Kandidatnummer: 1048

Emnekode: BU5300

Emnenavn: IT Project Management

Individuell hjemmeeksamen

Høyskolen Kristiania

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Content

1.1 Type of information system project and lifecycle

To develop the health and fitness tracking app, I think an incremental model with an object-oriented approach would be great. With an incremental model, a project is broken up into smaller, more manageable parts, each one delivering a functional part of the final product. The object-oriented paradigm uses objects and classes to encapsulate data and behavior in code.

I think this is a good approach so the team can focus on specific features of the app, and they can design and develop them modularly and reuse them. As well as the team adapts to changing requirements and stakeholders' feedback, the incremental approach allows more flexibility, while the object-oriented approach creates reusable and maintainable code. This gives the development team certain features of the app to develop and deliver on time, like user registration, login, activity tracking, workout tracking, and nutrition tracking. To encapsulate the data and behavior for each feature, they could design and implement the objects and classes that they need, such as social features. Using an incremental model can also lead to a quicker, more efficient, and better quality product. Combining the two approaches makes it easier to have an efficient and effective development process. The disadvantage of the incremental model is among other things, for example it needs good planning and a well

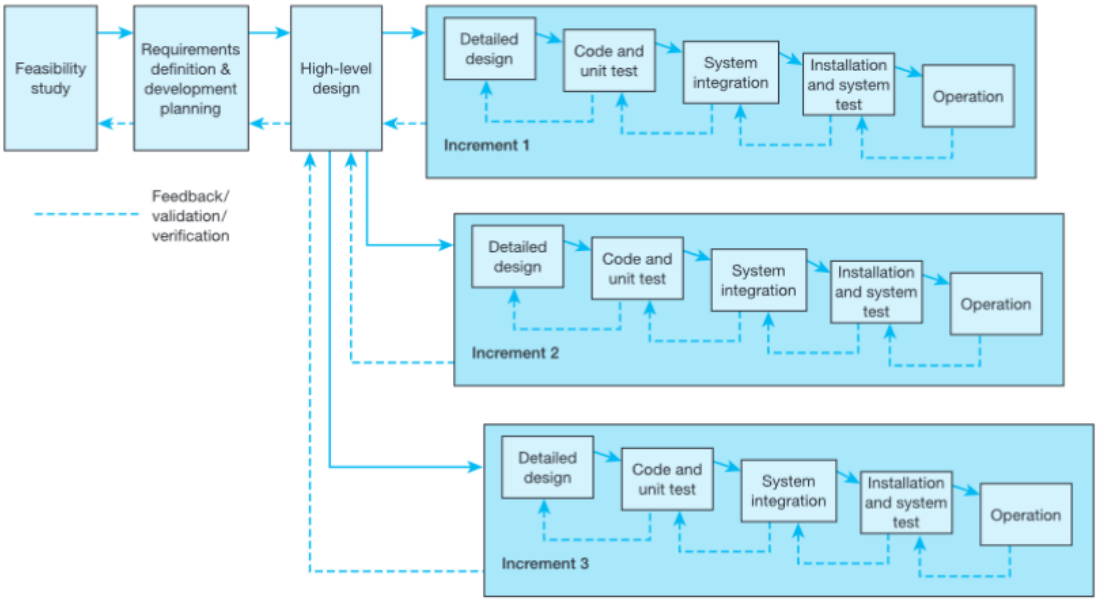


Figure 6.4 The incremental model

defined module interface, this is in total a higher cost. I am not choosing the agile model based on the project team size. This is important to avoid losing track with too many iterations.

1.2 Details and constraints

Time	12 months excluding weekends and public holidays = 252 days = 2064 hours
Budget	30 million NOK = 14.534 NOK pr working days
Scope	Many features and functionalities need to be designed, developed and tested

This project has a limited timeframe to deliver within 12 months, the company makes a significant investment with this project, budgeting 30 million NOK.
Since it requires a highly skilled dev team in mobile app development, software development, UX design, wearables technology and data management to keep the budget. I know that the constraints related to time, budget and scope will need to be carefully managed to ensure a high quality and successful delivery of a final product with a balance of planning, monitoring and adaptation.

How to handle requirements for the project;

Manage Time

By breaking down the project into small steps, it makes it easier to manage the development process and to make sure each phase is completed on time. To stay on track, setting milestones and deadlines will clearly help the development team. Prioritize features to ensure that critical features are developed first. The development team should focus on the most valuable features first.

Manage Budget

Monitor expenses throughout the project to identify budget overruns early and take action. Developing cloud-based tools will identify cost-saving opportunities without compromising

quality, so that the development team can identify cost-saving opportunities without sacrificing quality. Vendors and suppliers should be negotiated well in order to maintain the budget.

Manage Scope

Having clear requirements will help the development team focus on the most important features and functionality of the app. Make sure each component or feature of the app is developed independently so we do not slip into scope. If we provide stakeholder feedback regularly, we can ensure that we are delivering what our stakeholders want, and do not go over budget.

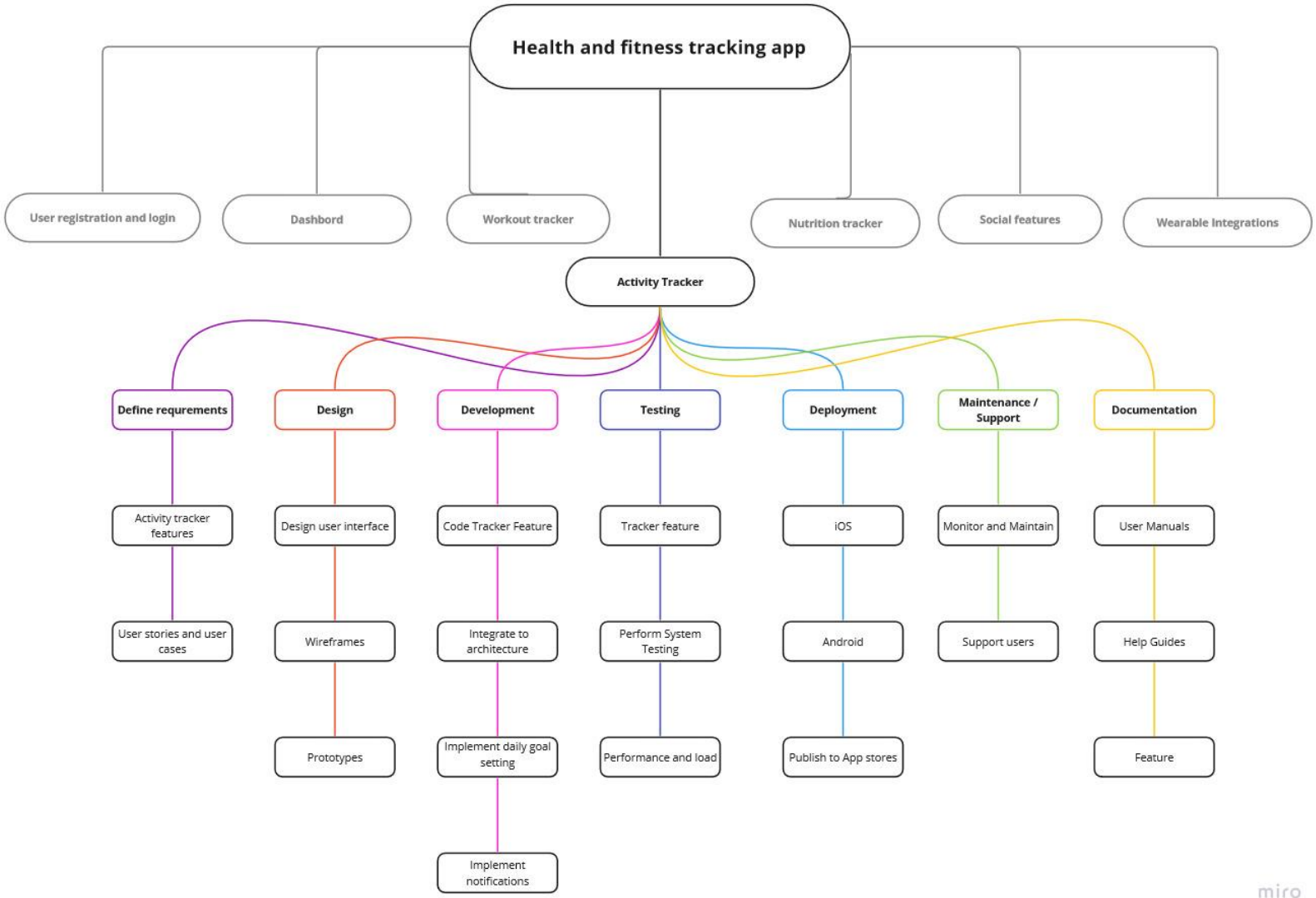
Required technical skills

As part of the team, members must possess experience in Java, Swift, and React Native frameworks as well as the design, development, testing, and deployment of mobile apps on iOS and Android platforms. This app integrates fitness wearables such as Fitbits and Apple Watches, so knowledge of wearable technology and experience integrating with third-party APIs are essential. It will track and store data related to activity, nutrition, and fitness goals, we need expertise in database management. The success of the app depends on its user experience, which includes wireframing, prototyping, and testing.

1.3 Identify the cost for the project

Recurring costs	One-time costs
Staff salaries	Design tools
Marketing	Hardware
Cloud-based hosting services	Communication tools
API and library fees	Software licenses
Support and maintenance	API and library fees

1.4 WBS (Work Breakdown Structure)



1.5 Estimate method

Probably I should have used the FPA method to estimate this project, since I have an incremental model with an object-oriented approach. But that was too complex to achieve, so I ended up using the programming method. My argument for using this method is by assuming that the great and magical experienced development team has a history of data from earlier projects that will assure an established baseline for the tasks estimation. And this estimation could be adopted to the other tracking features in the application.

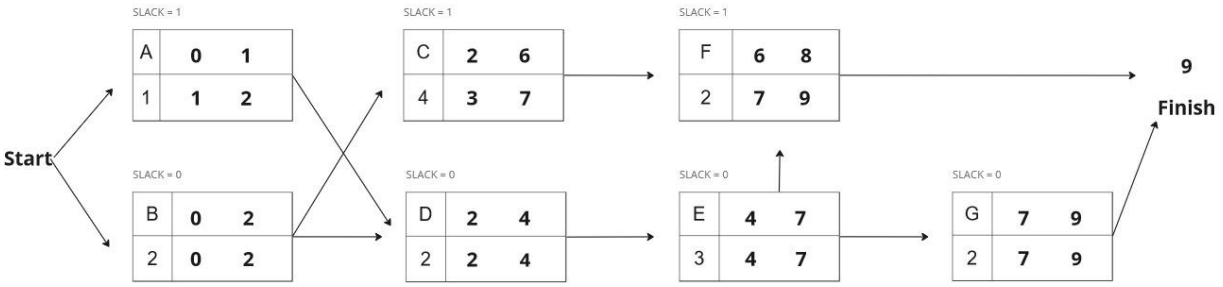
	Work Package	Size	Simple	Avrage	Complex
A	Define requriments	Small	5	**5**	10
B	Design	Medium	5	**10**	15
C	Development	Large	10	15	**20**
D	Testing	Medium	5	**10**	15
E	Deployment	Large	5	10	**15**
F	Maintenance / Support	Medium	5	**10**	15
G	Documentation	Medium	5	**10**	15

1.6 PERT Chart (Programme Evaluation and Review Technique)

It is very hard to estimate without having much experience with developing large projects even considering that the team on this project is highly skilled developers. It could be that I have underestimated the time or overestimated it. But I do get the concept of estimation with the PERT method. Considering that the whole project has 12 months and could be breaking down all the single features to approximately 2 months (8 weeks), this estimation is close.

Constructing a network diagram (activity-on-node format)	ref attachment
Perform forward and backward passes	ref attachment
Determine project completion time	9 weeks to finish
Calculate slack values	A = slack 1, B = slack 0, C = slack 1, D = slack 0, E = slack 0, F = slack 1, G = slack 0
State the critical path	The critical path is B, D, E and G

ACTIVITY	A Define requirements	B Design	C Development	D Testing	E Deployment	F Maintenance / Support	G Documentation
Immediate Predecessors	---	---	B	A,B	D	C,E	E
Expected Time (weeks)	1	2	4	2	3	2	2



1.7 Non-functional requirement

The Activity tracker should have this non-functional requirements	
Performance	Boost network speed and application response time to the tracker to user input within 1 sec. Whenever possible, avoid app crashes when tracker is used. Reduce energy and memory usage on mobile.
Availability	Providing high availability by responding quickly to server failures. The system should have a 9.99% uptime. Availability with cloud computing to ensure scalability, reliability and availability.
Security	The application should implement two factor authentication. Whenever user data is in transit or at rest, it should be encrypted.
Usability	A simple, intuitive user interface is key. Each feature should come with clear and concise instructions.

1.8 Analyze key stakeholders

As the sponsor and client, **the Nordic health and fitness** chain has a lot to do with making the project successful. It's their power to provide funding for the project, set the project scope and requirements, and approve or reject it. The development team's priorities and approach will be shaped by their vision and goals. And in Norway's highly competitive fitness market, it can give the Nordic health and fitness chain a competitive edge.

Fitness enthusiasts, like gym members, will use the app, so their feedback and opinions will be crucial to its success. It's up to them whether they want to accept it or reject it based on its

functionality, features, and usability. They have an influence on the development team along with
giving valuable feedback on the app's features, user interface, and overall user experience.
If the app meets their expectations, they're likely to become Nordic health and fitness fans.
Another stakeholder are **wearable tech manufacturers**, like Fitbit and Apple Watch, also have a say in it because they provide the technology and APIs that integrate with the app makes them powerful. If the app works with these wearables, they'll make this project even more popular, which is good for wearable tech manufacturers as well. Sadly, if it doesn't work, it could ruin both the wearables' reputation and the app's revenue.

1.9 Risk analyze

Before doing any risk management, it's ideal to identify, engage, and analyze together with the stakeholders, but it's fine to do a high-level risk assessment with the core team before meeting with all key stakeholders as well. To set a risk level, it's important to understand the likelihood that the risk will occur and the severity of the project if it does. This allows us to pick a strategy for managing the risks. To have this knowledge over likelihood, it should be a dedicated project manager with a lot of experience who handles this task. You'll need to keep your sponsor and stakeholders updated on the progress of implementing risk responses and follow up with response owners to make sure you get it done.

Risk 1-5	Probability	Severity	Comment
Performance	3	4	Having a slow or unresponsive app can frustrate users and discourage them from using the app. It is possible for performance risks to appear because of poor database design, inefficient code, or a lack of testing. Users may lose interest in the app if it responds late or is unresponsive.
Availability	1	4	A lack of server capacity or lack of redundancy could cause user dissatisfaction and loss of users if the app is unavailable due to technical problems, server outages, or network disruption.
Security	2	5	A security breach could fatally harm users' privacy and trust. The app collects and stores sensitive user data. Poor data encryption, unauthorized access to the database, or third-party integration vulnerabilities could pose security risks.
Usability	3	3	If users cannot use the app easily, they may switch to competitors' apps. Bad UX design or poor user testing could cause usability risks.

1.10 Risk strategy

Risk	Response	Strategy / Action
Performance	Accept	Run load testing before launch. Make sure to have time and budget to handle if the risk appears. Take action with the IT support and software team.
Availability	Accept	Implement cloud-based infrastructure. Make sure to have time and budget to handle if the risk appears. Take action with the IT support and software team.
Security	Avoid	Do external Black-box penetration tests on service with the aim to find and exploit vulnerabilities in the system as an outsider to avoid attacks by hackers.
Usability	Mitigate	Testing and prototyping to prevent problems. Getting to know users' standards of attitude through interviews / user tests before launch.

Bonus Task - Reflection

Overall, the lectures have been very good, I am satisfied with the approach that has been used to introduce me to IT project management, and this especially considering how much theory and method this subject contains. The tutor has nevertheless managed to keep it interesting and instructive, and it is quite clear that a lot of experience is required, both bad and good, in order to master the position of project manager. In addition to this, I would like to highlight lecture 10 with chapter 20. Managing change, chapter 22. Managing the team and chapter 23. The project manager.

When it comes to IT and managing change, this is not big news to me or other people who use technology. But I'm of the generation that has followed technology from the late 80's early 90's, and yes, technology has always changed and may be changing even faster now. My point of view is that it can be overwhelming to have to get used to new technology and information as often as we deal with it today. Therefore, it is very instructive to have gained more insight into how the changes are to be dealt with, and as it is in theory, we humans are involved in each step of the change processes. I will take with me a lot of useful things that I will be more aware of in the future, both when it comes to my creating and in order to manage change effectively in processes that I am involved with.

Working in teams is hard, especially if you don't get the chance to choose your team. We did experience that in our first semester. I mean, it was a great “test” but still, it was horrible in many aspects, like defining roles, expecting effort, handling conflicts and so on. At least in the real world you could choose a company to work for, with values and tasks you would like to work with and so on. Chapter 23 has really made me more aware of how teams in IT operate. In most cases, people take on an intact team or maybe team members whose internal resource functions could be supplied to me. And I could be involved in picking new team members from time to time, either from within or outside my organization, to fill a growing need or replace people who leave. But in the end It doesn't matter how I get my team together, whether I choose them, inherit them, or just get them. It's gotta start with a group

of people, each with their own strengths. And everyone's interests, goals, style, and ambitions, all working together by using each other's strengths. The “team spirit” should be common sense, but it is still so hard to find a dream team, there will always be some kind of issues to handle. I am glad this chapter was pointed out, I think the topic will always be relevant in all situations.

And finally but not least chapter 23. Project management. This chapter is more or less the chapter that tells whether I think project management is exciting and if I could imagine working with it in the future. And the answer to that is yes, I think it is a very interesting field, but I am a bit overwhelmed by the skillset with an outside perspective and with the comprehensive psychometric tests performance. But I do understand that it is absolutely necessary to have the right person in this job. There is a lot at stake, and it requires a lot of ability to achieve really good management with, among other things, integrity.
I am sure that this is a job that is very rewarding in terms of personal development and interdisciplinary mastery with teams and collaborators. But it is clearly not a position that suits everyone.

References

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