decided later. It was assigned to Mikko Airaksinen, whose main responsibility was to educate himself with the RITA test software and run the unit tests there. However, the software was found to be unsuitable for this kind of user interface oriented project, and the reasons for which are explained in the Test execution document.

In practice, the actual roles and responsibilities of the group members were more a question of which components of the program each individual worked on, not of the

assigned roles. The program was divided into logical areas of responsibility early on, and those members having most experience on Swing User Interface programming were assigned to work on the new TSC component, which turned out to be an efficient way of dividing the workload. Altogether, it is felt that the right people were assigned the right tasks according to their skills and desires.

2.2 Working procedures

The communication channels described in the project plan were mostly used as described, with the exception of the TWiki, which was set up but was never really used since it wasn't easy to use and didn't have any clear function in the project.

The communication of the group was perhaps not as transparent and formal as the project plan states. Many decisions were made during informal discussions and local conversations, and weren't written down anywhere. For example, the minutes taken at the meetings were regarded more as a formality and they weren't taken full use of later. There was a positive side to this, because the atmosphere and spirit of the group was relaxed and enabled free exchange of ideas. Strict conformance to predefined bureaucratic conventions could have inhibited this. On the other hand, it has to be admitted that the quality of documentation might have suffered from this. There were some moments when it was unclear what had actually been decided about some issue.

Some of the regular meetings might have suffered from lack of focus, because they weren't planned ahead. On the other hand, the informal and formal technical reviews and the code review, for which everybody had prepared beforehand were efficient in bringing out faults and other unthought-of features in the reviewed products.

Communication with the customer in the requirements engineering phase worked well after the initial prototypes had been prepared. After the requirements document had been reviewed with the customer, communication with him was minimal. In retrospect, it could have been beneficial to consult the customer during implementation phase and present to him the existing software when changes could still be made to it. Although the gathered requirements were mostly sufficient for the design and implementation, an approval from the customer of a preliminary program version could have further assured us that we were on the right track.

An additional resource available, consultation with the original DaCoPAn members, was not taken advantage of. It could have aided in understanding the design decisions of the Animator.

3 Analysis of schedule, working hours, and project size

In this section, the planned schedule of the project is compared to the actual final schedule. An overview of the team's working hours and their analysis is also presented. The full listings of each member's hours is included as an appendix.

This section also includes a comparison of the size estimate of the project with it's actual measured size and an analysis of the differences.

3.1 Schedule

The project schedule was heavily refined during the software process and milestones were postponed, but this did not prevent the project from finishing in time. The initial and final schedules can be compared in the documents [1] and [2].

The main reason for the postponing of several deadlines was that the project got a relatively slow start, and was already behind schedule after the first few weeks. This was mainly due to psychological factors. The work efficiency, especially when working on documentation, was not as good as could be hoped for. They also often required heavy refinement after their review, which took much time. Another reason for postponing of the documentation was that the first date set for the informal techical review of the Requirements document was not suitable for the customer and it had to be postponed.

The lagging of the schedule resulted in a few problematic anomalies. First, the final version of the Requirements document was being worked at the same time as the Design document, and the latter was after all based on the former. This might have affected the quality of the Design document. Secondly, the testing phase was truncated to a mere shadow of the two week period originally planned for it. More testing would not have hurt the quality of the final product.

3.2 Workload

The complete work hour listings for all the project members are included as an appendix to this document. In addition, this section includes some diagrams and statistics of the working hours.

3.3 Cumulative individual workload

The total working hours of the participants are as follows:

Mikko Airaksinen 133
Mikko Väänänen 213
Pauli Miettinen 249

Timo Tuominen 275
Tomi Korkki 236

Figure 1 is a diagram which displays the cumulation of working hours day by day in the project for all the participants. It clearly shows the slow acceleration of the curves during the initial three weeks with also a clear steepening when the end of the project approaches. The diagram also shows the fact that one of the participants had long periods of inactivity in the first half of the period due to personal commitments and couldn't keep up with the others due to other work, even though his contribution strenghtened considerably near the end.

3.4   Weekly working hours

Figures 2 to 6 depict the hours the participants worked each week. It confirms the notion that the balancing of the workload during the span of the project was anything but balanced. The Y axis shows a tick for the recommended norm of 17 hours per week, which was achieved for most participants for the whole project, but the weekly work doses show large variation and spikes with most work being done in the last 3-5 weeks.
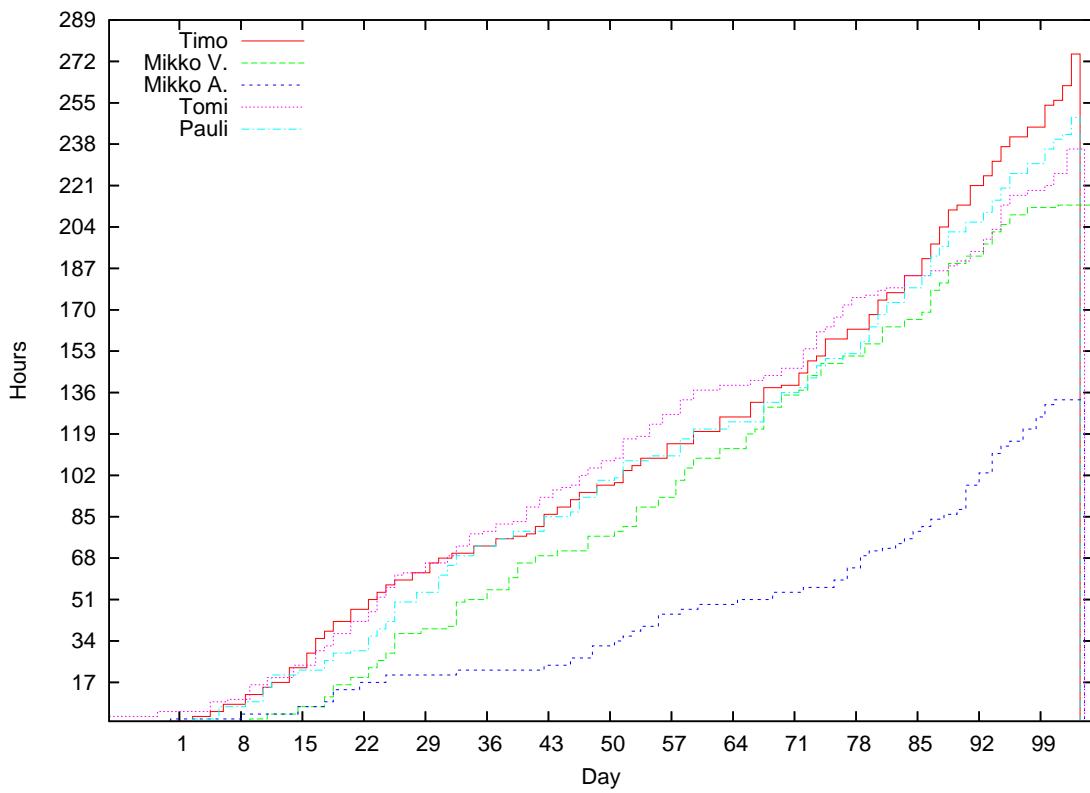

Figure 1: Cumulative working hours
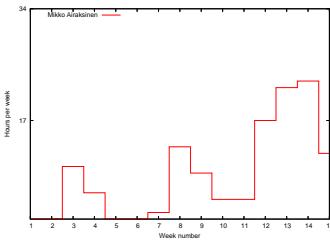
Figure 2: Weekly working hours for Mikko Airaksinen
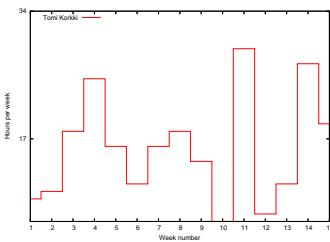
Figure 3: Weekly working hours for Tomi Korkki
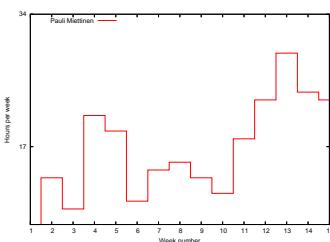
Figure 4: Weekly working hours for Pauli Miettinen
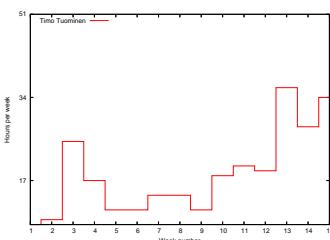
Figure 5: Weekly working hours for Timo Tuominen
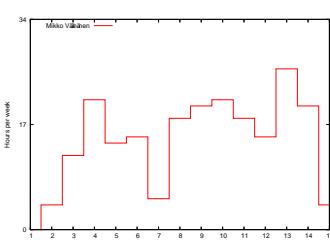
Figure 6: Weekly working hours for Mikko Väänänen

3.5   Hours spent for different tasks

This section presents the distribution of hours between different task in the project. It must be noted that different tasks codes were not always used in a uniform manner by different participants, so the information gained from the decomposition below is limited.

```
ME - Official MEeting of the whole group
Mikko Airaksinen        37
Mikko Väänänen          41
Pauli Miettinen         43
Timo Tuominen           44
Tomi Korkki             45
```

The differences above are mostly due to different interpretations of meetings' length.

```
LC - Local Conversation other than meeting
Mikko Airaksinen        3
Mikko Väänänen          9
Pauli Miettinen         5
Timo Tuominen           2
Tomi Korkki             10

CE - Code Exploring, studying the original software
Mikko Airaksinen        5
Mikko Väänänen          0
Pauli Miettinen         33
Timo Tuominen           9
Tomi Korkki             11
```

Because Mr. Miettinen took the prime responsibility of enhancing the complex MSC animation type, the distribution above is natural.

```
DE - DEsign, writing of design document
Mikko Airaksinen        7
Mikko Väänänen          13
Pauli Miettinen         18
Timo Tuominen           26
Tomi Korkki             23
```

Mr. Korkki was instrumental in refining and correcting the documentation.

```
CO - COding, including debugging
Mikko Airaksinen        49
```

```
Mikko Väänänen          117
Pauli Miettinen         78
Timo Tuominen           75
Tomi Korkki             33
```

Mr. Väänänen had as his prime responsibility the coding of the completely new TSC animation mode. The project manager Mr. Tuominen wanted to try his hands at coding the settings in spite of limited coding experience.

```
TE - TEsting (unit testings, functional testing, final testing)
Mikko Airaksinen        27
Mikko Väänänen          5
Pauli Miettinen         18
Timo Tuominen           20
Tomi Korkki             10
```

Mikko Airaksinen was the appointed Test manager.

```
AD - ADministrative tasks, e.g. updating progress reports
Mikko Airaksinen        0
Mikko Väänänen          1
Pauli Miettinen         11
Timo Tuominen           17
Tomi Korkki             7
```

```
TM - Technical maintenance, e.g. maintaining web page, CVS
Mikko Airaksinen        2
Mikko Väänänen          2
Pauli Miettinen         0
Timo Tuominen           0
Tomi Korkki             2
```

```
RE - REquirements engineering
Mikko Airaksinen        3
Mikko Väänänen          25
Pauli Miettinen         10
Timo Tuominen           39
Tomi Korkki             36
```

```
GE - GEneral, other small tasks not mentioned above
Mikko Airaksinen        0
Mikko Väänänen          0
Pauli Miettinen         21
Timo Tuominen           15
```

```
Tomi Korkki              44

DO - DOcumentation of code or writing of user manual
Mikko Airaksinen         0
Mikko Väänänen           0
Pauli Miettinen          2
Timo Tuominen            6
Tomi Korkki              15
```

Mr. Korkki was appointed to write the user manual.

```
PP - Project Planning
Mikko Airaksinen         0
Mikko Väänänen           0
Pauli Miettinen          10
Timo Tuominen            22
Tomi Korkki              0
```

In summary, acknowledging the different conventions used by different individuals, the prime responsibilities taken by the members are reflected in the figures above.

3.6   Project size

Table 1 contains results of size estimates for the animator, and an integral estimate in LOC, taken from the Project Plan. Table 2 contains the actual measured LOC amounts and a new estimate of the relative efforts of the different components. The LOC amounts were measured using `diff` and includes all new lines of code, that is added or modified lines, excluding comments and blank lines.

Component	Programming language	LOC	Effort
XML I/O	Java, XML	< 100	5%
Data structures	Java	< 100	5%
Animation type: TSC	Java	< 2000	40%
Animation type: MSC	Java	< 500	20%
Animation type: Enc	Java	< 100	5%
User interface	Java	< 400	15%
Managing settings	Java	< 300	10%
Total size estimate		< 3500	

Table 1: Estimated size of code and relative effort estimates for DaCoPAn2

The biggest differences between the estimate and the actual program sizes are seen in the Settings component. This is mostly due to the fact that the settings panels required a significant amount of fairly straightforward and standard Java Swing

Component	Programming language	LOC	Effort
XML I/O	Java, XML	5	2%
Data structures	Java	59	5%
Animation type: TSC	Java	2135	25%
Animation type: MSC	Java	852	25%
Animation type: Enc	Java	1	2%
User interface	Java	155	6%
Managing settings	Java	1643	25%
Misc.	Java	496	10%
Total size		5346	

Table 2: Actual size of code and new relative effort estimates for DaCoPAn2

component layout code which was not taken into account. The miscellaneous code above means measured lines of code which could not be unambiguosly divided into the different components, but affects the total code size.

The MSC also required more code than estimated, since its whole working logic had to be changed to incorporate the new non-linear time mode. Its code was not easily modifiable.

Otherwise, the code size estimates were optimistic, but reasonably accurate. The effort estimate for the TSC component has been reduced because mr. Väänänen was such an efficient and experienced coder. The final effort estimate of MSC and Settings have been increased because of the reasons stated above.

4   Conclusion

The project was a success in spite of the shortcomings mentioned in the previous sections. The team succeeded in producing a new, working version of the DaCoPAn Animator which complies to all the user requirements which were obligatory and the functionality of the software was enhanced.

For a software engineering process roughly conforming to the waterfall model, some of the phases were more succesful than the others. The requirements were gathered efficiently and the implementation went well, but the results of the design phase were not as convincing, and too little time was left for testing. In effect, many of the design decisions were actually made little by little during the code exploring and modification phase, and during the implementation phase.

One thing worth mentioning that might have affected the motivation of the group was that the project turned out to be heavily user interface oriented, which was not clear from the description of the project subject. Many of the participants had anticipated that the project would be implemented using the C language and would not be focused on user interface issues. However, even though the option to modify the Analyzer component was not completely ruled out, it would have required

significant initiative and daring from the group, and it was decided to conform to the original ideas of the customer.

Perhaps the lack of natural enthusiasm for the project's topic sometimes resulted in a lack of motivation, mostly regarding documentation. Despite this, the DaCoPAn2 project participants feel that they learned something about working as a real team in a realistic software engineering setting and are deservingly satisfied of their achievements.

References

1 DaCoPAn2 Software Engineering Project, *Project plan.* Relase 1.10. University of Helsinki, February 2005.

2 DaCoPAn2 Software Engineering Project, *Project plan.* Relase 1.20. University of Helsinki, May 2005.

Appendix A. Work reports

```
Mikko Airaksinen

#Date           Task  Time    Description
#=====================================================
27.01.2005      ME    2       Alkutapaaminen
04.02.2005      ME    2       --
09.02.2005      ME    3       -
10.02.2005      TM    2       TWiki
11.02.2005      ME    2       -
11.02.2005      LC    3       -
16.02.2005      ME    3       -
17.02.2005      RE    3       TSC Vaatimukset
04.03.2005      ME    2       -
09.03.2005      ME    2       Suunnittelukokous
10.03.2005      CE    3       -
14.03.2005      DE    3       Suunnitteludokumentti
14.03.2005      CE    2       -
15.03.2005      DE    2       Suunnitteludokumentti
16.03.2005      ME    2       Määrittelydokumentin tarkistus
17.03.2005      DE    2       Suunnitteludokumentti
18.03.2005      ME    2       Seurantakokous
21.03.2005      CO    5       TSC
23.03.2005      ME    2       Suunnittelukokous
25.03.2005      CO    2       TSC
01.04.2005      ME    2       Suunnitteludokkari tarkistus
02.04.2005      CO    3       TSC
08.04.2005      ME    2       Seurantakokous
09.04.2005      CO    3       TSC
11.04.2005      CO    5       TSC
12.04.2005      TE    3       Testausasioiden sumplintaa
12.04.2005      CO    2       TSC
13.04.2005      ME    2       Tiesmikä kokous
15.04.2005      ME    1       Suunnittelukous, testaus
16.04.2005      TE    2       Testaussuunnitelma TSC
17.04.2005      TE    2       Testaussuunnitelma TSC
18.04.2005      CO    3       TSC
19.04.2005      TE    2       Testaussuunnitelma TSC
20.04.2005      CO    3       TSC
22.04.2005      ME    2       Testaussuunnitelman tarkastus
23.04.2005      CO    2       TSC
24.04.2005      CO    10      TSC
26.04.2005      CO    5       TSC
27.04.2005      ME    2       Demo
```

```
27.04.2005      CO      6       TSC
28.04.2005      TE      3       Testailua
29.04.2005      ME      2       Paltsu
01.05.2005      TE      5       Rita
02.05.2005      TE      5       Rita
03.05.2005      TE      5       Yleist testausta
04.05.2005      ME      2       Paltsu


Mikko Väänänen

#Date           Task    Time    Description
#==========================================================
02.02.2005 ME 2 initial meeting
04.02.2005 ME 2         -
09.02.2005 ME 3         -
10.02.2005 RE 4         -
11.02.2005 ME 2         -
11.02.2005 LC 3         -
14.02.2005 RE 3 MSC panel layout
15.02.2005 RE 4 MSC panel layout
16.02.2005 ME 3         -
17.02.2005 RE 3 requirements document
18.02.2005 ME 2 seurantakokous
18.02.2005 CO 6 dummy-TSC näkymä ja nappulat
23.02.2005 ME 2 suunnittelukokous
24.02.2005 AD 1 projektisuunnitelman tarkastus
25.02.2005 ME 2 suunnittelukokous
25.02.2005 RE 3 määrittelydokkari
25.02.2005 TM 1 CVS opiskelu
25.02.2005 CO 4 TSC protoilua
26.02.2005 CO 1 TSC protoilua
02.03.2005 ME 2 suunnittelukokous
02.03.2005 RE 2 TSC-osuuden vaatimuksia
03.03.2005 CO 5 TSC protoilua
04.03.2005 RE 2 latex häröilyä
04.03.2005 CO 4 TSC protoilua
07.03.2005 RE 3 TSC
09.03.2005 ME 1 suunnittelukokous
09.03.2005 RE 1 TSC kielioppi
14.03.2005 DE 6 TSC-luku suunnitteludokumenttiin
15.03.2005 DE 2 TSC, notice ihmettelyä
16.03.2005 ME 2 määrittelydokkarin tarkastus
18.03.2005 ME 2 seuranta & suunnittelukokous
18.03.2005 CO 6 TSC
21.03.2005 CO 4 TSC
```

```
22.03.2005 CO 7 TSC
23.03.2005 ME 2 suunnittelukokous
23.03.2005 DE 3 PEF laajennukset
24.03.2005 CO 4 TSC
29.03.2005 CO 4 TSC
30.03.2005 CO 6 TSC
31.03.2005 CO 2 TSC
01.04.2005 ME 2 suunnitteludokkarin tarkastus
01.04.2005 DE 2 TSC
01.04.2005 CO 5 TSC
04.04.2005 CO 5 TSC
05.04.2005 CO 2 TSC
06.04.2005 ME 1 suunnittelukokous
06.04.2005 CO 5 TSC
08.04.2005 ME 1 seurantakokous
08.04.2005 CO 4 TSC
11.04.2005 CO 3 TSC
13.04.2005 ME 1 suunnittelukokous (testaus)
13.04.2005 CO 4 TSC settings
15.04.2005 ME 1 suunnittelukokous
15.04.2005 CO 6 TSC
18.04.2005 CO 3 TSC
19.04.2005 CO 3 TSC
20.04.2005 ME 2 code review
20.04.2005 CO 7 TSC
21.04.2005 CO 3 TSC settings
22.04.2005 ME 2 testaussuunnitelman tarkastus
22.04.2005 CO 6 TSC
25.04.2005 LC 3 -
26.04.2005 CO 5 TSC
27.04.2005 ME 2 demo
27.04.2005 CO 3 TSC
28.04.2005 LC 3 testailua
29.04.2005 ME 2 seurantakokous
29.04.2005 TE 2 testidokumentin testejä
02.05.2005 TE 3 testejä ja fiksejä
06.05.2005 TM 1 user manual review

Pauli Miettinen

#PVM LUOKKA TUNNIT TEHTÄVÄ
27.01.2005 ME 2 ryhmätapaaminen, avauspalaveri
30.01.2005 GE 5 ohjelmistoon ja dokumentteihin tutustuminen
02.02.2005 ME 2 ryhmätapaaminen, vastuualueiden jako
03.02.2005 CE 3 yleinen koodiin tutustuminen
```

```
03.02.2005 GE 3 dokumenttien ja LaTeXin tutkailua
04.02.2005 ME 2 ryhmätapaaminen
04.02.2005 AD 3 pöytäkirja, vaatimukset ja tuntikirjanpito
09.02.2005 ME 2 suunnittelutapaaminen
10.02.2005 GE 1 TSC-esimerkkiin tutustuminen
10.02.2005 PP 3 epävirallinen suunnittelutapaaminen
11.02.2005 ME 3 suunnittelutapaaminen
14.02.2005 PP 1 TSC-leiskan muuttelua
15.02.2005 PP 5 Settings-leiskan tekeminen
15.02.2005 PP 1 projektisuunnitelman lukeminen
16.02.2005 ME 3 projektisuunnitelman tarkastus
17.02.2005 RE 2 epävirallinen suunnittelutapaaminen
17.02.2005 CE 1 MSC-paneliin tutustuminen
18.02.2005 ME 2 seuranta- & suunnittelukokous
18.02.2005 CE 5 UFO:n muokkausta, tiedostovalitsimen muokkaus
18.02.2005 AD 1 pöytäkirjat & tuntilistausta
22.02.2005 CE 4 MSC-paneliin hauskan proton virittelyä
23.02.2005 ME 2 suunnittelutapaaminen
23.02.2005 CE 5 MSC:n proton väsäämistä
24.02.2005 CE 1 MSC:n proto jälleen
24.02.2005 RE 3 MSC:n vaatimuksia Tomin kanssa
25.02.2005 ME 2 suunnittelukokous
25.02.2005 CE 2 MSC:n proto cvs:ään ja kokeilua
28.02.2005 AD 1 vaatimusdokkarin viivat -- yllättävän vaikeeta
28.02.2005 CE 3 MSC:n proton siistiminen & korjaus
02.03.2005 ME 2 suunnittelukokous
02.03.2005 AD 1 suunnittelukokouksen pöytäkirja
04.03.2005 LC 1 tapaaminen ilman ohjaajaa
04.03.2005 RE 2 vaatimusdokumentin kirjoittelua
09.03.2005 ME 1 suunnittelukokous
09.03.2005 RE 2 vaatimusdokumentin korjailua
09.03.2005 CE 3 MSC:n proton jatko -- lähestyy suunnittelua
10.03.2005 LC 2 tapaaminen suunnittelun merkeissä
11.03.2005 ME 2 suunnittelukokous
11.03.2005 GE 1 sekalaista keskustelua eri ihmisten kanssa
11.03.2005 CE 3 MSC:n proto -- lähellä suunnittelua & koodia
14.03.2005 CE 3 MSC:n proto, heh heh.
14.03.2005 DE 4 suunnittelua ja suunnitteludokumenttia
15.03.2005 RE 1 vaatimusdokumentin luku tarkastusta varten
16.03.2005 ME 2 vaatimusdokumentin tarkastus
16.03.2005 DE 2 suunnittelua ja suunnitteludokumenttia
16.03.2005 CO 3 MSC -- ei enää proto
21.03.2005 DE 1 suunnitteludokumenttiin hienosäätöä
21.03.2005 CO 1 MSC:n viimeistely HEAD-branchiin
23.03.2005 ME 2 suunnittelukokous
```

```
23.03.2005 DE 2 suunnitteludokumentin päivitys
23.03.2005 CO 3 progress bar ja hiirivalinta MSC:hen
24.03.2005 DE 4 suunnitteludokumenttia, MSC settings
31.03.2005 DE 3 suunnitteludokumentin luku tarkastusta varten
01.04.2005 ME 2 suunnitteludokumentin tarkastus
01.04.2005 DE 1 suunnitteludokumenttien korjaus
01.04.2005 CO 3 nuolenpäät MSC:hen ja sarakkeiden tutkimusta
01.04.2005 LC 2 spontaaneja tapaamisia aikojen saatosta
04.04.2005 DE 1 suunnitteludokumentin päivitystä
04.04.2005 CO 3 MSC:n päivitystä ja TSC:n konsultointia
05.04.2005 CO 2 MSC:n päivitystä ja TSC:n konsultointia
06.04.2005 ME 1 suunnittelukokous
06.04.2005 CO 3 äm-äs-see, tee-äs-see, jii-än-ee
07.04.2005 CO 4 MSC:n tippuvien pakettien kulma ja tekstit
07.04.2005 AD 1 tuntien kirjaus
08.04.2005 ME 1 kokous
08.04.2005 CO 2 MSC:n tippuvat paketit ja muuta pientä
11.04.2005 CO 2 fonttikoon vaihtuminen MSC:ssä
12.04.2005 CO 5 progress bar speed ja timestamp column
13.04.2005 ME 1 aika lailla alle tunnin tapaaminen
13.04.2005 AD 1 pöytäkirja & kirje asiakkaalle
13.04.2005 CO 4 MSC:n alekkaiset tavarat sarakkeeseen
14.04.2005 CO 5 pieniä korjauksia ja UFO synkissä MSC:n kanssa
15.04.2005 ME 1 suunnittelukokous
15.04.2005 CO 4 vaatimukset B1 ja F5 toteutettu & siistimistä
18.04.2005 CO 5 MSC:tä, UFO:a ja CalcYCoordin tehostamista
18.04.2005 TE 1 testisuunnitelman kirjoittelua
19.04.2005 TE 5 testisuunnitelman kirjoittelua
20.04.2005 ME 2 koodin tarkkailua
20.04.2005 CO 6 tarkastuksen korjaukset & eihän se MSC tojinu
21.04.2005 CO 4 MSC:n korjailua ja JUnit testi Calcille
22.04.2005 ME 2 testidokun tarkastus
22.04.2005 TE 2 testidokun korjailua
22.04.2005 CO 2 JUnit Calcille - eihän se luokka edes toimi
25.04.2005 CO 4 JUnit SettingsMSC:lle ja muitakin JUnitteja
26.04.2005 CO 4 JUnit SettingsTSC:lle ja muutakin kivaa
27.04.2005 ME 1 demo
27.04.2005 CO 4 JUnit GeneralSettingssille ja aaargh
28.04.2005 CO 3 MSC jälleen ja pari uutta JUnittia
28.04.2005 DO 2 implementaatiodokumentaatio
29.04.2005 ME 1 seurantakokous
29.04.2005 AD 1 pöytäkirja jne.
29.04.2005 TE 4 testejä ja testExecutionDocumenttia
02.05.2005 TE 3 testit loppuun
02.05.2005 CO 1 havaittujen bugien korjaus
```

```
03.05.2005 CO 1 pieniä bugeja korjaten
03.05.2005 TE 2 testit uudelleen
03.05.2005 GE 3 kaikenlaista ja autorun.inf
04.05.2005 ME 2 viimeinen virallinen tapaaminen
04.05.2005 TE 1 test execution documentin korjailua
04.05.2005 GE 1 autorun.inf kokeet ja implen korjailua
05.05.2005 AD 2 autorun.inf ja LOC laskelmia
06.05.2005 GE 7 CD:n koostamista ja FAQ
```

Timo Tuominen

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#Date         Task  Time   Description
#=======================================================
24.01.2005    GE    1      Projektiohjeeseen tutustuminen
27.01.2005    ME    2      Ensimmäinen tapaaminen
28.01.2005    ME    2      Tapaaminen asiakkaan kanssa
30.01.2005    CE    3      Animatorin kokeilua
02.02.2005    ME    2      Vastuualueiden määritys
02.02.2005    AD    2      Projektipäällikkökoulutus
03.02.2005    PP    3      Aikataulun suunnittelua
04.02.2005    ME    2      Tapaaminen asiakkaan kanssa
07.02.2005    PP    6      Suunnitteludokumentin kirjoitus
08.02.2005    PP    6      Suunnitteludokumentin kirjoitus
09.02.2005    ME    2      Suunnitteludokumentin läpikäynti, aikataulun
suunnittelu
09.02.2005    PP    4      Suunnitteludokumentin kirjoitus
10.02.2005    RE    3      Vaatimussuunnittelua
11.02.2005    ME    2      Asiakastapaaminen
11.02.2005    RE    2      Vaatimusten kirjausta
14.02.2005    RE    2      TSC-Proton suunnittelua
14.02.2005    RE    3      MSC-Proton suunnittelua
15.02.2005    RE    3      TSC-Proton suunnittelua
15.02.2005    AD    1      Kokouskutsuja, luokkavarauksia, mm.
16.02.2005    ME    1      Projektisuunnitelman tarkastus
16.02.2005    ME    2      Ensimmäinen leiskaesitys asiakkaalle
17.02.2005    AD    1      Työikojen päivitys
17.02.2005    RE    2      Määrittelydokumentin rungon ja työnjaon sopiminen,
määrittelydokumentointi
18.02.2005    ME    2      Seurantakokous
21.02.2005    RE    3      Määrittelydokumentin pohjien teko, dokumentointi
22.02.2005    PP    3      Projektisuunnitelman korjaus
22.02.2005    CE    1      Animator Design Documentin luku
23.02.2005    ME    2      Suunnittelukokous
25.02.2005    ME    2      Suunnittelukokous
28.02.2005    CE    3      Koodin lukeminen
```

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02.03.2005    ME    2    Suunnittelukokous
02.03.2005    RE    1    Määrittelydokumentin teko
04.03.2005    LC    1    Tapaaminen
05.03.2005    RE    1    Määrittelydokumentin kirjoitus
06.03.2005    RE    3    Määrittelydokumentin kirjoitus
07.03.2005    RE    5    Määrittelydokumentin viimeistely
09.03.2005    ME    1    Suunnittelukokous
09.03.2005    RE    2    Määrittelydokumentin viimeistely ja julkaisu
10.03.2005    GE    3    UML-työkaluihin perehtyminen
11.03.2005    ME    2    Suunnittelukokous
11.03.2005    GE    1    Keskustelua suunnittelusta
14.03.2005    DE    3    Suunnitteludokumentin tekoa
15.03.2005    RE    1    Määrittelydokumentin luku
16.03.2005    ME    2    Määrittelydokumentin tarkastus
16.03.2005    GE    2    WMF to EPS conversion
16.03.2005    AD    1    Kokouskutsu, projektisuunnitelman päivitys
17.03.2005    CE    2    MSCPanelin opiskelu
18.03.2005    ME    1    Seuranta- ja suunnittelukokous
18.03.2005    AD    2    Aikataulun päivitys
23.03.2005    ME    2    Suunnittelukokous
23.03.2005    RE    4    Requirements doc. viimeistely
24.03.2005    RE    4    Requirements doc. viimeistely
24.03.2005    DE    1    Design doc
29.03.2005    DE    6    Design doc viimeistely
31.03.2005    CO    4    Settings panel
31.03.2005    DE    2    Design docin lukeminen
01.04.2005    ME    2    Design document tarkastus
01.04.2005    DE    4    Design documentin korjaus
04.04.2005    DE    1    Design documentin korjaus/settings
05.04.2005    DE    5    Design documentin korjaus/uudelleenkirjoitus
06.04.2005    ME    1    Suunnittelukokous
06.04.2005    CO    1    Settings
06.04.2005    DE    3    Design docin korjaus
07.04.2005    DE    1    Design docin väritys
07.04.2005    AD    1    Tuntiraportit
08.04.2005    ME    1    Suunnittelukokous
08.04.2005    CO    6    Settings
12.04.2005    CO    4    Koodausta
13.04.2005    ME    1    Tapaaminen
13.04.2005    CO    5    Koodausta
14.04.2005    CO    6    Koodausta
15.04.2005    ME    1    Suunnittelukokous
15.04.2005    CO    2    Koodausta
18.04.2005    CO    7    Koodailua
19.04.2005    CO    5    Koodin tekoa
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19.04.2005    CO      2       Koodin luku katselmointia varten
20.04.2005    ME      2       Koodikatselmointi
20.04.2005    TE      2       Test planin kirjoitus
20.04.2005    CO      2       Koodausta
21.04.2005    CO      6       Koodausta
21.04.2005    TE      1       Test plan luku
22.04.2005    ME      2       Test plan tarkastus
22.04.2005    CO      2       Settings
22.04.2005    CO      3       Settings
23.04.2005    AD      2       Työtuntikertymien käsittelyohjelma
25.04.2005    TE      2       Test plan tarkastus
25.04.2005    CO      6       Settingsien korjailua
26.04.2005    CO      3       GlobalSettingsMSC
26.04.2005    LC      1       Demon suunnittelua
27.04.2005    ME      1       Demo
27.04.2005    CO      5       Viimeistelyä
28.04.2005    CO      6       Vielä debuggausta
29.04.2005    ME      1       Seuranta- ja suunnittelu
29.04.2005    TE      3       Testausta ja virheiden kirjausta
02.05.2005    TE      4       Debuggausta
03.05.2005    TE      6       Debuggausta
03.05.2005    TE      2       Testaus- to(t)inen kierros
03.05.2005    DO      1       Implementaatiodokumentin kirjoitus
04.05.2005    ME      1       Implementation- ja test execution dokumenttien
kommentointi
04.05.2005    GE      1       Koodin siistiminen, eri java-versioilla kokeilu
05.05.2005    DO      3       Koodin dokumentointi
05.05.2005    DO      2       Luokkakaaviot implementation-dokkariin
05.05.2005    AD      1       Conclusion docin valmistelu
06.05.2005    AD      5       Conclusion documentin kirjoitus
06.05.2005    GE      7       Materiaalin viimeistely
06.05.2005    AD      1       Materiaalin julkaisu


Tomi Korkki

#Date         Task    Time    Description
#==================================================================
16.01.2005    GE      3       Initial orientation with project material.
27.01.2005    ME      2       First project meeting. Kick off.
28.01.2005    ME      2       First meeting with the Customer.
28.01.2005    GE      2       Familirization with the Animator.
31.01.2005    GE      1       Familirization with the Animator.
02.02.2005    ME      2       First official Project meeting.
02.02.2005    CE      2       Familirization with the Animator.
02.02.2005    GE      1       Research Java manual.
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02.02.2005	AD	1	Web-page updates. CVS updates.
04.02.2005	ME	2	Customer meeting.
04.02.2005	GE	1	Research LaTeX.
08.02.2005	GE	2	Research LaTeX continued.
08.02.2005	TM	2	Proof reading and formatting of project plan.
08.02.2005	AD	1	Web-page updates. CVS updates.
09.02.2005	ME	2	Project meeting.
09.02.2005	RE	4	Requirements analysis. TSC design.
10.02.2005	GE	2	Research LaTeX continued.
11.02.2005	ME	2	Customer meeting.
11.02.2005	LC	3	Informal group gathering.
14.02.2005	RE	2	Feedback and consultation on TSC proto with Timo.
14.02.2005	RE	3	MSC-Proto design with Mikko V.
15.02.2005	RE	4	MSC-Proto design with Mikko V. continued.
16.02.2005	ME	2	Inspection of project plan.
16.02.2005	ME	1	Customer meeting. 1st Prototyping session.
16.02.2005	GE	2	MSC-panel design.
16.02.2005	AD	1	Web-page updates. CVS updates.
17.02.2005	RE	1	Requirements documentation.
17.02.2005	LC	2	Further MSC implementation design with Pauli.
17.02.2005	AD	1	Update of working hours and schedule.
18.02.2005	ME	2	Group meeting.
18.02.2005	CE	3	Animator components.
19.02.2005	GE	1	Research LaTeX continued.
23.02.2005	ME	2	Group meeting.
23.02.2005	CO	2	Minor fixes to Animator.
24.02.2005	RE	3	MSC requirements and design with Pauli.
25.02.2005	ME	2	Group meeting.
25.02.2005	RE	2	Requirements documentation.
27.02.2005	GE	5	Research Java manual continued.
28.02.2005	RE	1	Design proto for settings.
02.03.2005	ME	2	Customer meeting. 2nd Prototyping session.
02.03.2005	RE	1	Requirements documentation.
04.03.2005	LC	1	Informal group gathering.
05.03.2005	RE	2	Editing Requirements document.
05.03.2005	CE	4	Testing MSC proto and stuff.
07.03.2005	RE	4	Editing Requirements document.
08.03.2005	AD	1	Update of working hours and schedule.
08.03.2005	GE	2	Research Java manual continued.
09.03.2005	ME	1	Group meeting.
10.03.2005	LC	1	Informal group gathering.
11.03.2005	ME	2	Group meeting.
11.03.2005	CE	2	Testing MSC proto.
12.03.2005	DE	3	UML - class diagrams for the Design document.
14.03.2005	DE	3	Design documentation.

15.03.2005	RE	1	Read through Requirements document.
16.03.2005	ME	2	Inspection of the Requirements document.
16.03.2005	GE	2	Miscellaneous.
16.03.2005	GE	4	Tinkering with Borland Together.
18.03.2005	ME	1	Group meeting.
19.03.2005	DE	5	UML - class diagrams for the Design document.
21.03.2005	CO	4	Random tinkering.
23.03.2005	ME	2	Group meeting.
23.03.2005	RE	4	Fixing the Requirements document.
24.03.2005	RE	4	Fixing the Requirements document.
29.03.2005	DE	2	Fixing the Design document.
31.03.2005	GE	2	Read through Design document.
01.04.2005	ME	2	FTR of the Design document.
04.04.2005	DE	3	Fixing the Design document.
06.04.2005	ME	1	Group meeting.
06.04.2005	DE	7	Fixing the Design document.
07.04.2005	GE	6	Research Java manual continued.
07.04.2005	AD	1	Update of working hours and schedule.
08.04.2005	ME	2	Group meeting.
09.04.2005	CO	4	TSC Settings.
10.04.2005	CO	5	TSC Settings.
11.04.2005	CO	3	TSC Settings.
13.04.2005	ME	1	Group meeting.
14.04.2005	GE	2	Research Java manual continued.
15.04.2005	ME	1	Group meeting.
18.04.2005	CO	5	Miscellaneous things.
21.04.2005	GE	2	Read and inspect Test plan.
22.04.2005	ME	2	Inspection of Test plan.
23.04.2005	CO	2	TSC Settings.
25.04.2005	GE	1	Test plan document corrections.
25.04.2005	LC	3	Formal group gathering. (preview for demo)
26.04.2005	TE	2	Test version for the demo.
26.04.2005	DO	3	Instruction manual.
27.04.2005	ME	1	Project Demo presentation.
27.04.2005	TE	3	Generic testing of the software.
28.04.2005	TE	2	Testing continued.
28.04.2005	CO	8	Miscellaneous things.
29.04.2005	ME	2	Informal group meeting.
29.04.2005	AD	1	Update working hours and schedule.
29.04.2005	TE	1	Testing.
02.05.2005	DO	2	User manual.
03.05.2005	TE	2	Debugging.
04.05.2005	ME	2	Group meeting.
04.05.2005	GE	1	Proofread Test Execution Document.
04.05.2005	DO	2	User manual.

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06.05.2005   DO     8        User manual.
06.05.2005   GE     2        General last minute patch work.
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