



1. Semester Projekt

Software Technology Engineering
07/10-2020



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Background description

Colour IT er en lille virksomhed som udvikler og implementere IT løsninger, primært for private kunder. Når Colour IT arbejder på en IT løsning for en kunde, foregår det i grupper. I denne gruppe indgår de fire roller: En Scrum Master, en produkt owner, en projekt creator og en team member.

Colour IT har haft problemer med strukturering af deres projekter. De ansatte kan ikke se deres tidligere projekter, og har ingen sted de kan se deres kollegaers projekter. Derudover har de ansatte ikke kunne følge med i deres egen gruppes projekt. Dette kan danne problemer i projektgrupperne, da det kan være svært at for de ansatte at danne sig et overblik over det enkelte projekt.

Herudover har Colour ITs kunder også haft problemer med at følge med i deres bestilte projekter. De har ikke kunne se en status på deres bestillinger, og generelt ikke haft mulighed for at følge med i arbejdsprocessen.



Problem statement

Hovedproblem

Arbejdsgangen hos Colour IT er i øjeblikket presset og ustruktureret, hvilket gør at de ikke er så effektive, som de ønsker at være det. Dette resulterer i at Colour IT har problemer med at orientere sig om hvor langt de er kommet i deres IT-projekter, og har derved også problemer med at kunne opdatere deres kunder, i forhold til hvor langt Colour IT er med udførelsen af opgaven de er blevet stillet af kunden.

Underspørgsmål

Følgende underspørgsmål er formuleret for at give en bedre forståelse for hovedproblemet:

1. Hvad kan løse Colour IT's problem med at strukturere deres arbejdsgang?
2. Hvilken data er vigtig at have med for at Colour IT ville kunne orientere sig om status på projekter de arbejder med?
3. Hvad kan løse Colour IT's problem med at orientere deres kunder om status på den opgave de har bestilt hos Colour IT?
4. Hvad har Colour IT's kunder brug for af information, for at kunne holde sig orienteret om deres bestilte opgave hos Colour IT?



Definition of purpose

Formålet er at skabe et bedre indblik i Colour IT's projekter for deres ansatte i firmaet for bedre at kunne organisere projekterne, og hvordan roller fordeles i projektet. Derudover skal der oprettes en mulighed for Color IT's kunder at orientere sig om de projekter de har kørende, for at skabe bedre kundekontakt.



Delimitation

Vi fokuserer kun på at systemet skal hjælpe Color IT med at være mere organiseret, og overskueligt, derfor har vi valgt at fokusere på følgende nøgle emner.

1. Vi fokuserer kun på at lave en løsning som kan bruges med arbejdsprocessen SCRUM, som Color IT selv bruger.
2. For at alle i virksomheden kan holde sig orienteret om projekter, fokusere vi kun på et adgangsfrit system. På både de ansattes side og kundernes.
3. Vi fokuserer kun på at systemet kan understøtte SCRUM metoden med 4 roller. Det vil sige vi har kun "SCRUM-master", "Product owner", "Team member" og "project creator".
4. Design på backend systemet er lav prioritet grundet funktioner som søgefelt eller sortering er langt mere relevant når de vil have en mere organiseret og overskuelig arbejdsproces.



Methodology

Til dette projekt vil vi bruge vandfaldsmodellen, da det er en metode, som er god til mindre projekter, som dette, hvor kravene er veldokumenteret og lette at forstå. Det er også en nem metode at tilgå, da den som vand ned af et vandfald, flyder fra den ene fase til den næste, indtil vandet til sidst ender for enden af vandfaldet. På denne måde får vi en struktureret måde at tilgå vores projekt på, som bliver opdelt i faser, hvor vi først kan gå i gang med den næste fase når den forrige er løst. Dette forløb ned gennem faserne fortsættes indtil vi er ved den sidste fase, som er det færdige projekt.

Vandfaldsmodellen

1. **Krav og analyse** - Her får vi dokumenteret hvilket problem vi skal løse og hvilke krav, der er til løsningen.
2. **Systemdesign** - Ud fra oplysningerne i fase 1, laver vi et systemdesign.
3. **Implementering** - Ud fra fase 2, udvikler vi systemerne i mindre enheder, som først i fase 4 samles sammen i et system. Inden vi fortsætter til næste fase, tester vi hver enhed for fejl.
4. **Integrering og Test** - Alle enhederne fra fase 3, samler vi i et system som vi derefter tester for fejl og mangler.



Time Schedule

Start dato	16/09-2020
Slut dato	18/12-2020

Datoerne i tidsplanen, er hvilken dato vi starter på emnet og slutdatoen er før det næste emne starter.

Uge		38	39	40	41	42	43	44	45	46	47
Emne ↓	Måned →	September			Oktober			November			
Analyse	Op sta rt de n 16. se p.				Feri e						
Design						HTML 19. okt.	JAVA 26. okt.				
Code								02. nov.			
Implementering											
Test											
Dokumentation, projektrapport											

Risk assessment

Risks	Likelihood Scale: 1-5 5 = high risk	Severity Scale: 1-5 5 = high risk	Product of likelihood and severity	Risk mitigation e.g. Pro & Responsive act
Vi kan risikere, at Coronavirussen laver yderligere ændringer i vores hverdag og derfor ændre på måden vi kan arbejde sammen på og samtidig påvirke vores motivation.	4	3	7	Hvis vi bliver hjem søger vi for at møde gang om ugen på D hvor vi snakker sam laver status
Vi kan risikere at miste alt det vi har lavet.	2	5	7	Søger for min. en g ugen at sikkerhedsk der er lavet på pro



Vi kan risikere at misfortolke hvad det er for et produkt vores kunde gerne vil have.	2	4	6	Efter hver fuldført projektet, tjekker vi kriterierne for pro
At holde et strukturelt projekt, i forhold til mapper	2	5	7	At have dette ele tankerne, ifølge programudviklin
Tidspres kan forekomme da vi er ny studerende på skolen, og derfor ikke kender hverdagen endnu. At tidspres kan komme til, på en negativ måde, at påvirke måden vi kommuniker på i gruppen. Derved kan der opstå misforståelser og forringelse af sammenarbejdet.	2	5	7	Forsøge at strukturer tid, og arbejde samm en tidsplan



Sources of information

Duckett, J. (2011). *HTML & CSS - design and build websites*. Indianapolis, Indiana, United States of America: John Wiley & Sons.

Duckett, J. (2014). *Javascript & JQuery - interactive front-end web development*. Indianapolis, Indiana, United States of America: John Wiley & Sons.

Gaddis, T. (2015). *Starting out with Java - Early Objects* (5 ed.). Harlow: Pearson Education Limited.

HTML & CSS documentations and tutorials. (2020, September 23). Retrieved from W3schools:
<https://www.w3schools.com>

JavaFx for administrative interface. (2020, September 23). Retrieved from <https://openjfx.io>

Java™ Platform, Standard Edition 7. (2020, September 23). Retrieved from
<https://docs.oracle.com/javase/7/docs/api/>

LaGrone, B. (2013). *HTML5 and CSS3 Responsive Web Design Cookbook*. Birmingham: Packt Publishing Ltd.

lynda. (2020, Oktober 6). Retrieved from lynda.com:
https://cdn.lynda.com/courses/614304-637286222380799294_270x480_thumb.jpg

Turquoise, I. (2020, September 16). Colour IT - The interview. 4. (E. f. studerende, Interviewer) VIA University College - Horsens. Retrieved from
<https://via.itslearning.com/LearningToolElement/ViewLearningToolElement.aspx?LearningToolElementId=1267156>

Tutorialspoint. (2020, Oktober 7). Retrieved from Tutorialspoint.com:
https://www.tutorialspoint.com/sdlc/sdlc_waterfall_model.htm



Appendices

Appendix 1 (Group Contract):

Gruppekontrakt

Gruppenavn
(valgfrit): Guderne

Dato: 16/9/2020

Gruppen er enige om følgende betingelser vedrørende gruppens adfærd og samarbejde:

Deltagelse: Vi er enige om at....

- Vi møder til aftalte tidspunkter, og holder hinanden informeret om hvis man er forhindret.
- Hvis man ikke møder op efter 5 antal gange, bortvises man eventuelt fra gruppen.

Kommunikation: Vi er enige om at....

- Vi forventer at planlægge møder over ItsLearning, hvor vi derfra aftaler hvordan vi mødes.
- Vi snakker om projektet mindst en gang om ugen, og eventuelt planlægger møde derefter.

Møder: Vi er enige om at....

- At man møder op, og giver besked hvis man er forhindret

Adfærd: Vi er enige om at....

- At man er flittig, og man holder hvad man lover.

Konflikter: Vi er enige om at....

- Vi snakker om tingene, og forholder os ærlige til hinanden hvis noget irriterer os så vi kan undgå eventuelle konflikter, fremfor læren skal blandes ind i det.

Deadlines: Vi er enige om at....

- Den skal overholdes.

Navn på gruppemedlem	Studienummer	Underskrift
Maja Munkholm Møller	291608	Maja Møller
Simon Andersen	283623	



Kasper Falk Mikkelsen	304712	<i>Kasper Falk Mikkelsen</i>
Andreas Østergaard	304546	<i>Andreas Østergaard</i>



HVAD RAPPORTEN SKAL INDEHOLDE

Project Title

Subtitle

[Name(s) of student(s), student number, photographs]

Supervisor: [Name of supervisor(s)]

[Name and logo of educational institution]

[Logo of companies included]

[Number of characters]

[Study program]

[Semester]



[Date]

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Abstract

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2	Requirements
2.1	Functional Requirements
2.2	Non-Functional Requirements
3	Analysis
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7	Results and Discussion
8	Conclusions
9	Project future
10	Sources of information
11	Appendices

List of figures and tables

Optional

Abstract



An abstract is a shortened version of the report and should contain all information necessary for the reader to determine:

- 1. What are the aim and objectives of the project*
- 2. What are the main technical choices*
- 3. What are the results*

Frequently, readers of a report will only read the abstract, choosing to read at length those reports that are most interesting to them. For this reason, and because abstracts are frequently made available to engineers by various computer abstracting services, this section should be written carefully and succinctly to have the greatest impact in as few words as possible.

Although it appears as the first section in a paper, most report writers write the abstract section last.

Cf. (Dawson 2009, p.195).

1 Introduction

The purpose of the introduction is to provide background information and set the scene for your project. Within which business or organization are you doing the project? Who are the stakeholders and who is the customer?

The background information is adapted from your project description where you have already described the problem domain. Describe the current situation and existing context. Your statements must be supported by references to reliable and relevant sources.

This should lead to why this project is relevant and outline your aim and objectives. Which technical problems and challenges will be presented in this report, again taken from your project description. System illustrations and rich pictures are welcome here.

State delimitations relevant for your project in the introduction. Delimitations include what the project will not cover in relation to your project description, i.e. what could have been expected in your project. Remember that you can only make delimitations to aspects mentioned in the project description and you must argue well for your delimitations.

The last sentences of the introduction should be an overview of the sections to follow. This will be a good transition to the next sections.



Remember: You must ensure a clear connection between sections in the project report, from Project Description, Requirements, Analysis, Design, Implementation to Test. This means that everything that is implemented can be found in design, everything that is designed is based on the analysis, and anything that is found in analysis has a clear link to requirements, etc.

2 Requirements

The purpose of the requirement section is to define functional and non-functional requirements. Requirements are perceived as a contract with the stakeholders (customer), and are specified to ensure a common understanding.

Identify the users and describe their roles (e.g. actor descriptions, personas and scenarios).

Note: Remember that all requirements must be precise and testable.

Use the SMART principle (YourCoach n.d.) and MoSCoW (Business Analyst Learnings 2013).

Present a numbered and prioritised list of all the requirements of the users, customer and stakeholders for the project.

There are no standards for describing non-functional requirements. You can find a useful checklist here (Banger 2014). For content see Appendix 3 “Project Report – VIA Engineering Guidelines”.

3 Analysis

The purpose of the analysis section is to outline an understanding of the problem domain and specifically WHAT the stakeholders want. Here, you elaborate on your background description.

You identify objects in the problem domain that will be involved in the solution and how these objects cooperate. The result of this analysis is a Domain Model (Larman 2004, chap.9) and other relevant diagrams.



Use the UML standard for all diagrams where relevant.

Note: Remember that all implementation dependent objects are not part of the domain model only conceptual classes related to the requirements and the domain.

4 Design

The purpose of the design section is to outline HOW the system is structured; i.e. to transform the artefacts of the analysis into a model that can be implemented. The design section is relevant for the programmer, whereas the analysis is relevant for the stakeholder.

Elements that may be relevant in this section:

- Architecture: Find architecture patterns here (Leszek Maciaszek 2004, chap.9).
- Technologies: Describe technologies used, also alternative technologies. Argue for choice of technology according to the project aim.
- Design Patterns: Describe which design patterns (GoF (Gamma et al. 2002) etc.) you are using and why.
- Class Diagrams
- Interaction Diagrams
- UI design choices
- Data models, persistence, etc.

You must explain all diagrams in the report. These diagrams including descriptions are the blueprints for the implementation.

Hint: One way to figure out which objects/classes are needed in the design is to apply the General Responsibility Assignment Software Patterns/principles (GRASP) (Larman 2004, chap.17).

Hint: Consider how to design your system to make it testable.



5 Implementation

The purpose of the implementation section is to explain interesting code snippets. An idea is to explain the complete path through your system from UI to database etc.

Remember that your implementation must be consistent with your design (Larman 2004, chap.20).

Which standard libraries are used? How are design patterns implemented, etc.

Hint: Implement your code in a testable manner.

6 Test

The purpose of the test section is to document the result of your testing; to verify if the content of the requirements section has been fulfilled. How is the system tested, which strategy has been used; e.g. White Box (Unit Test), Black Box, etc.

6.1 Test Specifications

For functional requirements, test specifications must be listed. These test specifications can be described as soon as the functional requirements have been completed (Use Cases including descriptions).

IEEE can be used as a template for test specification (IEEE Computer Society 2008). VIA Library can give you access to this standard.

7 Results and Discussion

The purpose of the results and discussion section is to present the outcome and achieved results of the project.

8 Conclusions

The purpose of the conclusion section is to compile the results from each section in the report. What is the conclusion? Did the project fulfil the requirements? Etc.

You can only comment on report contents, no new topics or content can be introduced in this section.



9 Project future

Reflect on your project from a technical viewpoint and describe what you would change if you could.

Suggest how the project could be improved or made ready for production. Discuss scalability, suggest possible spin offs, what is needed, missing, etc.?

10 Sources of information

Note: Use the standard reference method: Harvard Anglia. A very good reference tool is Mendeley (Mendeley.com 2016), ask VIA Library if you need help.

- Banger, D., 2014. A Basic Non-Functional Requirements Checklist « Thoughts from the Systems front line.... Available at:
<https://dalbanger.wordpress.com/2014/01/08/a-basic-non-functional-requirements-checklist/> [Accessed January 31, 2017].
- Business Analyst Learnings, 2013. MoSCoW : Requirements Prioritization Technique — Business Analyst Learnings. , pp.1–5. Available at:
<https://businessanalystlearnings.com/ba-techniques/2013/3/5/moscow-technique-requirements-prioritization> [Accessed January 31, 2017].
- Dawson, C.W., 2009. *Projects in Computing and Information Systems*, Available at:
http://www.sentimentaltoday.net/National_Academy_Press/0321263553.Addison.Wesley.Publishing.Company.Projects.in.Computing.and.Information.Systems.A.Students.Guide.Jun.2005.pdf.
- Gamma, E. et al., 2002. *Design Patterns – Elements of Reusable Object-Oriented Software*, Available at:
http://books.google.com/books?id=JPOaP7cyk6wC&pg=PA78&dq=intitle:Design+Patterns+Elements+of+Reusable+Object+Oriented+Software&hl=&cd=3&source=gbs_api%5Cnpapers2://publication/uuid/944613AA-7124-44A4-B86F-C7B2123344F3.
- IEEE Computer Society, 2008. *IEEE Std 829-2008, IEEE Standard for Software and System Test Documentation*,
- Larman, C., 2004. *Applying UML and Patterns: An Introduction to Object-Oriented Analysis and Design and Iterative Development*,



Mendeley.com, 2016. Homepage | Mendeley. Available at: <https://www.mendeley.com/>
[Accessed February 2, 2017].

YourCoach, S.M.A.R.T. goal setting | SMART | Coaching tools | YourCoach Gent. Available at: <http://www.yourcoach.be/en/coaching-tools/smart-goal-setting.php> [Accessed August 19, 2017].

11 Appendices

The purpose of your appendices is to provide extra information to the expert reader. List the appendices in order of mention.

Examples of appendices

- Project Description
- User Guide
- Source code – source documentation
- Diagrams
- Data sheets
- Etc.

Appendix A Project Description

Insert the original Project Description here