IT-632-Software Engineering

Cafeteria Management System (Cashless Canteen)

Termination Analysis 1.0

Team-2

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DA-IICT, Gandhinagar

Overview:

This is the Termination Analysis Report of the Cafeteria Management System Project. It is the final document produced for the project and contains closure information of the development process and the product developed.

Target Audience:

Software Development Team
Clients
Project Mentor/Evaluators

Document Revision History

Version	Primary Author(s)	Description	Reviewer(s)	Date
1.0	Jay Parikh, Aakash Thakkar	Termination Analysis Report		20 November, 2013

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1. Introduction

1.1 Purpose

Termination or closure is the final stage in the project life cycle and is triggered when the sponsor/client formally accepts the project. The objectives of this stage are – to provide information and analysis of the project development process and capture what the project team has learned while working on the project. It helps to evaluate how successful the project was and this document becomes a reference for other people, they can look to this document before starting a new project for information about how successful – systematic and efficient this project was and where one needs to look out for mistakes based on the experience of the project team.

1.2 Scope

The scope of this document is to describe the closure of the Cafeteria Management System project. It includes the elements and purpose of the post-project review process.

This document might be used for stakeholders and future project teams to evaluate the project and conduct post-mortem analysis.

2. Termination Analysis

2.1 Brief Project Undertaking

The group project – Cafeteria Management System Project, was undertaken as a course project for the course of IT632 Software Engineering in Autumn 2013. The project aimed to build cashless hassle-free System for DAIICT's cafeteria. The features we intended to incorporate on the system are well documented in the Project Plan and Software Requirement Specification documents, but the overall aim to re-state it, was to create a quality software in a systematic way, which enables the Cafeteria Management Committee Members to easily manage the System without any functional as well as technical glitches, unsustainable improvised arrangements, etc. and create a rich user experience for the canteen staff and end-users of the system.

2.2 Reasons for Choosing this Project

There were several reasons for choosing this particular project; some important ones are as follows:

- First and foremost, there was a huge demand for changes in existing manual system. Both canteen owners and end-users were tired out in the vicious circle of money change management in café while dealing transaction. The current alternative solution to get ride off this problem is coupon management by creating coupons of Rs.1, 2,3,4,5.

- We were getting the opportunity to work with live clients – which seemed (and indeed turned out) to be a more fulfilling experience of software engineering.
- Solving a real world problem, that too related to our own institute and student community was an exciting idea.
- The project gave us the opportunity to work on hardware integration with web application in J2EE which is the biggest application architecture in commercial application development space and its developer community is growing fast. Since we had to build our software on the Struts 2 Framework, we had to first understand the whole working of the framework and build our system accordingly. So, not only did it come across as a better learning opportunity but also as something which will enable us to work in future 'maintenance' related projects – which was something unique across all other course projects.
- We also ensured that the main focus of our project would not be 'coding' but 'requirements', 'design', 'proper documentation' and understanding an already functional technology to improve on – which required a greater systematic approach as compared to normal 'coding from scratch' projects. This idea is also in sync with the philosophy of IT632 Software Engineering – to focus on systematic software development principles rather than just writing voluminous codes.
- Our Admin Staff and CMC Member being a core member of management of cafeteria had great insight of the past system, current system and what it should be like in the future, which was an advantageous factor for us in terms of requirements gathering and analysis, UI design, etc.

2.3 Goals Achieved

We have developed a completely new system on Struts 2 framework for our cafeteria. The system fulfills almost all the major requirements of our clients and users. The features we've successfully implemented are –

- **Information Architecture:** The most important aspect of our project was to relive end users of the cafeteria i.e. students, admin and café owners from money change management and improve the way to handle accounts which will create win-win situation among all the users. Our developed system resolves all such concerns and delivers –
  - o Much needed 'cashless' payment system.
  - o Also it should be robust and secure so that it would not be penetrated. For this task we have implemented RFID based payment system.
  - o Proper, complete and robust archival system, spanning from the recharge of account, expenditure history, balance transfer history.
  - o Detailed User Profiles which display user's details.

- o Feedback/Complaint system – which consistently manages the quality of food in cafeteria.
- **Interface Design:** Cashless Café management system of DA-IICT operates in certain contexts which should also reflect in the design of the system. We have tried to make the interface design a balanced mixture of the sober and the extravagance. The UI Design Document specifies details of all the design choices and front-end functionalities, but the major targets we achieved through our interface design are as follows –
  - o DAIICT logo on the registration / login page.
  - o Designed Point of Sale in such a manner that even illiterate staff members of cafeteria or technologically challenged person can also make an order and run the system.
  - o The complaint / feedback post layout design captures a much better and appealing way of representing posts.
- **Social Integration:**
  - o Email notification system – which sends notifications to users if any order placed or any expenses made in cafeteria.

2.4 Unachieved Targets

Although our project is a success at large in terms of features provided and client satisfaction, But we did fail to implement certain ideas due to time, complexity constraints and the education constraint of the end users. They are as follows:

- We intended on building a complete Point of sale module, with menu management. But couldn't succeed the reason behind that was the working staff. To create a win-win situation in which the cafeteria owner need not to bring new staff that can operate with a computer, we had to compensate by making a point of sale module in such a way, in which the cashier can be technologically challenged.
- We also had the intension of creating a payment gateway, but it was rather a risky step for a group of newbies and could turn out to be devastating to handle the payment module.
- To make it more secure, a system in which the user gets notified via an SMS was to be implemented. But taking a closer look that can be extremely costly. Daily hundreds of transactions take place in the cafeteria of DA-IICT, sending SMS for each and every transaction could be pricey. Hence, email alerts were implemented instead.
- Themes were to be implemented for each cafeteria, according to the type of food they served. But due to time constraints, that was scrapped out.

2.5 Lessons from the project

2.5.1 Tangible Lessons

- Learned 'Struts 2' Framework for development.
- Learned RFID hardware integration in web application in java.
- Learned about various tools and technologies – CASE Tools, RUP, Microsoft Project, GitHub, etc.
- Learned systematic technical documentation – structuring product information in efficient ways which add to the quality of the product and clarity among team members about various ideas, plans, features, etc.

2.5.2 Intangible Lessons

- Coordination among members with different ideas, areas of expertise and knowledge levels within them.
- Time Management with respect to balancing this project with other commitments, especially when exams and quizzes came at different time for different people, due to different electives chosen by the members.
- Resolving disputes and arriving to conclusions on things, despite differing point of views.
- The importance of each phase and phase wise development and how the phases are dependent. The mistakes and missing of deadlines for a phase will result in the delay of the next phase and also degrade the quality of the product.
- We realized that if the requirements were clearly understood then the project building activity would proceed in a smooth way
- Lastly, we've also realized to some extent the value of Software Engineering principles as life skills.

2.6 List of Work Products

1. Feasibility Reports + Review Log
2. Project Proposal + Review Log
3. Project Plan + Review Log
4. Software Requirements Specification + Review Log
5. Software Development Life Cycle + Review Log
6. Requirement Traceability Matrix
7. System Test Plan + Review Log
8. User Manual + Review Log
9. High Level Design Document + Review Log
10. Low Level Design Document + Review Log
11. Software Quality Assurance Plan + Review Log
12. Software Configuration Management + Review Log

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13. Risk Management, Monitoring and Mitigation Plan + Review Log
14. Gantt Chart
15. Cost Estimation
16. Test Cases Document
17. Test Report
18. User Interface Design Document
19. Deployment Plan + Review Log
20. Tools and libraries + Review Log
21. Standards & Conventions Document + Review Log
22. Minutes of Meeting
23. Termination Analysis
24. Time Sheets
25. Source Code

3. Conclusion

Overall, it was a great learning experience especially in terms of understanding and developing software for a real life problem related to our own context. Also, the project experience provided us with an insight into the systematic and structured approach of developing software, which does not compromise on quality and also enables the team to deliver the project in timely and cost effective manner. There was a considerable gain in experience especially in terms of understanding and developing solutions for problems, new technical knowledge, time and resource management, team work, etc.

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