

# Accessing Automated Teller Machine without using Cards

## Assignment 2 - Project Management Plan

### Advanced Software Project Management (PA-2513)

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## 1 Work division

The work done is distributed among the group as mentioned in Table1.

S.No	Name	Idea Creation	Documentation
1	Akhil Kumar Daida	20%	20%
2	Apuroop Paleti	20%	20%
3	Pavan Sutha Varma Indukuri	20%	20%
4	Sai Srinivas Bodireddigari	20%	20%
5	Shiva Bhavani Reddy Charla	20%	20%

**Table1: Work division among the group members**

## 2 Introduction

The project at hand is to create a new feature to the banking system by improvising cash withdrawal through an Automated Teller Machine (ATM), so that transactions can be done without the ATM card. Generally withdrawing cash requires an ATM card or a debit card which, when inserted in the machine, allows the person to access his account and perform transactions. Our system provides a new feature where a person can access his account through an ATM without his card. This feature integrates the BankID application in mobile phones with ATMs to access the account and perform transactions. BankID is a mobile application that allows users to authenticate their accounts remotely using their mobile phones[1].

This document gives an overview about the proposed feature to the system and how we plan to manage the activities to develop the feature. The document details the Project Management Plan to develop the feature. The entire project is divided into two sprints each one lasting four weeks. Scrum artefacts like product backlog, sprint backlog and burndown charts are used. A Gantt chart is created for the entire release showing how the project is executed. The project management plan consists of two sprints. Burndown charts are created for the entire release as well as the second sprint. Finally, quality criteria and risk plan are presented.

## 2.1 Scope:

The feature which is being developed is an alternate way for accessing their account in an ATM. This feature can be used by the users having smart phones with BankID application installed and registered with their Personal Identification Number.

## 2.2 Objectives:

- To develop a feature which can be efficiently used by the people.
- To meet the satisfaction level of customers and clients.
- To improve the existing user interface of the ATMs.
- To gather feedback and make necessary changes to develop the feature according to the needs of the customer.

## 2.3 Assumptions:

Before beginning the project, we made a few assumptions:

- A1: All the customers are familiar with the BankID application.
- A2: BankID application services are up to the mark.
- A3: The team members involved in the project have the required knowledge and necessary technical skills.
- A4: The team members have experience working with banking systems.
- A5: All the team members contribute equally for the development of the project.
- A6: The language used in the ATMs is either English or Swedish.
- A7: There are enough funds available for the completion of the project.
- A8: Banking organizations are willing to include the software in the ATMs.
- A9: The product supports all platforms and operating systems.
- A10: All team members are available till the end of the project.
- A11: Services provided by third party organizations are managed and maintained by them.
- A12: There will not be any issue with the team members as they are sufficiently motivated and there will not be any change in the team till the project is completed.
- A13: Resources are sufficiently provided.
- A14: The security of banks is not breached.
- A15: The working days are week days only.

## 3 Stakeholders

Stakeholders are those who are affected by the project that they are involved in. They play an important role in development of the project. It is the need of the stakeholders on which the entire project is dependent on. The project team should keep in mind all the needs of the stakeholders and their positive and negative influences and strive to make a satisfying product.

The needs, positive influences and negative influences of the stakeholders are as mentioned in Table 2.

S.No	Stakeholder	Needs	Potential Influences	
			Positive	Negative
1	Customers/Users	Efficient use of banking services	Customer feedback influences the project team to give maximum effort.  New features can be added to future upgrades of system.	Insufficient skill and knowledge about the system might affect project quality and result in negative reviews.
2	Banking Organization	Attract new customers	Providing access to security details to make the system work	Lack of trust might result in project failure
3	ATM management	Authentication made easier	Easy instalment of additional features to the ATM	ATM connectivity problem
4	Project Team	Delivering Competent feature	Added efficiency and productivity of the system  Improving user friendliness	Lack of creativity, team coordination and shortfall in effort
5	BankID Services	additional users	Providing platform for transactions	Lack of support will increase complexity in project

Table2: Stakeholders' needs and influences

## 4 Product Backlog

### 4.1 Feature 1: Access ATM's using mobile BankID

The basic idea behind this feature is to allow the user to access the ATM services without using a card. Generally, an ATM card or a debit card is used to authenticate the user to access their account and utilize the ATM services. In order to widen the usage of these services and in case of any damage to the card or loss of card or an emergency situation where the need of money is urgent, it is better to provide and facilitate the users or customers with an alternative solution to access the ATM. Since BankID is one of the most used applications for authenticating money transactions in mobile phones, its services when integrated into the ATM would enhance the functionality. The user can access the services provided by the ATM by selecting the BankID option on the ATM machine which would lead to login page where users' Personal Identification Number must be entered. The next step would be to open the BankID app in the phone where the user credentials must be entered. Now the user is authenticated and he is allowed to select various accounts connected to his Personal Identification Number followed by its respective PIN code. This will allow the user to access the services provided by the ATM.

## 4.2 Feature 2: Using QR code to authenticate the user, to allow quick access to ATM services

Authentication of the user can be made much simpler by using the concept of QR codes. The user is given an option to either enter their personal identification number or scan the QR code to authenticate himself. This option is to be selected in the ATM. When selected, the ATM generates a QR code with the encrypted information about that particular ATM machine. The BankID application is also given an additional feature to scan the QR code that is generated by the ATM machine and is displayed on the ATM screen. This authenticates the user without entering his personal identification number in ATM. The QR code displayed on the machine is scanned using the scanner in BankID which reads the distinct code of the machine and connects the users' personal identification number to that machine. Now, the user is authenticated to access his account and use the services provided by the ATM.

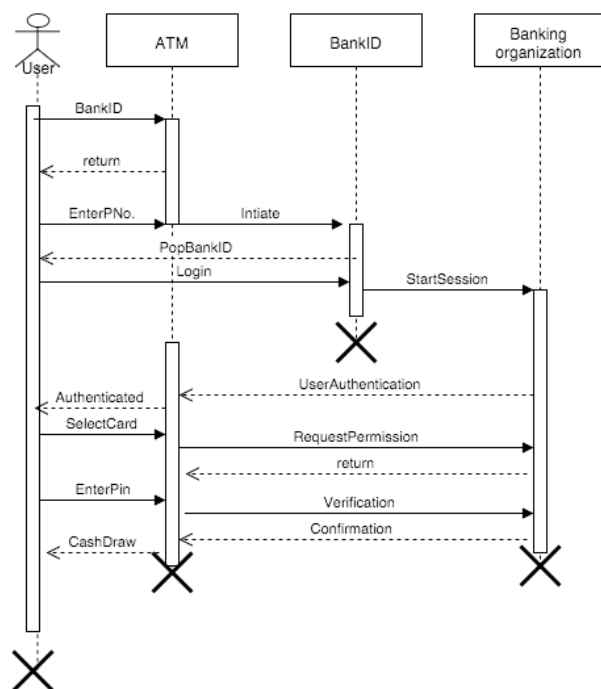


Figure1: Sequence diagram for feature 1

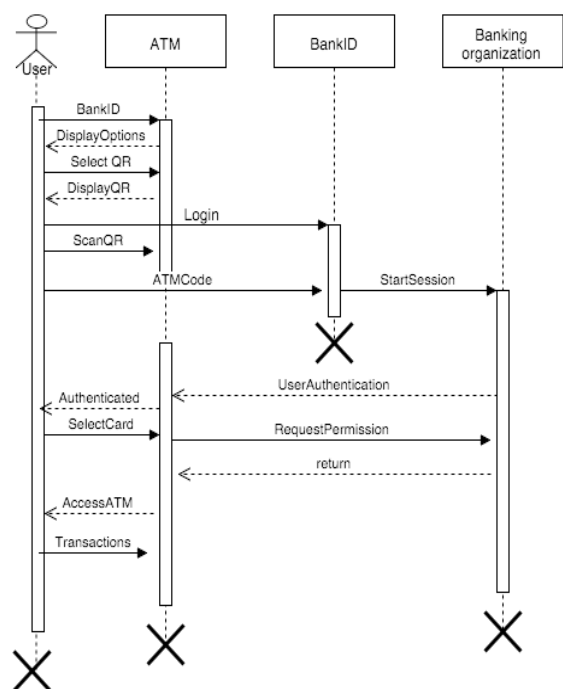


Figure2: Sequence diagram for feature 2

## 5 Sprint Backlog

Scrum is a process of development generally used for small teams. It involves short iterative phases called sprints. Tasks involved in the development of the project are distributed among the team by themselves[2].

Planning poker is conducted during the preliminary phase to estimate the effort for various activities. It is evaluated by the members of the project team taking into consideration the various aspects which are mentioned while discussing the factors. Planning poker also helped the team to prioritize the features based on the importance and the availability of the resources while developing.

The top feature, which is accessing ATMs using BankID is considered for first sprint and the QR code feature is dealt in the following sprint. Each sprint can handle only one feature due to the complexity of the features mentioned which include integration of various softwares and database connections which require ample time to make them work perfectly.

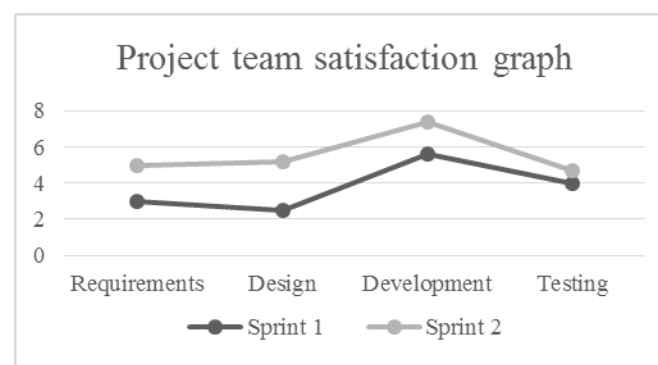
The overall team satisfaction towards the project plan during different phases is recorded and discussed during the meetings. This helps the team members facing problems while performing their respective tasks to overcome their faults and to catch up if they are lagging behind. The overall sprint graph is used at the initial planning of the following sprints to analyse pitfalls in team performance at various stages. Certain measures

are taken to increase the performance to some extent. As shown in the figure 3, there would be a clear increase in satisfaction levels of the team during the second sprint.

The requirements necessary for accomplishing the tasks are considered in the sprint backlog. The initial estimates of the requirements might vary from the actual outcome but the team members must be capable of managing the given tasks by distributing the work accordingly. To complete the task within the time limit for each sprint, which is four weeks, is important and the team members should work overtime when necessary and help each other with their tasks. The estimated effort for various phases in the project management plan is shown in the table below (Table 3)

S.No	Activity	Effort Estimate (days)	
1	Requirements analysis	4	
	<b>Iterative process</b>	<b>Sprint 1</b>	<b>Sprint 2</b>
2	Analysis	2	2
3	Design	3	3
4	Development	6	6
5	Testing	5	5
6	Implementation	3	3

**Table 3: Effort estimates**



**Fig 3: Project team satisfaction graph**

## 6 Gantt chart

Gantt chart illustrates the project schedule. An overview of the activities involved in the project along with the time period of the tasks is provided. The Gantt chart is shown in Appendix A

## 7 Burn Down chart

Burn Down chart is a graphical representation of total work left to time. It is used to predict the total time required to complete the project. The graph is drawn based on the effort estimates which are analysed in table 3 by using planning poker. The Burn Down chart for the entire release is shown in Figure 4 and the Burn Down chart for second sprint is shown in Figure 5.

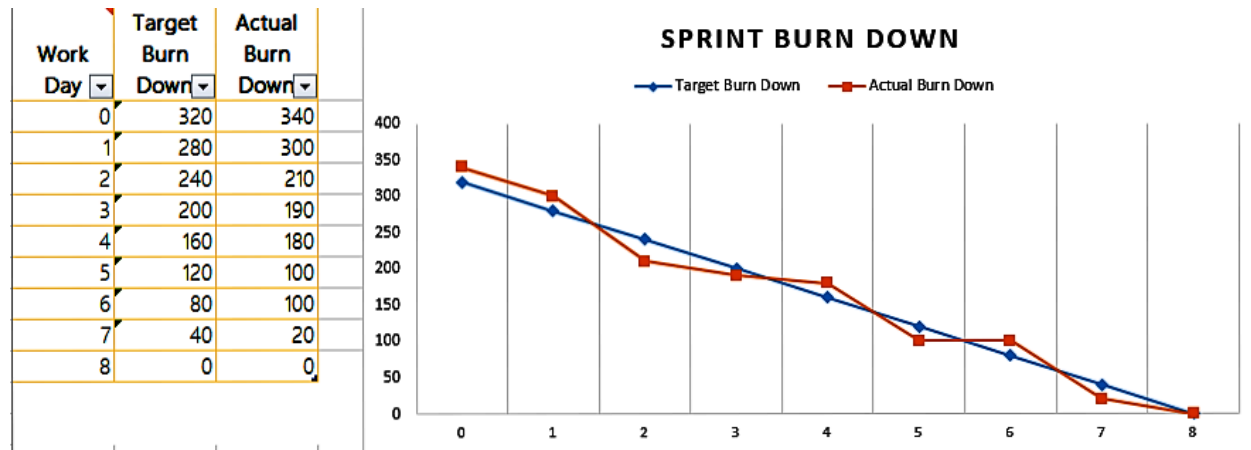


Figure 4: Burn down chart for the entire release

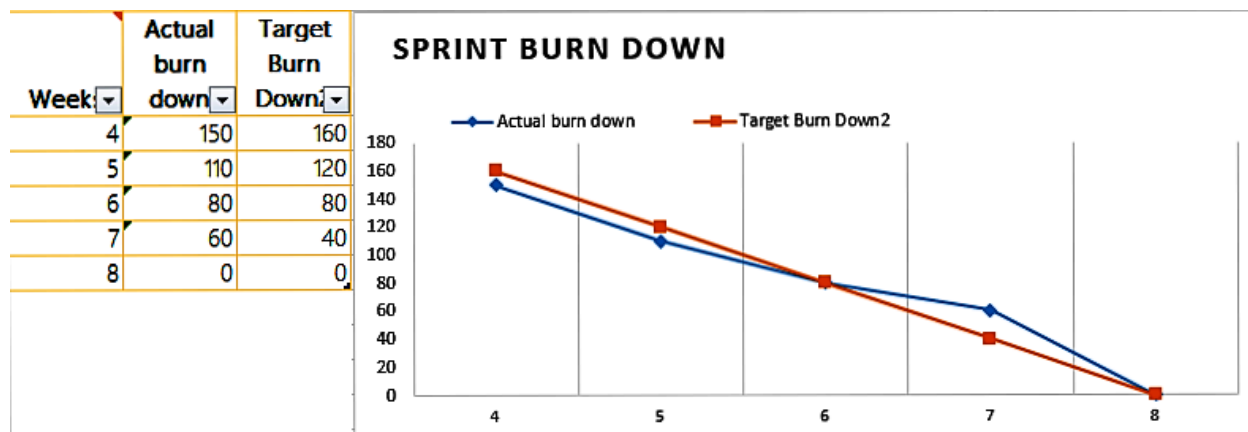


Figure 5: Burn down chart for the second sprint

## 8 Resource Allocation

The resources are properly allocated and the tasks are divided among the team members as shown in Table 5. The team members' experience, their ability to mingle with others, communication skills, and their discipline are all taken into consideration for dividing the tasks. The behavioural statistics of the team members is given in figure 6. The human resources in the team are identified by their respective IDs as shown in the Table 4:

ID	RESOURCES
R1	Akhil Kumar Daida
R2	Apuroop Paleti
R3	Pavan Sutha Varma Indukuri
R4	Sai Srinivas Bodireddigari
R5	Shiva Bhavani Reddy Charla

Table 4: Resource identification

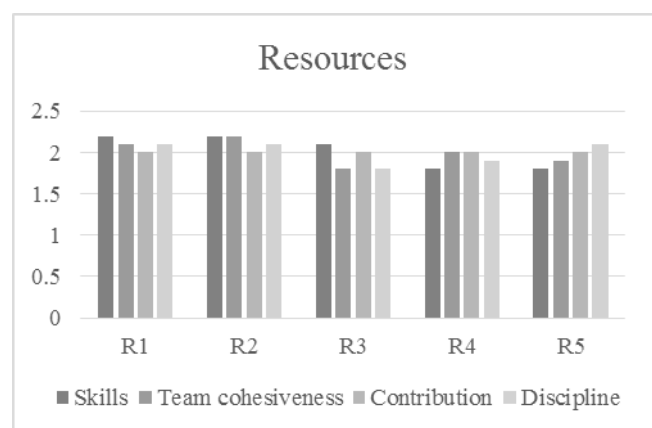


Figure 6: Behavioural statics of the team members.

S.No	ACTIVITY		Resource Allocation
	TASK	SUB-TASK	
1	Requirements gathering	Gathering information about ATM systems and BankId	R1,R2,R3,R4,R5
		Support from BankId	R1,R2
		Support from banking organizations	R3,R4,R5
		Team formation	R1,R2,R3,R4,R5
		Technical and financial support	R3,R5
2	Analysis	Identifying possible updates to the existing system	R1,R2
		Prioritizing the requirements	R5,R3
		Create Software Requirement Specification(SRS)	R2,R4
		Cost and risk plan	R1,R5
3	Design	Conceptual system design	R1,R2
		Pseudo code	R4,R5
		Entity Relation diagrams	R1,R3
		Assessing security risks	R2,R5
		Quality standards	R4,R3
4	Development	Analysing source code	R1,R2,R3
		Test cases	R4,R5
		Build system	R1,R2,R3
		Back end	
		Database schema	R1,R2,R3
		Connection	R1,R5
		Front end	UI
		Deliver system for testing	R2,R4
5	Testing	Test whether system matches requirements	R3,R4
		Create test files	R3,R5
		User manual	R2,R4

		Functionality tests	R1,R3
		Manage test environment	R2,R5
		System, acceptance and security tests	R1,R4
		Develop final version of implementation plan	R2,R5
		Produce Test analysis reports	R3,R5
6	Implementation	Documentation from previous phases is finalized	R4,R5
		Training for using, operating, and maintaining the system	R1,R3
		Brief synopsis of benefits of new system	R2,R5
		Difference between new and old system	R1,R4
		Process to obtain system support	R2,R3

**Table 5: Allocation of resources**

## 9 Quality Criteria

Software quality in the following application is ensured by considering the ISO 25010 standards, as it determines the software quality characteristics[3]. Quality is considered as a factor in every phase of software development. ISO 25010 describes quality in eight factors as follows,

### 9.1 Functional Stability:

To ensure functionality completeness, and functional correctness, the application is run through a series of repeated tests before the final release of the application. After the release of the first feature, responses from people are recorded and analysed. By this, functionality appropriateness is maintained throughout the project.

### 9.2 Performance Efficiency:

Connection and reaction times are measured while developing the application. During the development, optimal ways for connection are chosen for efficient transfer of the information in the application.

### 9.3 Compatibility:

Existing functionality of the BankID application and ATMs is utilised while developing the application. To check the co-existence of the feature with the following application, a series of tests are done at the test execution phase.

### 9.4 Usability:

The application being used is assumed to be well known to the users. To ensure usability of the application, a simpler interface is provided.

### 9.5 Reliability:

The existing application which is being used to provide a feature is presently very reliable as it is running from six years and has a huge range of users[1]. During the development phase it is ensured that the feature being provided is secure and reliable.

### 9.6 Security:

To ensure security of the application, the project is provided with a double authentication. When the user starts the application in the ATM, user is asked to enter the Person identification number and when he selects the name of the bank that is required, user should enter PIN for the respective bank account to successfully complete the authentication.



### 9.7 Maintainability:

At the end of the first sprint, the application is released and a survey is conducted among the users of BankID to ensure its functionality and the system is updated accordingly. The second feature, QR code is an additional update and it does not affect the basic functionality of the first feature.

### 9.8 Portability:

For any changes in the software of ATM's, management organisations will be provided with the updates, thereby eliminating the platform dependency. BankID is available across various platforms showing satisfactory results.

## 10 Risk Management

The possible risks involved, their severity, their impact on the system, and mitigation is elaborated in Table 6.

ID	Risks	Severity	Impact	Mitigation/Reduction Strategy
R1	Connectivity for users to ATM	High	Low	Providing a better and a faster connection through testing a multiple number of times.
R2	Connectivity of ATM to its network	Low	High	As mentioned in assumption A11, it is the responsibility of ATM service management to ensure a good connection.
R3	Server issues	Low	High	Back-up server is provided in case of server breakdown due to high traffic.
R4	Incorrect resource division	Medium	Medium	Planning well in advance about the allocation of all the resources before the release.
R5	Bugs generated after release of the feature	Low	High	The system has to be tested thoroughly before release and timely maintenance should be done.
R6	Time management	Medium	Medium	Time divided for the development of the features should not be overly estimated and careful planning should be done using expert judgement and planning poker.
R7	Publicity for the feature	Low	High	Advertisements on sites. Survey conducted to follow up on the usage of mobile banking. Survey statistics and questionnaire are given in Appendix B and Appendix C respectively.
R8	Security issues	Low	High	All the transactions are encrypted and the application is provided with firewall to prevent any types of network attacks.
R9	Database issues	Low	High	The database that stores all the information uploads the data to cloud so that a copy of all the data is available in case of database crashes.
R10	Complexity	Medium	Low	The user interface is abstract and so the complexities are hidden.

ID	Risks	Severity	Impact	Mitigation/Reduction Strategy
R11	Efficiency	Medium	Medium	The performance of one individual in the team can affect the efficiency of the team. According to assumption A13 all the team members are sufficiently motivated.

Table 6: Risk management.

## References

- [1] B. Eaton, H. K. Hallingby, P.-J. Nesse, and O. Hanseth, "Achieving Payoffs from an Industry Cloud Ecosystem at BankID," *MISQ Exec.*, vol. 13, no. 4, 2014.
- [2] N. B. Moe, T. Dingsøy, and T. Dybå, "A teamwork model for understanding an agile team: A case study of a Scrum project," *Inf. Softw. Technol.*, vol. 52, no. 5, pp. 480–491, May 2010.
- [3] M. Q. Abbasi, Jingnong Weng, Yunhong Wang, I. Rafique, Xinran Wang, and P. Lew, "Modeling and Evaluating User Interface Aesthetics Employing ISO 25010 Quality Standard," in *2012 Eighth International Conference on the Quality of Information and Communications Technology (QUATIC 2012)*, 3-5 Sept. 2012, 2012, pp. 303–6.

# Appendix A

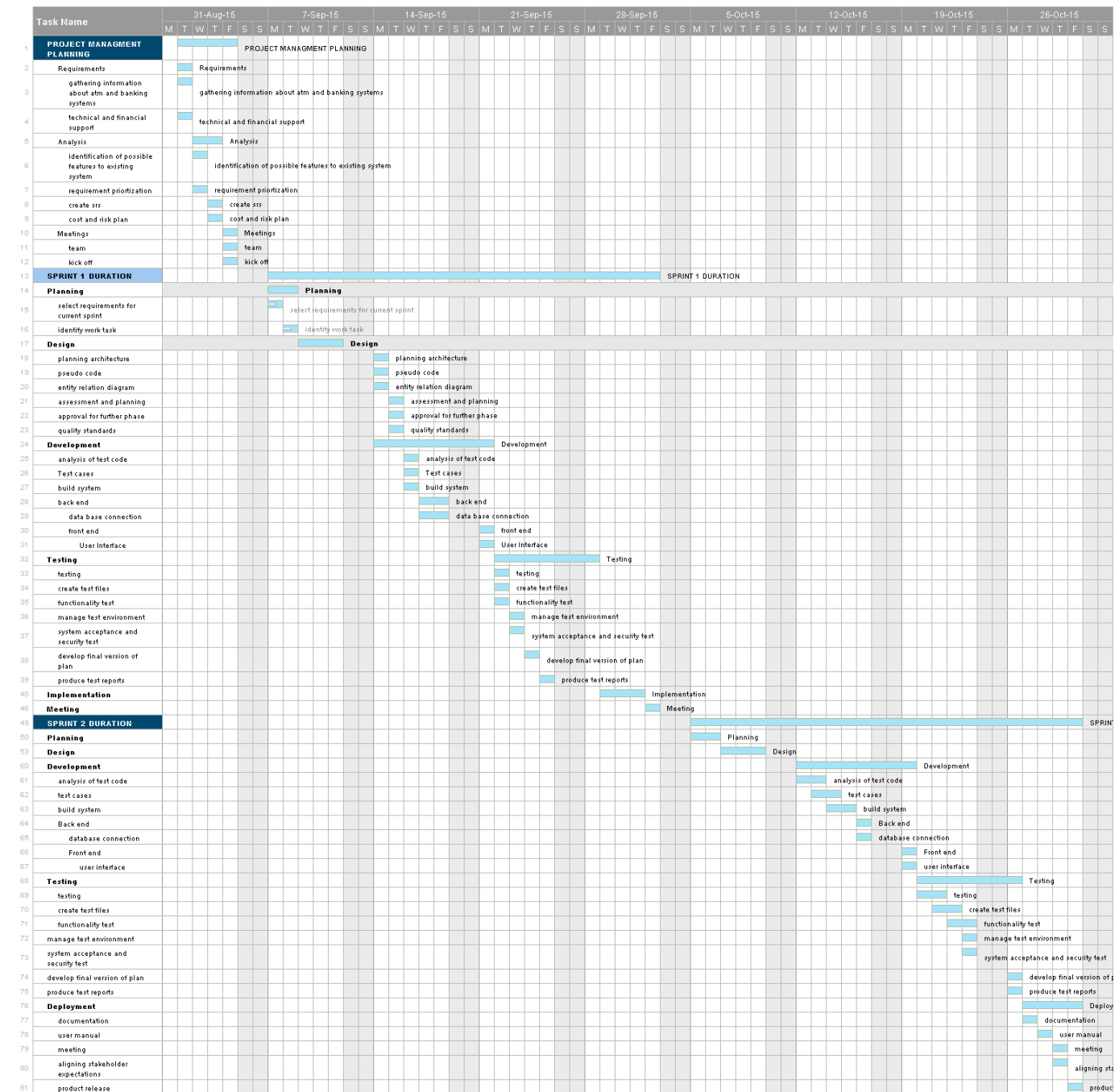
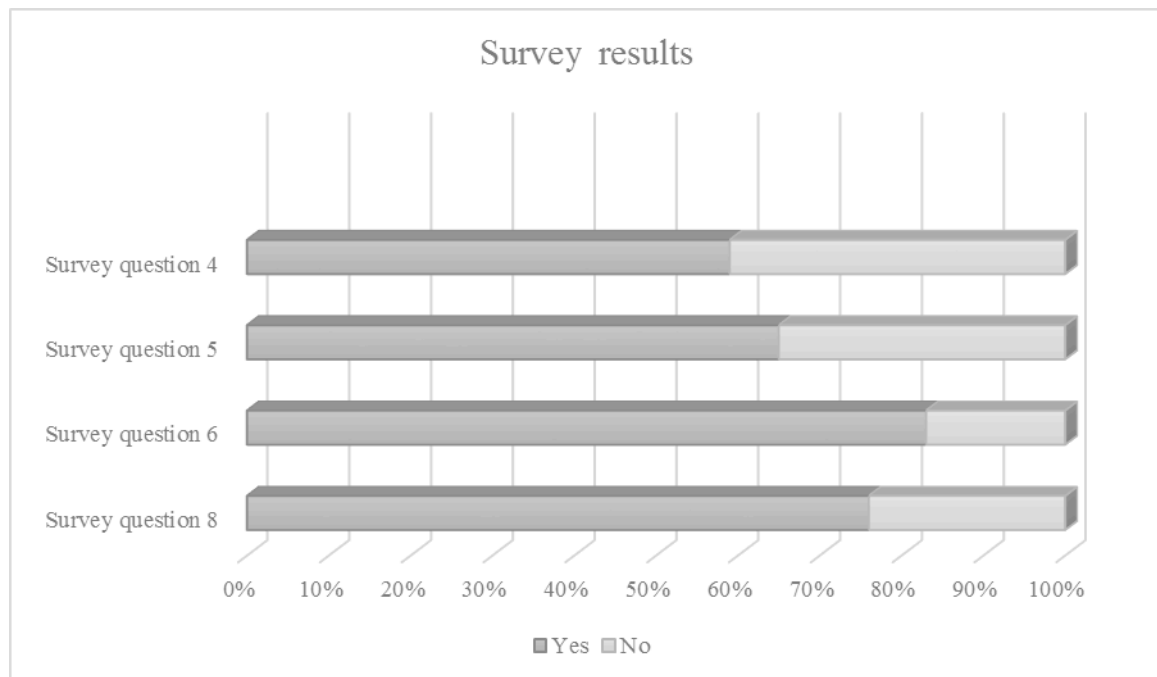


Figure 7: Gantt chart for project development plan

## Appendix B



**Figure 8 : Statistics for critical survey questions**

## **Appendix C**

# Survey on mobile BankID

**1. What is your gender?**

*Mark only one oval.*

- ☐ Male
- ☐ Female
- ☐ Others

**2. What is your age?**

.....

**3. Which operating system do you have in your mobile phone?**

*Mark only one oval.*

- ☐ iOS
- ☐ Android
- ☐ Windows
- ☐ RIM

**4. Do you frequently forget your ATM card at home?**

*Mark only one oval.*

- ☐ Yes
- ☐ No

**5. Would you feel secured to perform wireless transactions at ATM without using ATM card?**

*Mark only one oval.*

- ☐ Yes
- ☐ No

**6. Have you used mobile BankID on your mobile phone?**

*Mark only one oval.*

- ☐ Yes
- ☐ No

7. **How do you rate mobile BankID in terms of usability?**

*Mark only one oval.*

1	2	3	4	5
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

8. **Would you be comfortable if ATM's are integrated with services of mobile BankID?**

*Mark only one oval.*

☐ Yes

☐ No

9. **What is your opinion on mobile BankID feature for ATM?**

.....