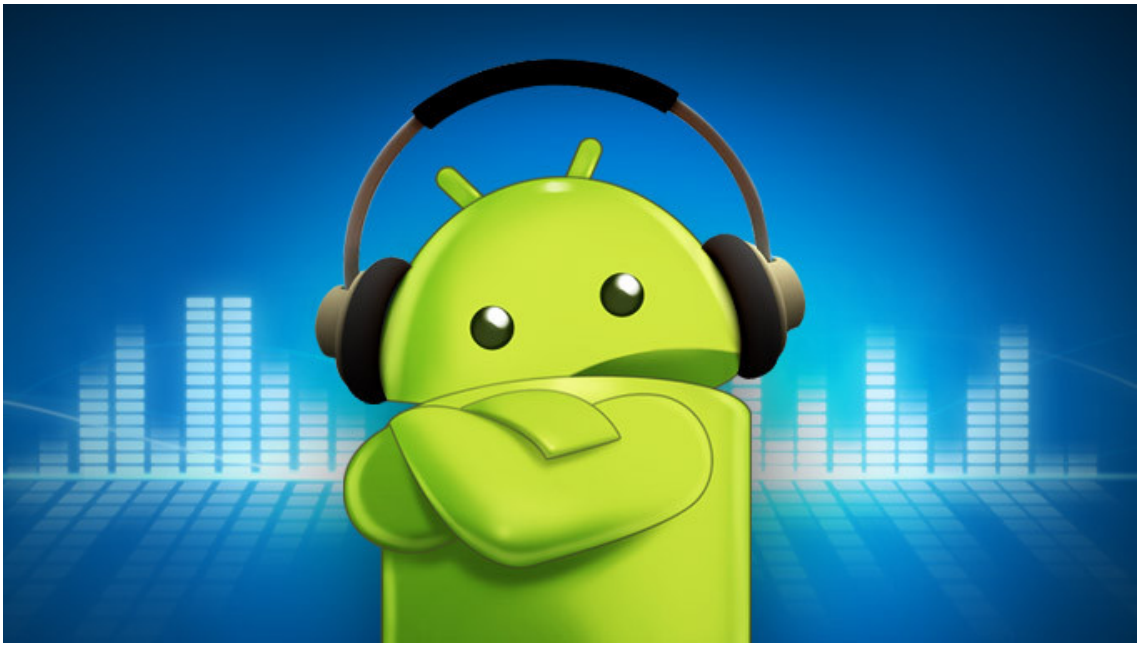
P8 Project



Intelligent Music with Peer-to-Peer Sharing

P8 Project

Group SW802F15

Software

Department of Computer Science
Aalborg University

Spring 2015

AALBORG UNIVERSITY
STUDENT REPORT

Department of Computer Science
Selma Lagerløfs Vej 300
9220 Aalborg Ø
Phone (+45) 9940 9940
Fax (+45) 9940 9798
http://www.cs.aau.dk

Title:
Intelligent Music with Peer-To-Peer Sharing

Subject:
Mobile Systems

Project period:
02-02-2015 – 27-05-2015

Project group:
SW802F15

Participants:
Alexander Drægert
Christoffer
Dan
Kristian Thomsen

Supervisor:
Ivan Aaen

Printings: ?

Pages: ??

Appendices: ?

Total pages: ??

Source code:
https://github.com/SW802F15/SourceCode/tree/???????

Abstract:

This report contains Lorem ipsum dolor sit amet, consectetur adipiscing elit. Cras consectetur tristique justo, vel pellentesque augue porttitor ut. Suspendisse potenti. Aliquam ipsum metus, commodo eget eros eu, consectetur auctor turpis. Suspendisse potenti. Sed ut felis elit. Proin eget urna placerat ante rutrum scelerisque ac id neque. Quisque gravida porttitor pulvinar. Fusce feugiat arcu at quam hendrerit, nec ultrices dui fermentum. Nam non nibh ac ligula suscipit dictum. Ut sit amet massa at massa ornare lobortis et ac neque. Duis vulputate mauris sit amet dictum iaculis. Praesent tellus velit, lobortis ac elit in, laoreet efficitur tortor. Etiam blandit, mi ac tincidunt tincidunt, ante sapien efficitur leo, eu efficitur nisi elit condimentum sem. Mauris vulputate neque ut lorem consequat semper. Praesent non tempus tellus.

Preface

Aalborg, March 4, 2015

Alexander Drægert

Christoffer Nduru

Dan Petersen

Kristian M. Thomsen

Contents

1 Introduction

Analysis 2

2.1 Problem Statement

Running is a popular form of exercise, however it can be a tedious and uninspiring endeavour. To improve the experience, Edworthy and Waring [3] found that *"... participants enjoyed what they were doing [running] more when they were listening to music of any sort when compared to when they were not."*

It was further discovered by Edworthy and Waring [3] that the volume and tempo of the music influenced the running experience. They discovered that the running speed, while listening to relatively slow music, was slower than when not listening to music. Additionally listening to fast-paced music resulted in a faster running speed, compared to when not listening to music.

Today many runners use their smartphone as a music player, which can either be placed on their arm or in their pocket. The sensors in a smartphone allows for reading the steps per minute and speed of the runner.

How can this data be used and calculated upon to provide the runner with an enjoyable running experience?

With a smartphone placed on their arm or in their pocket, it is difficult to navigate applications through visual feedback. Furthermore operating the smartphone while running decreases the navigability of the smartphone.

Alexander: SOURCE

The runner's form should not be disrupted by navigating.

Alexander: Re-write last (previous ↑) line.

How can a smartphone application be operated without disrupting the runner's form?

Methodology 3

Alexander: Check and Correct used time - past-tense vs. future-tense vs. etc

3.1 Extreme Programming

XP (Extreme Programming) is an agile development methodology. This project will be developed while using the principles of XP.

3.1.1 Motivation

XP follow 12 principles.

Alexander: Source to Beck Book

These 12 principles should ease the development of high quality software. This is partly done by ensuring thorough testing, continuously refactoring, and efficient knowledge sharing. XP further encourages improving oneself and the teams as a whole. This is partly done by pair programming, sprint reviews, and collaborative ownership.

For these principles to work there are some criteria there needs to be met, some of those criteria are:

- The size of an XP team should not exceed ten members.
- Iterations should not exceed four weeks, but two-three weeks are preferable.
- The team should be self-organising and should not be controlled by a boss.
- The team members must be able to embrace change.
- The team should have their workstations placed in the same room.

All the listed criteria is fulfilled by this project.

3.1.2 Approach

According to Beck [1, p. 53], the idea behind these practices is that while one practice in itself is weak, the others can cover that weakness. This creates a synergy effect between

the practices. This also means that if one or more of the practices are chosen to be discontinued or modified, careful consideration should be made.

We have chosen to adopt 8 of the 12 practices. The adopted practices in this project are:

- Small Releases
- Simple Design
- Testing
- Refactoring
- Pair Programming
- Collective Ownership
- Continuous integration
- 40-hour Work Week

Testing will be implemented by writing unit tests and acceptance tests before writing any production code. After the tests and production code is written, they will be run frequently to ensure that everything is working as it is specified, especially after adding new features to the system.

Refactoring will be implemented by team members making changes where they are needed. Also, code standards will be discussed and adhered to. Pair Programing also aids refactoring since two people programming together will be more likely to have the courage to refactor difficult pieces of code. The Testing practice also aids in this since tests can be run after refactoring which lessens the possibility of the code breaking.

Small Releases

Simple Design The practices that have been discontinued are:

- The Planning Game
- Metaphor
- On-site Costumer
- Coding Standards

Planning Game has been discontinued in favour of Planning Poker as described by Grenning [4].

Christoffer: do we follow this completely?

The main difference is how conflicting estimations are resolved. Planning Poker starts with the team discussing the task. This ensures everybody understand the scope and task at hand. This will in-turn reduce disparity of the individual estimates, and make it easier to agree on an estimate. Each member then considers his estimate and keeps it to

himself. When all are ready, everybody reveals their estimate at the same time. If there is great disparity between estimates, a discussion is organised. When this discussion is over, everybody estimates the task again. If the conflict still exists, the estimate is decided by "Optimism wins".

Alexander: Find where the source concludes this.

The Planning Game starts with the team discussing the task. Then each member considers his estimate and reports this to the team. If a conflict have aroused, estimation are chosen by "Optimism wins" as stated by Beck and Fowler [2, p. 58]. This way of reporting individual estimates may influence the estimation of other team member.

Alexander: Explained p.153 description of individual version of planning game (should be used?). Planning p.58 description of collaborative version of planning game (used in report). We originally chose Poker Planning because we only knew the individual version of Planning Game.

Alexander: Explained p.157, Planning game not necessary four teams of 3-4 developers.

Metaphors have not been implemented, since we find the product simple enough to understand without any metaphors.

On-site Costumer have not been possible to implement, since we do not have a costumer. We have therefore decided to act as our own on-site costumer.

Alexander: Should be re-written!

Coding Standards have not been implemented. Although general guidelines are adhered to.

Alexander: Should be elaborated upon.

Test 4

5 Conclusion

5.1 Discussion

5.2 Future Work

5.3 Conclusion

Appendix

Project CD A

The CD found on this page contains the following:

- The source code for
- A compiled version of
- A digital version of the report in PDF format.

Bibliography

[1] Kent Beck. *Extreme Programming Explained: Embrace Change*. Addison-Wesley Longman Publishing Co., Inc., Boston, MA, USA, 2000. ISBN 0-201-61641-6.

[2] Kent Beck and Martin Fowler. *Planning Extreme Programming*. Addison-Wesley Longman Publishing Co., Inc., Boston, MA, USA, 1st edition, 2000. ISBN 0201710919.

[3] Judy Edworthy and Hannah Waring. The effects of music tempo and loudness level on treadmill exercise. *Ergonomics*, 49(15):1597–1610, 2006. doi: 10.1080/00140130600899104. URL `http://dx.doi.org/10.1080/00140130600899104`. PMID: 17090506.

[4] James Grenning. Planning poker. `http://renaissancesoftware.net/files/articles/PlanningPoker-v1.1.pdf`, 2002. [Online; Accessed 03-03-2015].

Examples & ToDo B

Alexander: Example of comment/ToDo made by Alexander

Christoffer: Example of comment/ToDo made by Christoffer

Dan: Example of comment/ToDo made by Dan

Kristian: Example of comment/ToDo made by Kristian

Ivan: Example of comment/ToDo made by Ivan

```
1 public class HelloWorld {
2
3     public static void main(String[] args) {
4         System.out.println("Hello, World");
5     }
6
7 }
```

Listing B.1: Caption of code snippet

This is how you refer to a source written by Edworthy and Waring [3].

List of Todos

3, **Alexander:** SOURCE

3, **Alexander:** Re-write last (previous ↑) line.

5, **Alexander:** Check and Correct used time - past-tense vs. future-tense vs. etc

5, **Alexander:** Source to Beck Book

6, **Christoffer:** do we follow this completely?

7, **Alexander:** Find where the source concludes this.

7, **Alexander:** Explained p.153 description of individual version of planning game (should be used?). Planning p.58 description of collaborative version of planning game (used in report). We originally chose Poker Planning because we only knew the individual version of Planning Game.

7, **Alexander:** Explained p.157, Planning game not necessary four teams of 3-4 developers.

7, **Alexander:** Should be re-written!

7, **Alexander:** Should be elaborated upon.

19, **Alexander:** Example of comment/ToDo made by Alexander

19, **Christoffer:** Example of comment/ToDo made by Christoffer

19, **Dan:** Example of comment/ToDo made by Dan

19, **Kristian:** Example of comment/ToDo made by Kristian

19, **Ivan:** Example of comment/ToDo made by Ivan