Release Planning

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1. Product Description

With the development of computer technology, especially the development of computer network technology and database technology, people's life and work style changed a lot. The application of network technology make the communication between the computer to sharing courses become possible, and the application of database technology provides the functions such as data storage, retrieval, course analysis, so as to make the work more efficiently.

However, we also found that most of the universities' educational administration system now exist some shortcomings, mainly include the following problem:

1. Function of the system is too little. Most system only in order to solve a specific problem. Not closely and effective contact between various related systems, affect the reuse and sharing of information.

2. The system is isolated. Many system is still in the standalone application state, that is, only in charge of the business management personnel to use, no good connection to realize the management of the vertical and horizontal, and interactivity is poor, cause repetitive acquisition, statistical information.

3. Most system only stay in the daily work, lack of comprehensive analysis ability. Additional, there still exist some educational system which has poor scalability and flexibility, because of the lack of a strong technical support to improve system, in these software runs halfway abandoned after a period of time which caused great waste.

A perfect educational administration system should be diversified, the function is perfect, and have the ability of sustainable development. So we designed a educational administration system, it can not only provide a channel of communication between teachers and students, but also a convenient course management system, teachers can use this system is convenient for student management, course management, corrects students' papers and other things, the students can directly communicate with the teacher on the platform, course selection, submit assignments, etc. Through the use of the educational administration system, it can better help students and teachers in the teaching and learning, improve the overall efficiency and quality of teaching.

2. Company Size and Investment in Product

Our company now has 4 groups and each group has concentrate on different aspects.

Management group: This group is concentrate on project process management and improvement. They played the role of managers, need to manage the whole project progress and time arrangement, at the same time they also need to manage the usage of project funding. This group now has 2 people and everyone has more than 5 years' experience on software development management.

Design group: This group is concentrate on the visual of software, they will be responsible for the UI design of the software, at present there are 1 experienced members of the team and 2 members of the young.

The front-end development engineers group: The team responsible for software development the front end of the page, including the web development, visual interface, employees have HTML5 and JavaScript development experience, the team now has 6 employees.

The backend development engineers group: The team is mainly responsible for software backend server, database building and maintenance, ensure the running efficiency of the software through good architecture, team members need have some SQL database, c++ programming experience, at present there are 4 members in the team.

At present, the project we have got the first angel investment funds, contains a total of 2 million Swedish crowns. At the same time, we will constantly improve our product in 18 months, start to find the A round investment after first release.

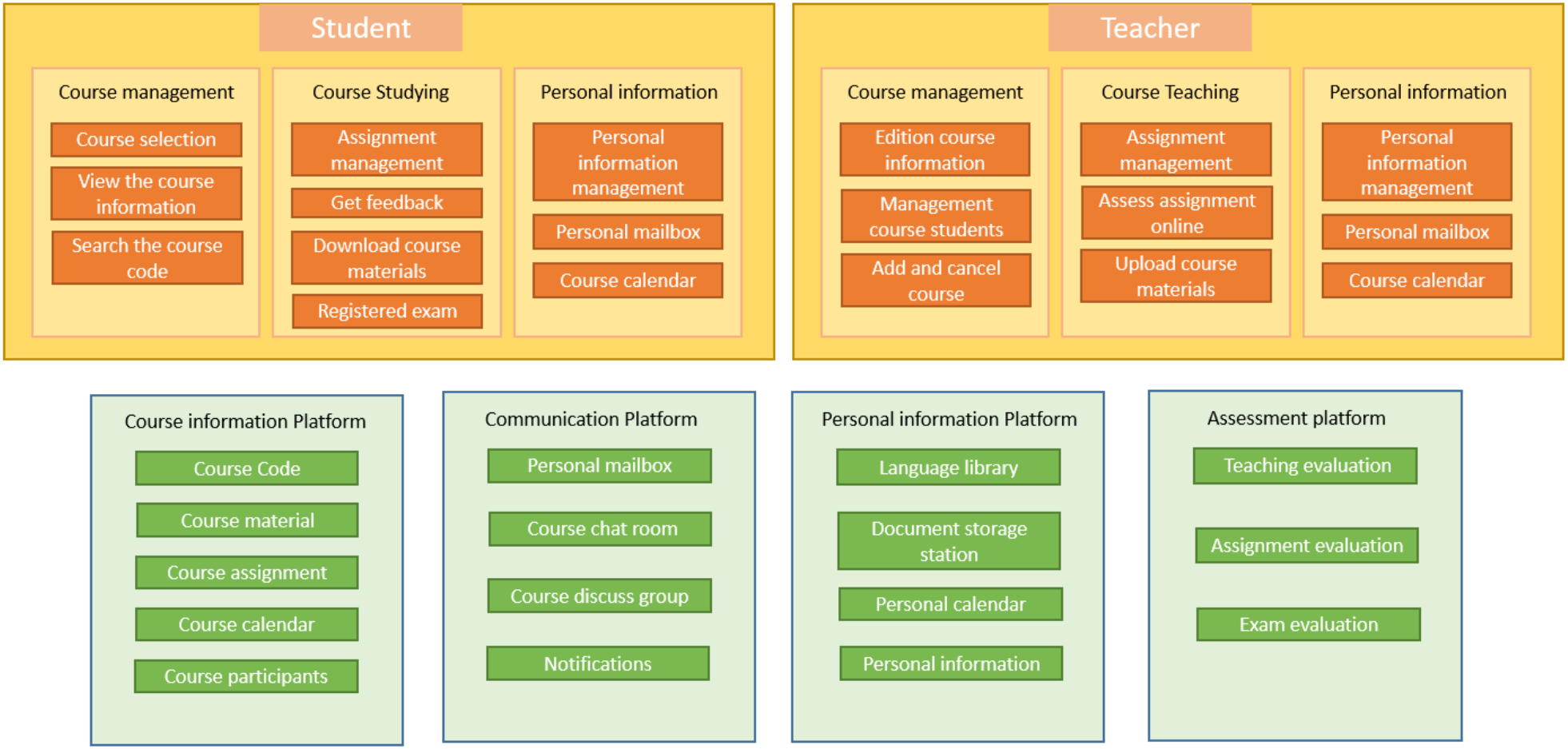
3.Roadmap

The picture shows the business architecture of the whole system, the system will consist by four main platform and the user which is mainly student and teacher will use these platform to achieve several things.

The function which teachers and students used in course management, teaching and learning, personal information management functions are all provided by the platform, we develop software process will be conducted according to the priority of platform importance. During the platform development process, every specific function will be achieved one by one.

In the coming years, our development focus will be on the course information platform and communication platform, we expected to implement all function of this two platforms, and in personal information platform and the assessment platform there are some features we think is not important at this stage, so this two platform functions we will first give priority to implement a part, and according to the future plan to improvement all the platform function.

Business architecture diagram



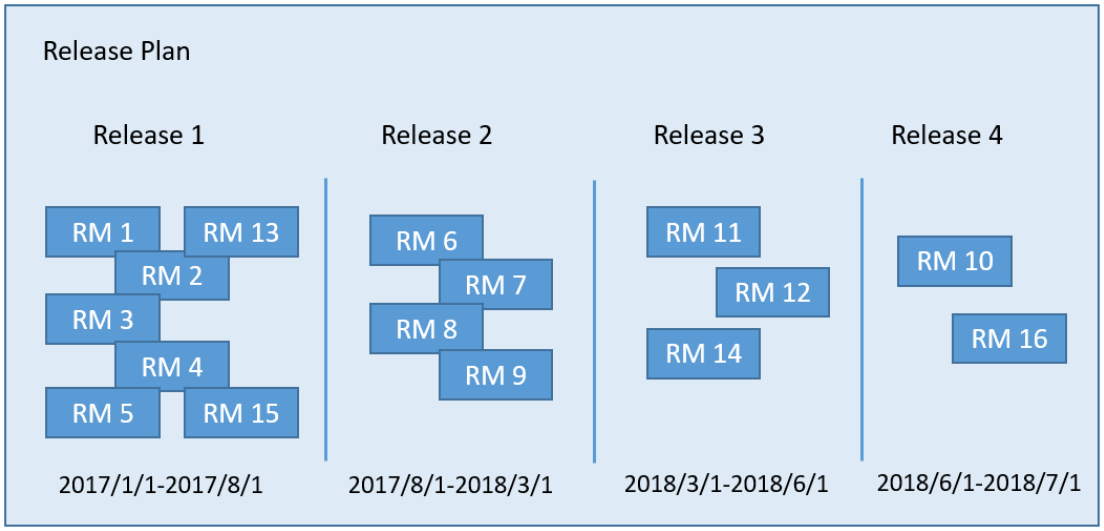
Picture 3-1 Business architecture diagram

4.Releases

EXTERNAL ID	ITEMS	DESCRIPTION	DATE
RM1	Course code matching	The function of add and delete course, matching the course information to unique course code	2017-01-01 – 2017-02-01
RM2	Course material management	The function of add, edit, delete, upload, download of course material	2017-02-01 – 2017-04-01
RM3	Course assignment management	The function of add, edit, delete, upload, download, evaluate, give feedback of course assignment	2017-04-01 – 2017-06-01
RM4	Course calendar	The function of establish, edit, delete the course calendar	2017-06-01 – 2017-07-01
RM5	Course participants management	The function of add, delete, check course participants personal information	2017-07-01 – 2017-08-01
RM6	Personal mailbox	A mailbox that can send, receive message with teachers and other students	2017-08-01 – 2017-10-01
RM7	Course chatroom	A chatroom esablish for every course for teacher and student communicate instantly	2017-10-01 – 2017-12-01
RM8	Course discuss group	A BBS establish for every course for teacher and student communicate under a certain time lag	2017-12-01 – 2018-02-01
RM9	Notifications function	A function that support to remind several information about course by send message	2018-02-01 – 2018-03-01
RM10	Language library	A library that has different language for user to choose	Future
RM11	Document storage station	A station that allow teacher and tudent store document on cloud database	2018-03-01 – 2018-04-01
RM12	Personal calendar	The function of establish, edit, delete the personal calendar	2018-04-01 – 2018-05-01
RM13	Personal information	The function of add, edit, delete several personal information	2017-01-01 – 2017-03-01
RM14	Teaching evaluation	A evaluation system for evaluate the teaching level of the course	2018-05-01 – 2018-06-01
RM15	Assignment evaluation	A evaluation system for evaluate the assignment grade	2017-06-01 – 2017-08-01
RM16	Exam evaluation	A evaluation system for evaluate the exam grade	Future

Picture 4-1 platform requirement package

The picture shows the specific data of every module need to achieve, every module is one of the platform's function. All these will be assigned into 4 release as follow:



The first release will finish the course information platform, in order to ensure the system can successful run when it release, so at this stage we also completed 2 module from the personal information platform and assessment platform, to ensure that at the end of the first release, our products have already begun to use.

The second release will finish the module from communication platform, after finish this part, our system will provides a variety of ways to let students and teachers interact, so as to promote the teaching quality.

The third release will finish some personal information management function, which can improve the usability and user experience of whole system.

The last release is very short, this stage we will pay more attention on fix some bugs, and according to the circumstance to decide whether to implement RM10 and RM16, at this stage, the two module may only be able to achieve one, we will get the feedback according to before release for further consideration to decide.

5. Release Planning Strategy

5.1 Release Iteration Planning method

For the release planning, I choose the method of Release iteration planning method to use.

Because our team is divide according to the functions, rather than the project. That means, a team dedicated to a particular skills work, rather than a team dedicated to a single sprint work. Because of the division of team, there often involves the work handover between the team and team during project, and this working mode is throughout the entire project. Compared to a team dedicated to a sprint such division of the pattern, according to the division of functions of the

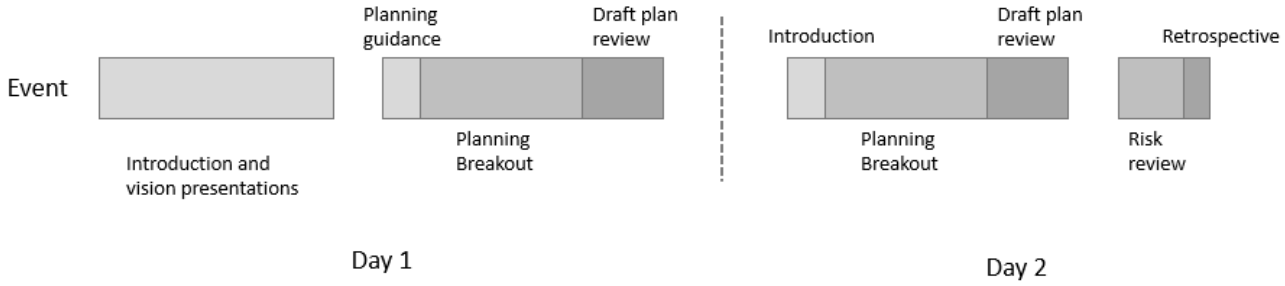
pattern is likely to occur because too little communication between team that lead to the entire project while in iteration model, but in fact is run as the method of the waterfall. As Ville mentioned in the article [1], their project first 6 months, almost don't has any practical development. Because in the early period of the project, all the work is focused on the planned on feature level, and the development work is starting after the whole design level finished, so until closer to the release date we can see a prototype, because we can't forecast before product development start.

In order to solve this problem, the Release Iteration Planning method mentioned in a way which called Release Iteration Planning events, and by using this method, can solve the following problems:

1. More communication between product management and development organization.
2. More transparency of development progress for the product management.
3. More coordination between the development groups, especially between the back-end and front-end teams.

Release Iteration Planning events will hold when the release start or finish, even can hold during the release if it is possible.

Event will continuous 1-3 days, it will be adjusted according to the project schedule, in the process of the event, all of the team and part of the stakeholder will be involved, in after the start of the Introduction and presentations, the team will be disrupted, and according to this target group to make a discussions, it is a process we call that breakout. After the breakout, each group will give a draft plan review, and all the team together to discuss again, the process will be repeated until all the members agree the plan will hold the final plan review, each group will give the plan for release and risk assessment at final plan review. The Iteration planning event process shown as follow:



5.2 Requirements prioritizations method: RICE

RICE is a simple scoring system for prioritization requirements, RICE was used to assess the four factors of the project requirements of the acronym: Reach, Impact, Confidence, and Effort. It put forward by Seam Mcbride [2] and practice in specific projects first. I will introduce this method as follow:

Reach: Reach is measured in the number of people/events per time period. That could be "transactions per month" or "customers per quarter". For this, use real measurements from the product metrics instead of pulling the numbers from hat.

Impact: To assess the impact degree of the individual requirement, different teams might differ in understanding of the impact, for example, the author argues that "when you have the customer

contact the project, it can provide how many conversion?"[2] It is a measure of the impact of the conditions. Other teams may also have to replace with other indicators, such as "improve utilization rate," or "maximize customer satisfaction". Because it is difficult to measure precisely influence, so the author set up several weighted items: 3 represents "major impact", 2 represents "high impact", 1 represents "medium effect",0.5 represents "light", and minimum of 0.25 represents "slight". These numbers will be graded as a weight value and multiply with other assess value to obtained evaluation results.

Confidence: When project could have huge impact but don't have data to back up, confidence can control that. Confidence is a percentage, and the author use another multiple-choice scale to help avoid decision paralysis. 100% is "high confidence", 80% is "medium", and 50% is "low".

Effort: Quickly and have impact with the least amount of the effort, estimate the total amount of time a project will require from all members of team: design, product, and engineering. Effort is estimated as a number of "person-months" – which means the work that one team member can do in a month.

Combining factors to get a RICE score:

When we calculated the above four impact factor score, we can through the following formula to calculate the Rice score:

$$\frac{\textbf{R}\text{each} * \textbf{I}\text{mpact} * \textbf{C}\text{onfidence}}{\textbf{E}\text{ffort}} = \textbf{RICE SCORE}$$

Compared with other methods of prioritization, I think the RICE grading system is more perfect, it from the different perspective of roles to evaluate requirements, the Reach and Impact assessment from the customer perspective, the Confidence and Effort from the develop team perspective of evaluation, not only takes into account the influence of customer, but also consider the time cost and feasibility of the develop team.

At the same time, the method of scoring system calculation formula is simple, not too complicated when processing data, there are some prioritization methods due to consider the impact factor is too much, calculation requires huge time, for the large scale requirements of processing is very inconvenient, using RICE, our team can do the prioritization during Release Iteration Planning event, after that, through the Excel or other tools for calculation to get the RICE score.

6. Execution of Release Planning

6.1 Prepare for release planning

From Github we got totally 209 different requirements from six different perspective of stakeholder, but much of the requirements are repeated, at first I and other classmates tried to classify these requirements according to their action to make 12 action package, and according to

the category to prioritization and development.

But after my management, I found that it is not realistic, as if in accordance with the classification, then the product in the first release is very difficult to have a complete prototype which can already be used, so after that I integration the requirements again, divide according to behavior. I set up the requirements which relate of action into two package named students' behavior and the teachers' behavior, and these actions will be made up from four different platform which provides functions to achieve specific user behavior(architecture can be found in picture 3-1), every time each platform functions fully achieve represents one release, which means the system function has a huge improvement or change, and prioritization will independently according to the requirements of 4 release contains, that is to say, even if some feature in personal information platform priority in this package is very high, it may not be developed in the first release iteration. Of course, in order to guarantee the release for the first time the product can be used normally, some Personal information platform and the assessment platform functions will be ahead of time, and this also will be graded according to requirement priority decision.

Now all the function requirements will match into 16 different package which I mention in release part (package description can be found in picture 4-1). Also, I removed some duplicate requirements. Non-function requirements is hardly to judge implementation time, I have temporarily put these requirements as required in the final release testing requirements, to greatest guarantee the products of our final release product integrity, rather than complete all the requirements.

6.2 Overview of release planning

The whole project is divided into four release process, is the first release system basic function set up stage, we will implement the Course information platform which have five Packages of requirements, specific requirement prioritization will according to the RICE grading scores, we will first finish high score requirements, in order to prevent appear at the end of the release, because of time management or technical problems lead to core functions cannot be achieved. In this part, students and teachers in course management, teaching and learning functionality will implementation, in order to protect the integrity of the system at the same time, some related to personal information management and the assignment requirement will be done in the same period, for example, the basic login, registration, personal information add, edit, delete, assignment evaluation system, etc.

The second release will implement communication platform function, mainly includes the function of email, instant communication (chat room) and non-real-time communication (BBS), also increases the function of notification, contains exams remind, the assignment deadline remind, feedback remind, custom remind, etc. The join of this part of our system make a higher promotion in the communication, to enhance the students and teachers interactivity.

Third release will realize personal information platform and assessment platform in the rest of the function, at the same time, at this stage we will start to measure the non-functional requirements, because the system's main function has already implementation, after that, our working will concentrate on enhance the system compatibility, efficiency, resistance to pressure and other issues.

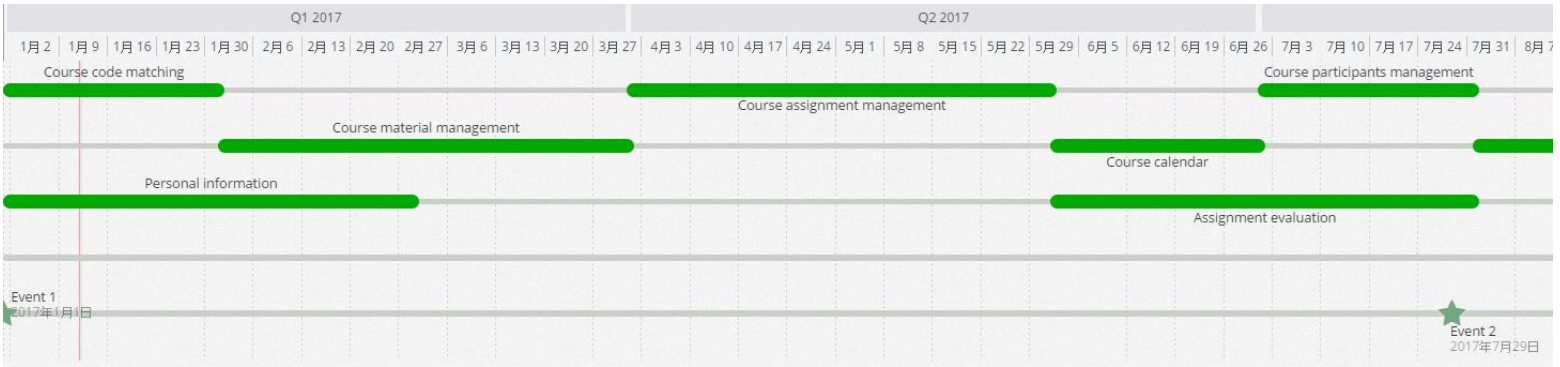
The final release time is very short, we will have the last audit of lower priority requirements

which not be done in former release is it necessary to implement, and whether can be done in last release. Also, according to the actual situation, we need to carry on the test and preparation of final version release.

7. Result

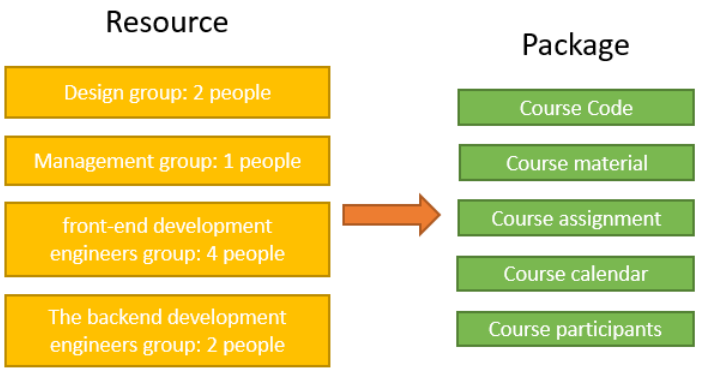
7.1 Release 1

The first release will continuous 7 month, which include 2 Release Iteration Planning events.

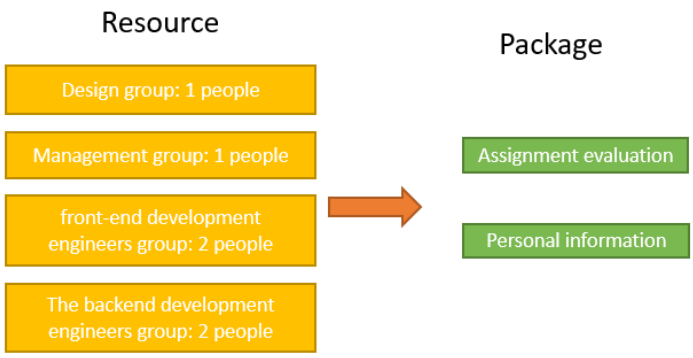


Picture 7-1 Timeline of release 1

In this release, a part of the package is in parallel, so I will make each team divided into two parts, a group of people responsible for the Course information Platform, a group of people responsible for the Course information Platform and assessment Platform function which need to implement in advance.



Picture 7-2 Human resource of release 1



Picture 7-3 Human resource of release 1

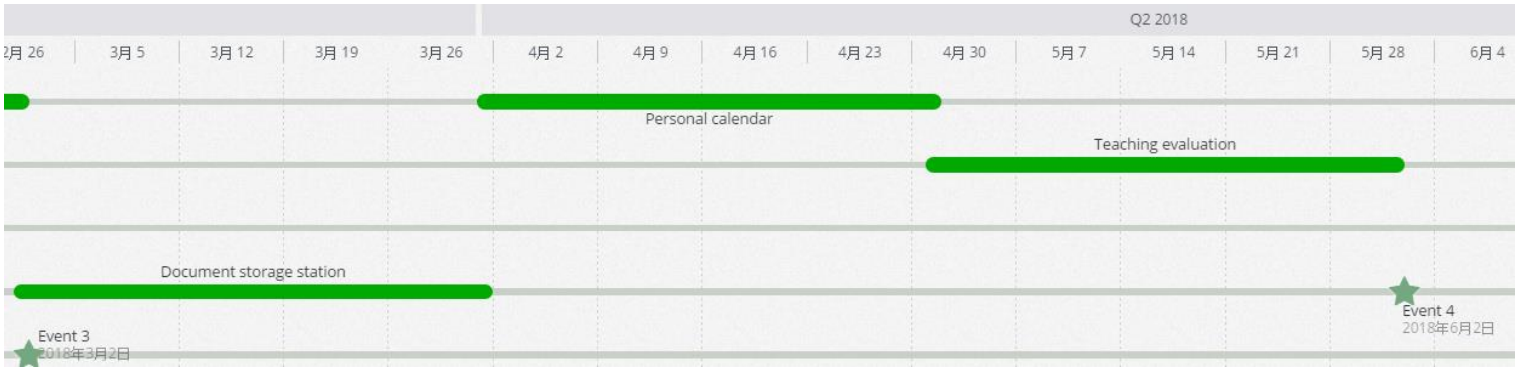
Part of funds, at present our company a total of 15 employee, assuming an average employee wages of 15,000 kronor per month, in the seven months later, the human cost of 1,575,000 kronor, assuming 50,000 Swedish kronor per month as office space and material consumption cost, after July, cost of office space of 350,000 Swedish kronor. The total cost is 1,925,000 Swedish crowns, which spending money belongs to the angel investment manageable, after finished the first release, we will be looking for a new round of financing, so after the later release funds is unable to estimate.

7.2 Release 2

Picture 7-4 Timeline of release 2

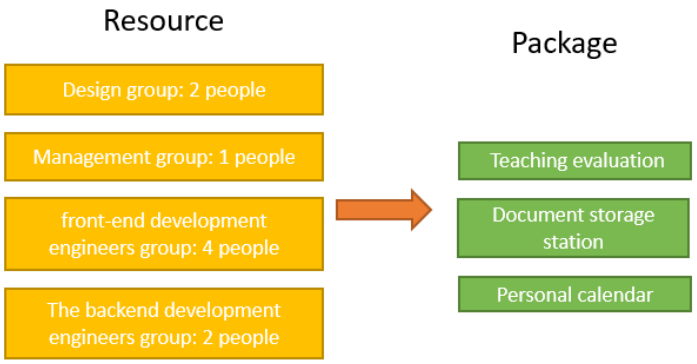
The second release will continuous 8 month, this part of the work was not parallel, so the whole team will be in accordance with the normal iteration to participate in the project, I will no longer drawing picture to show that.

7.3 Release 3

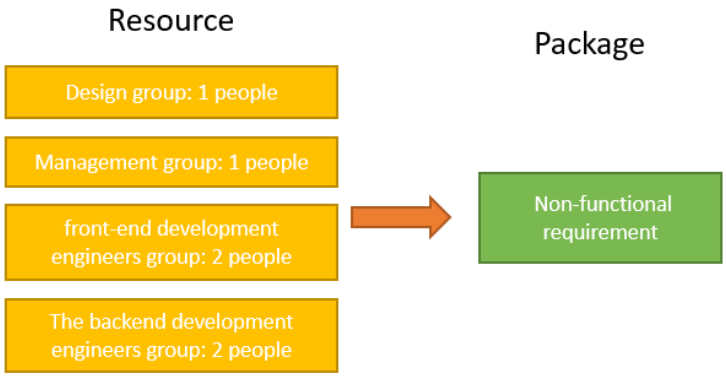


Picture 7-5 Timeline of release 3

The second release will continuous 3 month, this part of the work was not parallel, but because some of non-functional requirement need to be considered, I will make each team divided into two parts, a group of people responsible for the functional requirement development, a group of people responsible for the non-functional requirement development



Picture 7-6 Human resource of release 3



Picture 7-7 Human resource of release 3

7.4 Release 4

Final release only 1 months, mainly used for testing the stability of the whole system, and ready to launch a series of issues. In the platform package, there are two package didn't finish

before 3 release, we will through the event 4 to assess whether it need to be done this release or move this 2 package implementation in future. At the same time, the stage is also contains the final summary of the event 5, since there is no specific plan, we cannot give timeline.

Reference

[1] Ville T. Heikkilä a, Maria Paasivaara, Kristian Rautiainen, Casper Lassenius, Towo Toivola,Janne Järvinen, Operational release planning in large-scale Scrum with multiple stakeholders – A longitudinal case study at F-Secure Corporation, Department of Computer Science and Engineering, Aalto University, PO Box 15400, FI-00076 Aalto, Finland
[2] SEAN MCBRIDE, RICE: Simple prioritization for product managers, Inside intercom