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Requirement Engineering Plan - *Preliminary*

Prepared for: The assistant website of Software Engineering

Prepared by: Group 11

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Company Zhejiang University Hangzhou, **Group 11**

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Preface

In this term, we have courses about Production Management and Software Requirement Analysis and Design. We will learn how to manage production and software requirement by building an assistant website of software engineering. To provide working well, record are necessary. And this paper is about the primary plan of requirement engineering.

Goals

This plan is written to provide the project can be finished well in time, and control the process so that members of group can know each period of the project. In this plan, we divide the project into three parts, cost control, communication and product quality. Though the requirement engineering plan, we can control this project better and it would be a powerful reference and a detailed guide which can guide us to finish the assistant website successfully.

Background

In contemporary society, software engineering is the single most important technology on the world stage. And it is also a prime example of the law of unintended consequences. Today, software is becoming an indispensable technology for business, science, and engineering, the extension of existing technologies, and the demise of older technologies; that the software would be the driving force behind the personal computer revolution. Thus, the management of software, which can also be called Software Engineering, becomes significant and indispensable. As student who major in Software Engineering, we concern not only the technics, but also the importance of management. Thus, how to manage becomes a problem which we should consider. These two course, Product Management and Software Requirement Analysis and Design, have their special and important sense.

Additionally, the assistant website of Software Engineering is a good flat for students and teachers. Students can learn courses and acquire knowledge, even communicate and cooperate. Teachers expand the methods of teaching .They can know states of students clearly in time, as well.

Reference

- Software Engineering - a practitioner's approach, Roger S.Pressman
- Software Requirements, Karl E.Wiegers
- Blog of product manager Jie Tang, (http://tangjie.me)
- Norm of Computer Software Requirements Specification (GB/T9385-2008)

*More references will be add later

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Introduction of Project

Content

The workflow of this project is, software requirements analysis, software design, software development, software test and software delivery.

Next, there are main points in each period.

- Software Requirements Analysis - At the beginning, the group communicate with users and acquire their requirements. Then, members classify requirements of users into different categories.
- Software Design - Base on the classified requirements we get from the analysis, our group choose suitable model to construct the problem in formula ways. In this section, we will finish detailed design and general design.
- Software Developer - The achievement of building a website. It includes front-end development and back-end development.
- Software Test - We will test the website in order to make sure that whether it can come into service.
- Software Delivery - Finally, this production, the assistant website of Software Engineering, will be delivered to Mr.Yang Cheng. The delivery deadline will be June, 17th, 2013.

Staff

Reference to Management Plan of Human Resource Cost.

Product

Profile

This section is about documents which should be delivered to Mr.Yang Cheng. Details are referenced to Management Plan of Documents.

Website

An assistant website of Software Engineering will finished if our group get enough time and it's also depends on the decision between Mr.Yang Cheng and Mr.Jin Bo.

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Functional Requirement

Product Description

Software Requirement Engineering and Software Project Management are the mandatory courses for junior year students of Software Engineering. They are the most important and idiomatical courses of the Software Engineering major as well. As the important components of the real-world software development, IT industry practitioners have attached more and more importance to requirement engineering and project management. In order to make the teaching and studying easier, we desperately need a platform for the teachers and the students to share and communicate. That is why we need "The Assistant Website of Software Engineering".
"The Assistant Website of Software Engineering" makes it possible for teachers to broadcast the most resent and cutting-edge information of requirement engineering and project management to the students. Meanwhile, students can also make full use of the Internet to study and gain help from the teachers. This website also provides an experimental platform for software engineering courses teaching methods.
The main purpose for this website is to provide a platform for teachers and students communicating, to make teaching and studying more convenient. However, this website also provides those who are interested in these courses an opportunity to learn something.
Generally speaking, this website provides following functions:

- Teachers can get responses more quickly, so that they can adjust the schedule and teaching methods;
- It is more convenient for teachers to review students homework;
- It can improve the influence of the teachers so that the students can know them better;
- Make getting materials for the course easier for the students;
- Make the catch-up easier for students, when they cannot attend all the courses;
- Make asking questions easier. And the teachers will also response faster.
- Tourists can have a chance to get to know about the course and teachers

Product Functions

This website is for the teachers, students and the people who are interested in these courses. Different user groups have different functional requirements.

I.Teachers' Requirements

Course Information Release

- Systematic course introduction, including the schedules, course plans, textbooks, backgrounds, grading system and prerequisite.
- Detailed teacher introduction, including achievements in research and teaching areas, teaching style, published books, honors and etc.

Course Material Publish

- PPT, templates, references, example works, course videos and audios release. Teachers and classmates can download. Tourists can view a simplified version online.

Communicate with Students

- Teacher announcement section for teachers to publish homework reviews and other announcements.

- Specific homework reviewing and tracing function. Comment the works of students.
- Resent news functions for teachers to publish some thoughts about recent teaching or exchanging experiences.

User Experience

- User guidance is a must.
- Links should be updated in time.

II.Students' Requirements

Course Information Acquire

- Can see the teachers' announcements and homework reviews in time.

Course Material Acquire

- PPT download, both older and latest versions.
- Course materials download, including e-book, sample exam papers and etc. These need to be updated frequently.
- Videos and audios materials can be downloaded or viewed online, such as course videos.

Communicate with Teachers

- Detailed communication methods of the teachers. These need to be easy to find.
- Interact with the teachers, such as asking questions and exchanging ideas.
- Submit homework and trace the review state.

Communicate with Classmates

- Tools for communication between the team members. Other students cannot participate, but teachers can view the discussion and give instructions.
- File sharing function. The file size has to be restricted (no larger than 2M).

User Experience

- The page design has to be clean and simple. Site navigation is a must.
- Password retrieve can be done through asking questions.
- Article search by titles is a must.
- Download speed has to be 50kb/s on average and more than 10 people can download at the same time.

III.Tourists' Requirements

Course Information Acquire

- Information on courses, such as requirement engineering, project management, UML and etc.
- Detailed introduction of the teachers.

Communication

- Comments on the web forum.

User Experience

- The comments left by the tourists cannot be easily deleted by the web admin.
- Site navigation and links.

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Users' Character

Teachers Users

Education PhD in computer science related areas. Received excellent high education.

Experience Rich experience in web using. They can easily pick up how to use a website.

Technical Skills Outstanding computer skills.

Students Users

Education Mostly junior year students of Software Engineering.

Experience As software engineering students, plenty experience in web using.

Technical Skills Good computer skills.

Tourists Users

Education Undergraduate students of ZJU, mostly major in software engineering.

Experience As modern university students, they usually have a lot of experience in using website.

Technical Skills Computer skills differ from majors and grades, but they at least have basic computer skills.

Constraints

- Downloading speed needs to be at least 50kb/s, and 10 people can download at the same time.
- 24/7 availability is not necessary, due to the low concurrency.
- The copyright of the teaching materials needs to be preserved.

Hypothesis and Dependency

As a web project, we assume that all the users have web browser and plug-in media player.
If they don't have these, they should be able to get assistance from the developers.

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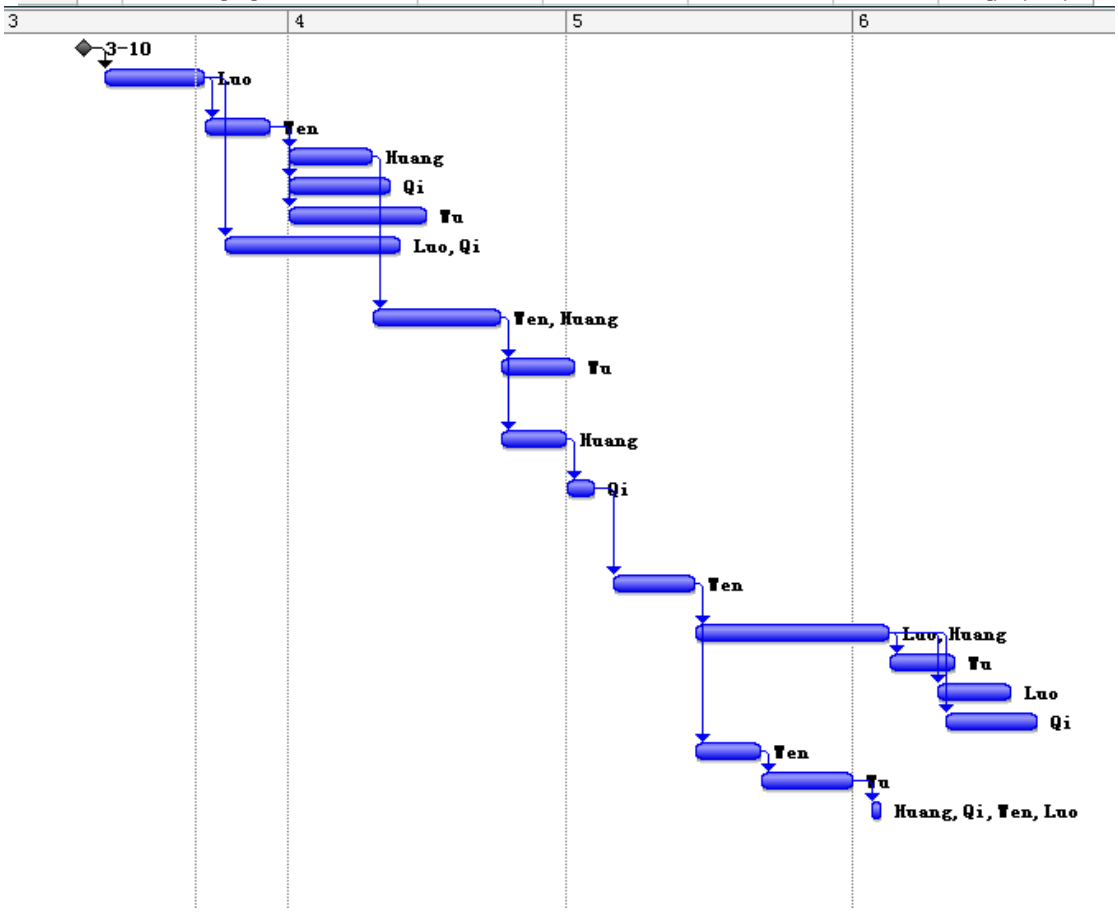
Management Plan of Time Cost

Date	Task
Mar. 10th	Get project task book
Mar. 12th ~ Mar. 22nd	Preliminary requirements engineering plan
Mar. 23rd ~ Mar. 29th	Project feasibility report
Apr. 1st ~ Apr. 9th	Overall project plan
Apr. 1st ~ Apr. 11th	Project charter
Apr. 1st ~ Apr. 15th	QA plan
Mar. 25th ~ Apr. 12th	Requirements engineering plan modification and evaluation
Apr. 10th ~ Apr. 23rd	Software requirements specification
Apr. 24th ~ May. 1st	Software requirements specification modification and evaluation
Apr. 24th ~ Apr. 30th	Software requirements change document
May. 1st ~ May. 3rd	Software requirements change document modification and evaluation
May. 6th ~ May. 14th	System design and Implementation plan
May. 15th ~ May. 21st	System maintain plan
May. 22nd ~ May. 31st	Project summary report
June. 3rd	Course project review
May.15th ~ June. 4th	Summary of software design
June. 5th ~ June. 11th	Test plan
June. 10th ~ June. 17th	Deployment plan
June. 11th ~ June. 20th	Training plan

Next page, our group will show you the detailed table and Gantt chart which was illustrated by using Project Pro.

	任务名称	工期	开始时间	完成时间	前置任务	资源名称
1	Get project task book	0 工作日	2013年3月10日	2013年3月10日		
2	Preliminary requirements engineering plan	9 工作日?	2013年3月12日	2013年3月22日	1	Luo
3	Project feasibility report	6 工作日?	2013年3月23日	2013年3月29日	2	Wen
4	Overall project plan	7 工作日?	2013年4月1日	2013年4月9日	3	Huang
5	Project charter	9 工作日?	2013年4月1日	2013年4月11日	3	Qi
6	QA plan	11 工作日?	2013年4月1日	2013年4月15日	3	Wu
7	Requirements engineering plan modification and evaluation	15 工作日?	2013年3月25日	2013年4月12日	2	Luo, Qi
8	Software requirements specification	10 工作日?	2013年4月10日	2013年4月23日	4	Wen, Huang
9	Software requirements specification modification and evaluation	6 工作日?	2013年4月24日	2013年5月1日	8	Wu
10	Software requirements changement document	5 工作日?	2013年4月24日	2013年4月30日	8	Huang
11	Software requirements changement document modification and evaluation	3 工作日?	2013年5月1日	2013年5月3日	10	Qi
12	System design and Implementation plan	7 工作日?	2013年5月6日	2013年5月14日	11	Wen
13	Summary of software design	15 工作日?	2013年5月15日	2013年6月4日	12	Luo, Huang
14	Test plan	5 工作日?	2013年6月5日	2013年6月11日	13	Wu
15	Deployment plan	6 工作日?	2013年6月10日	2013年6月17日	13	Luo
16	Training plan	8 工作日?	2013年6月11日	2013年6月20日	13	Qi
17	System maintain plan	5 工作日?	2013年5月15日	2013年5月21日	12	Wen
18	Project summary report	8 工作日?	2013年5月22日	2013年5月31日	17	Wu
19	Course project review	1 工作日	2013年6月3日	2013年6月3日	18	Huang, Qi, Wen, Lu



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Management Plan of Economic Cost

PROJECT PHASE	ITEM	COST/yuan
Requirement acquisition	Project view	80
	Requirement development process	50
	User group classification	20
	set up core team	300
	Use cases	100
	Requirement reusing	70
Requirement analyst	feasibility analysis	150
	association diagram	120
	Demand priority	90
	data dictionary	200
	requirement modeling	250
Requirement specification & verification	specification plate	20
	sources of requirement	80
	standards of practice	50
Requirement review	review requirement document	150
	test cases	250
	user manual	250
Requirement change control	change control process	200
	change impact analysis	180
	maintain change history	100
Requirement management & tracing	tracing requirement condition	100
	tracing every change	180
	requirement management tools	220

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Management Plan of Human Resource Cost

NAME	TECHNICAL ABILITY	AVAILABILITY	MANAGEMENT ABILITY	EXPERIENCE	RESPONSIBILITY
Tianyu Luo	Average	Average	Average	Average	Project Management
Lifan Qi	Average	Average	Average	Average	Software Architecture
Yaobin Huang	Average	Average	Average	Average	System Engineering
Danhui Wu	Average	Average	Average	Average	SoftwareQuality Assur-ance
Yukan Weng	Average	Average	Average	Average	Document Writing

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Management Plan of Communication & Documents

Communication

We will have meeting weekly and in this weekly meeting, we talk about what we have done last week and what we will do next week. During meeting, we will record and finally the record will be arrange as a document. Generally speaking, this kind of meeting is a review and plan adjustment. Not only the weekly meeting, we will communicate everyday in order to control the process.

Now, I have construct a flat for communicate. The tool is TeamLab, a website for users to manage project. However, this is not free and it just have 45 days trial. Thus, we plan to change one every 45 days. It would be troublesome and we are still finding a better way.

Documents

The project will be including documents as follows:

- SPMP: Software Project Management Plan
- SRMCD: Software Requirements Modification Control Document
- SRS: Software Requirements Specification
- SDP: System Design Plan
- SODS: Software Outline Design Specification

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Management Plan of Product Quality

总则

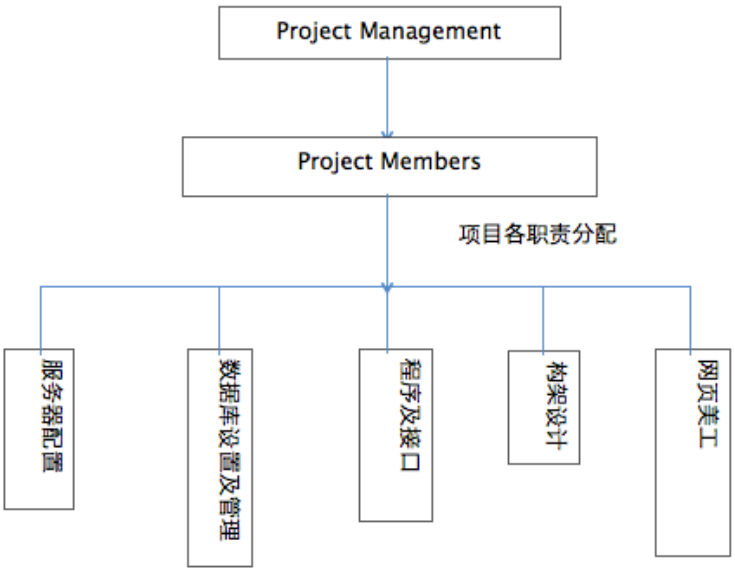
1.1项目概况

1.2项目目标

如今有很多教学网站，但是专门针对一门新开的大学课程和一位专门的教师；又为学生之间提供交流平台的网站为数不多。这个网站作为一个开课的辅助工具，将有利于教师的教学和学生的学习；也为软件工程系列课程的成熟记录下足迹。

为了开发这个网站预计会在学习结束完工，而且是最终版本。开发该网站需要的开发资源有：5个合作愉快的人员；Dreamweaver、Photoshop、Project Pro, Office Tools 和上网必备的软件和硬件。

项目组织机构图



人力物力需求

3.1人员需求

项目经理　　1人

各类项目成员 4人

3.2资源需求

对客户需求变化进行不定时的调查分析及修正，对各类环境标准的收集和统计计算，对各类仪器设备数据接口协议整合。

3.3检测测试计划

编写各类test case，分别对其进行测试。内部进行单元测试，阶段性进行内部测试，并进行内部测试和现场运行测试。

3.4采购计划

纯软件开发，只需提供技术服务。

项目进行过程中的质量控制

4.1本项目关键过程和特殊过程

本项目关键过程为制作网页的前端过程，如UI、程序设计等。

4.2关键过程的控制

在完成程序设计后执行相应的软件测试步骤，严格地进行分析与审查。

4.3工程创优

4.4完成相应的记录与会议

每位成员每一天完成report，记录每天完成的任务以及工作的进度、发生的问题等。每周整合成一个weekly　report并提交，进行项目组会议时进行审查、分析，对出现的问题提出解决的方案，做好下一步的决策以确保项目的顺利进行和保证质量。

系统环境质量管理

网站要求提供对外服务的能力,保证至少300名同学上课辅助服务的要求.包括数据存储能力,网络服务吞吐能力,数据安全特性等.

服务器建议选用Intel CPU,可以选择Windows或者Linux.

开发平台可以选择IIS, .NET或者apache, tomcat/jboss平台

请提供对外服务所要求的相应的安全保障。

范围和局限性

这个网站的实现方法将和其他的网站一样， 没有特殊的技术。网站的范围是：1.信息发布2.资料下载3.交流互动。不再另外开设可供教师和学生使用的邮箱， 如有邮件都将使用个人自己在其他网站上的邮箱。

项目环境

该网站作为课堂教学之外的一个辅助手段， 为软件工程课程的师生提供了一个交流的窗口， 同时也是授课老师发布信息的平台， 以及教学资源的有效载体， 具有信息发布实时，疑惑解答专业， 课程介绍全面， 教学资源丰富的特点， 可以说是对传统教学手段的一次大胆尝试与突破。

该网站主要面对的用户大致可以分为三类：教师（指软件工程课程的授课教师）， 注册学生（该课程的注册学生， 即当前学期选修该课程的学生）， 游客（当前学期未选该课程，但对该课程有兴趣的学生， 通常指软件学院低年级学生， 也泛指所有在校学生）。

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Management Plan of Risk

Risk Identification：

本项目的风险管理计划采用风险条目检查表法来实现风险识别。

Risk table：

Risks	Category	Probability	Impact	RMMM
Size estimate may be significantly low	PS	50%	4	
Larger number of users than planned	PS	20%	3	
Less reuse than planned	PS	40%	3	
End-users resist system	BU	20%	2	
Delivery deadline will be tightened	BU	10%	4	
The requirements of users are changed	PS	30%	2	
Technology will not meet expectations	TE	20%	1	
Lack of training on tools	DE	80%	4	
Staff inexperienced	ST	80%	3	
Staff turnover will be high	ST	0%		
Staff work in low efficient	ST	80%	2	

Risk Estimate

根据可能性（不可能=0<probability<1=必然）和损失（用1~10的数值来表示损失的大小）计算Risks的风险值。

	Risks	Probability	Loss	Value of Risk
Plan	plan doesn't meet realism	0.2	5	1
	the staff aren't put in reasonable place	0.1	6	0.6
	进度压力造成效率下降	0.5	8	4
	deadline is shift to an earlier day	0.1	5	0.5
	a key segment has problems and sets up a chain reaction	0.3	10	3
Management and members	the PM doesn't possess a leadership	0.2	5	1
	the members don't obey the PM	0.2	6	1.2
	遇到问题时团队无法快速做出应对和决策	0.4	8	3.2
	has a poor teamwork	0.3	8	2.4
	部分成员对本项目使用的开发环境不熟悉	0.6	2	1.2
Develop Environment	开发环境需发生改变	0.2	8	1.6
	开发工具学习期长于预期	0.4	5	2
Requirements	users change the requirements	0.2	7	1.4
	the view of users aren't accepted which make the final web can't satisfy them	0.2	10	2
	需求定义欠佳，不清晰不准确	0.2	5	1
	extra requirements	0.3	2	0.6
Product risks	Some module with high probability of error need more time to be testing, designing and achieving	0.3	5	1.5
	members aren’t competent to art designing	0.8	5	4
	Develop extra functions which aren’t necessary that extend the cycle	0.2	5	1
Designing and achievement	Poor of designing lead to remake of designing and achievement	0.2	10	2
	Complicated of designing reduces efficiencies	0.2	2	0.4
Process	跟踪不准确，导致无法预知项目展开是否落后与计划	0.3	7	2.1
	前期质量保证行为不真实，导致后期重复工作和加重工作负担	0.2	8	1.6

Risk Plan and Control

本项目中采用的风险规划主要策略为回避风险和损失控制。回避风险为主要手段，当风险无法被完全回避时尽量控制损失以减少敷出。

风险管理对应计划：

	Risks	Probability	loss	Value of Risk	Measures
Plan	plan doesn't meet realism	0.2	5	1	制定合适的计划
	the staff aren't put in reasonable place	0.1	6	0.6	根据每个成员的特点分配合适的职责
	进度压力造成效率下降	0.5	8	4	对每个成员的工作进度进行监督，是前期和后期进度压力平衡。
	deadline is shift to an earlier day	0.1	5	0.5	可能性不大，出现时加班加点解决问题
	a key segment has problems and sets up a chain reaction	0.3	10	3	加大对关键环节的工作力度及检测确保关键环节的正确性
Management and members	the PM doesn't possess a leadship	0.2	5	1	Choose the qualified PM
	the members don't obey the PM	0.2	6	1.2	调教他
	遇到问题时团队无法快速做出应对和决策	0.4	8	3.2	事先做好应对突发情况的准备，当无法快速做出决策时需PM挺身而出
	has a poor teamwork	0.3	8	2.4	加强members之间的联系和磨合
	部分成员对本项目使用的开发环境不熟悉	0.6	2	1.2	learn it
Develop Environment	开发环境需发生改变	0.2	8	1.6	谨慎选择合适的开发环境
	开发工具学习期长于预期	0.4	5	2	Learning in advance
Requirements	users change the requirements	0.1	7	0.7	网站用户范围局限，功能范围有限，出现的可能性不大
	the view of users aren't accepted which make the final web can't satisfy them	0.2	10	2	时时调查用户的观点，加以考虑是否采取
	需求定义欠佳，不清晰不准确	0.2	5	1	置顶全面详细的需求分析
	extra requirements	0.3	2	0.6	First decide the extra requirements whether reasonable or not, if reasonable, 调动剩余的所有人力全力应对

Product risks	Some module with high probability of error need more time to be testing, designing and achieving	0.3	5	1.5	调整这些模块与其他模块的关联性，降低其影响
	members aren't competent to art designing	0.8	5	4	由于组要组成人员都为软件工程专业，出现此问题的可能性较大，可雇佣数媒等外部人员负责
	Develop extra functions which aren't necessary that extend the cycle	0.2	5	1	仔细分析额外功能的必要性，放弃不必要功能的实现
Designing and achievement	Poor of designing lead to remake of designing and achievement	0.2	10	2	Make a good designing
	Complicated of designing reduces efficiencies	0.2	2	0.4	
Process	跟踪不准确，导致无法预知项目展开是否落后与计划	0.3	7	2.1	Every members write a daily report to show his rate of progress
	前期质量保证行为不真实，导致后期重复工作和加重工作负担	0.2	8	1.6	做真实的质量保证