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Team Number-6

Individual Report

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PA-2515 Applied Software Project Management

Acronym: vnma14

Answer 1- Life Cycle Model

1.1 Describe the lifecycle model your team used for the project, and explain why your team made this choice

The life cycle model chosen by our team to develop our project is Scrum methodology with Pair programming technique. In the initial meeting of our team members, we discussed about our experiences and also about our technical skills. Our team consists of 8 members in which only one member has work experience and all the remaining members have only academic experience. As soon as we discussed about our experiences we decided to choose Scrum methodology with pair programming technique to develop our project. The scrum methodology has three main roles i.e. Scrum master, Product owner and scrum teams [1]. This project is developed by the scrum teams in iterative manner called "Sprints". At the end of each sprint we decided to have a small piece of working software related to our development. Scrum methodology also consists of a product backlog in which all the features which we want to develop in our project are placed in the backlog. The scrum teams based upon their knowledge select the features to be developed from the product backlog and start to develop the project.

The motivation behind choosing the scrum methodology for our project to develop is that it allows the development team to review each sprint before moving to the next sprint or next phase [3]. The testing process is also conducted throughout the process as it allows the team to change the scope of the project if necessary [3]. The pair programming technique which was used in our project to develop helps the team members to share their knowledge experiences and also to learn from others [2]. Hence by the use of these two techniques we decided to develop website related to restaurants.

1.2 What role does the customer play in the chosen lifecycle model?

The role of customer in this life cycle model is the product owner. He plays a major role in this model and helps us to make sure that the right features make into the product backlog representing the users and customers of the product and helps us to set the direction of the product. We don't have any external customer to our project. Our team has played the role of product owner and used many website as reference to develop new website and also to have some idea about features for the developing project.

1.3 What do *you* think are the strengths and weaknesses of the chosen model? Justify your answer using examples from your experience of participating in this project.

Strengths and Weakness:

Strengths: The strengths and weakness of the chosen model to develop our project from my opinion are, Scrum method allows us to change the requirements of the project during sprint meetings and also it helped us in removing some of the difficult tasks from the product backlog and also we added some of the extra features in the middle of the project development. The Pair Programming techniques was used effectively by the teams in order to review others code and also to rectify the errors in the code. This method does not affect the total development if any person or member re-joins with the team in the middle phase is also one of the advantage to this life cycle model.

Weakness: The main drawback of this model is to have daily scrum meetings between scrum teams which is not possible for every member of the team as we are all engaged with other courses and assignments. So we decided to have pair programing method and discuss among ourselves and planned scrum meeting once a week to discuss about our project development.

1.4 Would *you* use the same lifecycle model for a similar software project in the future?
If *yes*: what aspects of the model would you apply differently, and why?
If *no*: what lifecycle model would you use instead, and why?

Yes, I would use the same life cycle model for a similar project in the future. The motivation to use this model is mentioned above as it is easy to change the requirements in the middle phase of development and is also more flexible than other life cycle models. The scrum meetings should be held in regular intervals for every 2 days to discuss about the project status. In our development project we could not execute our plans accordingly well and I decided to do it differently for the next project based upon this experience. In the next projects I can implement daily scrum meetings (face to face or rather than other forms of communication). The scrum master for our development project was selected based upon the experience in programming language but in later stages we find that it is not the good idea to select scrum master based upon the programming experience. Hence if I were to implement the same model I would select the scrum master based upon the experience related to software project management so that they have some idea about management issues which can be easily solved by the scrum master.

2. Schedule and Effort Management

2.1 What processes, methods, and tools did your team use to measure and track progress?

In the initial stage of our project we developed product backlog related to our project development as part of scrum methodology feature. The product backlog consists of all functions which are intended to develop in our project. The product backlog is maintained in google drive which is shared to all the team members. Some of the functions from the product backlog are taken up by the scrum teams and a sprint backlog is developed and it consists of selected functions and the responsible person to develop the required function. In our project the sprint backlog is colour coded with three different colours i.e. yellow. Green and red. If the function is denoted by yellow it means that it is currently developing, green means function is completed and red means it has not been taken up by anyone till now. This helped us to track the progress of our project about which functions are left and which have been completed. We also maintained time log document in which every individual enter the amount of time spent on the project to develop so that it gives us an idea about development. The burn down charts are also developed based upon the time log and are shown in appendix how we tracked our progress to develop this project.

2.2 To what extent did progress deviate from your team's project plan?

In the initial stage of the project we estimated the time and effort for the eight members. After one week of our development, one member has left our group without any notice, so we re-estimated the time and effort for seven members. As soon as we completed the sprint 2 in our development, one member had to leave to his home country due to some personal problems and we don't have any information whether he re-joins with us or not. Hence we re-estimated once again our time and effort for six people. The first two sprints were spent according to plan but the third and fourth sprint effort were not spent according to plan and are deviated to plan in time effort. In the initial meeting we decided to complete our project in 4 sprints but we cannot complete it in estimated sprints and we added three more sprints to develop our project. In the additional sprints we planned to conduct usability testing to the functions. In sprint5 we were unable to develop some of the functions but in order to compensate with these functions we replaced them with another functions so that the main scope of the project does not effect for these additional functions. The roles and responsibilities of our team members also changed according to development. Initially we decided Federic to be our Scrum master but as soon as he left, the team decided Hamid to be scrum master. At the end of sprint 6, we came to know that Hamid is not comfortable with his position and team decided Helen to be a Scrum master.

2.3 What do *you* think were the reasons for these deviations? Justify your answer.

Reasons for deviation:

The main reason for the project to be deviated is due to the lack of experience in development and manage issues related to development. This made us difficult for our team to learn and implement the code simultaneously to develop some functions. In order to get experience in the programming language we decide to learn the language in first sprint but at the end of first sprint some of the members of the team are unable to write the code to develop some functions related to project. Hence this was one of the reason for deviation of our plan. One of the reason to deviate our plan is also due to other courses and submission of assignments by our team members.

2.4 What actions did your team take as a result of these deviations? Explain why these particular actions were taken.

Actions Taken for deviation:

We have re-estimated the time and effort for 7 members after the sprint 1 as one of the team member left without any notice. We again re-estimated the effort for 6 members after sprint 3 as another member left due to some personal issues and as soon as he returned we re-estimated to 7 people. We have changed scrum master according to the team's decision and replaced the role with other team member. As we changed the scrum master from Hamid to Helen ,we compensated some of the deviation part of our development projects as Hamid was experience in programming skills and also he has more time to review the code once he step down from scrum master role. The deviation graph for our project is shown in the appendix at the end of the report.

2.5 As a result of your experience, what would *you* do in future projects to avoid deviations between progress and the project plan? Explain your answer.

Improvement Proposals:

Based on the above experience from this project, In future if I has to develop any project related to this, first of all I will confirm from my team members regarding the availability of them throughout the project (exceptions need to be considered in emergency). I ensure that the project plan is to be flexible to change according to situation and also chosen life cycle model should help for these changes in the middle of the development. The interaction sessions among the team members should be conducted before the starting phase of the project so that they can get motivated to this team and performs better and at last delivers with a quality product.

3. Risk Management and Quality Management

3.1 How did your team identify the risks to the project?

In the initial meeting of our project, every member has to take each part from the project plan and complete them. According to it risk management strategy is take up by one of the team member (Navneeth) and he developed risk management plan in order to identify some of the risks related to our project development. The major risks related to our project are discussed in our meetings and updated in the plan document by any of the member. Risk management in our document consists of identified risks and related mitigation method for identified risk. During the development phase of our project the risks are updated at the end of each sprint. Risks are updated to the existing strategy if there are any risks reported by team members at the end of each sprint. The new identified risks are attached to the old risks and all are tracked and updated at the end of each sprint.

3.2 Did any of the risks anticipated in your project plan materialize during the project?
If *yes*: what were these risks, and what actions did the team take to reduce the impact of them once they had materialized?
If *no*: what actions did the team take to minimize the chance that the risks identified in the project would materialize?

In my perspective of this project related to risk management, I think all the risks are materialized to some extent during the project development phase and are anticipated throughout other phases of our project. The risk management plan of our project consists of 8 risks which we thought to be occurred in our project but unfortunately only 6 risks are materialized. The materialized risks [3] and their mitigation strategies is shown in the below table:

Risk ID	Risk	Mitigation Strategy
R02	Lack of programming experience	The team members who are experienced and efficient in programming skills should take up the responsibility in solving these issues.
R03	Unavailability of team members	This risk is mitigated by assigning this work to another team member if interested or it can be handled by his pair programmer
R 04	Issues in Team dynamics	This risk is mitigated by conducting group discussion between team members to resolve these issues
R05	Missing out on regular scrum meetings	This risk is mitigated by rescheduling the missed meetings to keep track of the progress
R07	Delay in finishing a task	This risk is mitigated by allocating some extra time to difficult tasks so that it would not affect the future development of project.
R08	Change in requirements	We changed the requirements according to scope of project but not to extend the scope by changing requirements.

3.3 Did any risks or challenges occur that were *not* anticipated in the project plan?
If *yes*: what were these risks, and why do *you* think they were not anticipated in the project plan?
If *no*: why do *you* think that your team encountered no unanticipated risks?

Yes, there are some more risks which occurred in our project and are not anticipated in the project plan. The following are some of the risks that are not anticipated in the planning phase but materialized during development phase but required actions were taken to mitigate these risks.

The risks identified are given below:

Risk ID	Risk	Reason
R9	Unavailability of scrum master	The scrum master at the end of sprint 1 informed us that he was unavailable for some days but we did not have any communication with him after sprint 1.
R 10	Change of Scrum master	We changed the scrum master in sprint 6 as we came to know that choosing scrum master based upon the programming skills may effect the project while development as he has to handle so many roles and changed the scrum master.
R11	Issues in webmatrix IDE	Some of the members find it difficult to use IDE which was unexpected by team as we thought it would be easy for us but later this issue was resolved by scrum master.

3.4 What criteria did your team specify for the quality of the software produced?

During our planning phase, due to lack of experience in quality criteria for some of team members we decided to test the quality criteria based upon some of the quality metrics like Lines of code and comment percentage of source code. But in the later stages we decide to test the quality of our product based upon the test cases, test plan and test results.

3.5 What processes, methods, and tools did your team use *both* to ensure *and* to assess the quality of the software?

The process used in this project development to test the quality are Meetings, Reviews, Defect/issue tracking.

Meetings:
These meetings are arranged between the pair programmers and sprint meetings with the whole team members to discuss and develop the required functions and also to share the problems they are facing in development phase and these meetings are also helpful to test the product developed to ensure its quality.

Reviews:
It is also one of the method to test the quality of the product and it also helps us to review others work and give suggestions if required to maintain good quality output of the project.

Defect/issue tracking:
This method is used to check the functioning of website by giving some of the inputs to the system and to check the behaviour of the website with the help of these inputs. If there are no errors according to the given inputs then we can conclude that the developed project is of good quality. If there are any defects we can rectify them and resolve the issues in the final stage to ensure good quality of the final product.

The test plan and test cases are developed in the planning phase of our project to test the quality of our product. The quality tests were also performed through manual testing process. The website is deployed into the local host server (Microsoft Internet Information Services) in order to check its quality. The test cases are entered in the google spread sheets and are shared with every team member.

4. Project Plan

4.1 In what ways do *you* think your team performed well during the project? In your answer, provide specific examples, and explain why you think your team was good at these aspects.

Our team is a cohesive team who are willing to meet and work in a group. Our team has conducted lot of meetings and lot of discussion has been done in these meetings. The aim of our initial meeting is to mingle with all the team members as we all are from different backgrounds and different countries. The aspects of our team in which we performed well are as follows:

All the members of team has been actively participated in developing project plan for our project. In our project plan every member of our team voluntarily selected specific part and manage to complete on time and we also helped other members in their parts of project plan by having discussions.

The positive aspect from out team side is to re-join one person who was back after few weeks. It was difficult for him to track the current status of the project when he re-joins but his pair programing partner and all the team members has helped him to track the status of project.

We could not manage to organize daily scrum meetings and we have organized weekly scrum meetings to discuss the status of the project. In some of the meetings some of the members were unable to attend due to some health problems but available through skype for our meetings and participated in discussions.

Some of the problems has been occurred in the development phase while developing some features. For example, in developing phase while I was developing functions like add food, add menu, view food, view menu I was stuck in the middle of the code then I asked the help from the scrum master who reacted positively and helped me a lot in developing these functions and completed on time which is a good aspect for our team to complete the total project.

4.2 In what ways do *you* think your team could have performed better during the project? In your answer, provide specific examples, explain what *you* think caused your team to perform less well on these aspects, and discuss what changes could have improved the team's performance.

As we discussed about the good aspects of our team in the above question, now we discuss about the bad situations which we faced during our development phase.

The following are some of the hindrances occurred while developing the project.

I think we could have managed to arrange daily scrum meetings so that it may have more effect in the outcome of our product. If we cannot manage to attend the meeting, the members of the team should choose alternate choice by attending through google hangouts or skype or other forms of communication. As the team members has lack of experience in real world we could not estimate the effort as we expected and the methods used to estimate should have been changed. In the initial meeting we decided to test the product at each sprint but unfortunately in the middle of the development we decided to allocate extra time for testing in last sprint which resulted us a lot of damage at the end of project. The testing of developed functions should be done at the end of each sprint so that we can have some idea about quality of our product and helps us to improve in next sprints.

5. My Role

5.1 Describe the roles that *you* performed in the project team.

In this development project every member of the team has been assigned with some roles so that we can complete our project in estimated time. In the planning phase, I was responsible for the planning the work and allocating schedule and resources for the team to develop the project. As soon as we completed the planning phase I changed my role as a developer and started developing the main lay out of the website with my pair programmer (Navneeth). As soon as we completed the development of lay out we taken up some more functions to develop such as view food, view menu, add food, add menu. I also participated actively in scrum meetings and given some ideas related to our development project.

5.2 Do you think these roles were the most effective use of your skills and knowledge? Justify your answer.

I have about 4 years of academic experience in programming languages but I don't have any real world experiences with these languages. I have gained some experiences from my previous academic projects regarding some issues in development phase.

In this development project, I used some of my knowledge related to web development technologies such as Css, .net, jQuery, java scripts to develop main lay out for our website. I have also learned how to change .net code to razor syntax version. The IDE which we used in our development was the first for me and gained a lot of knowledge and experience on it.

Experience from the previous management course helped me a lot to know about the scrum methodology and I implemented it in this project and gained new experience in development phase with all the team members. I have also gained some different experience with our team members as we are of different backgrounds with different skills, languages etc.

Hence the roles I played in the development phase of this project were the most effective use of my skills and knowledge.

5.3 How did you contribute to the success of your team?

The contribution provided by me to the success of my team is as follows:

As I have academic experience in programming languages, I and my pair programmer we both discussed and taken the main function of website i.e. layout of the required website as it is the foundation for any website. We have taken so many measures to the layout while developing so that it would look attractive to the users while using our website. We completed this task in estimated time and implemented some other functions by searching them from product backlog which are to be developed. I also developed some other functions like add food, add menu, view food, view menu with my pair programmer and that contributed our success toward the team in development.

5.4 If you were to perform the same roles on a similar project in the future, what would you do differently?

In this project I have gained lot of experience how the scrum team would be and how they develop any project and I got total picture about how scrum team works in any development project. In future if I were to work on similar project I would like to be as a developer and also as Scrum Master as I have gained some knowledge and experience how scrum master should be in development project. In this project as a developer role I was failed to develop some of the functions like search, follow and

login with Facebook functions but In future projects I will select the function from the backlog which I am cable to complete on time and contribute my success to the team.

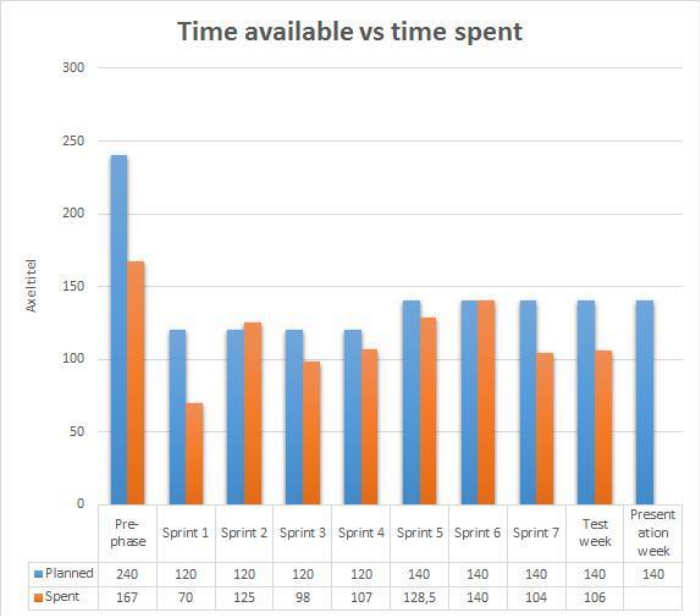
References:

[1] G. Rodríguez, A. Soria, and M. Campo, “Teaching scrum to software engineering students with virtual reality support,” in *Advances in New Technologies, Interactive Interfaces and Communicability*, Springer, 2012, pp. 140–150.

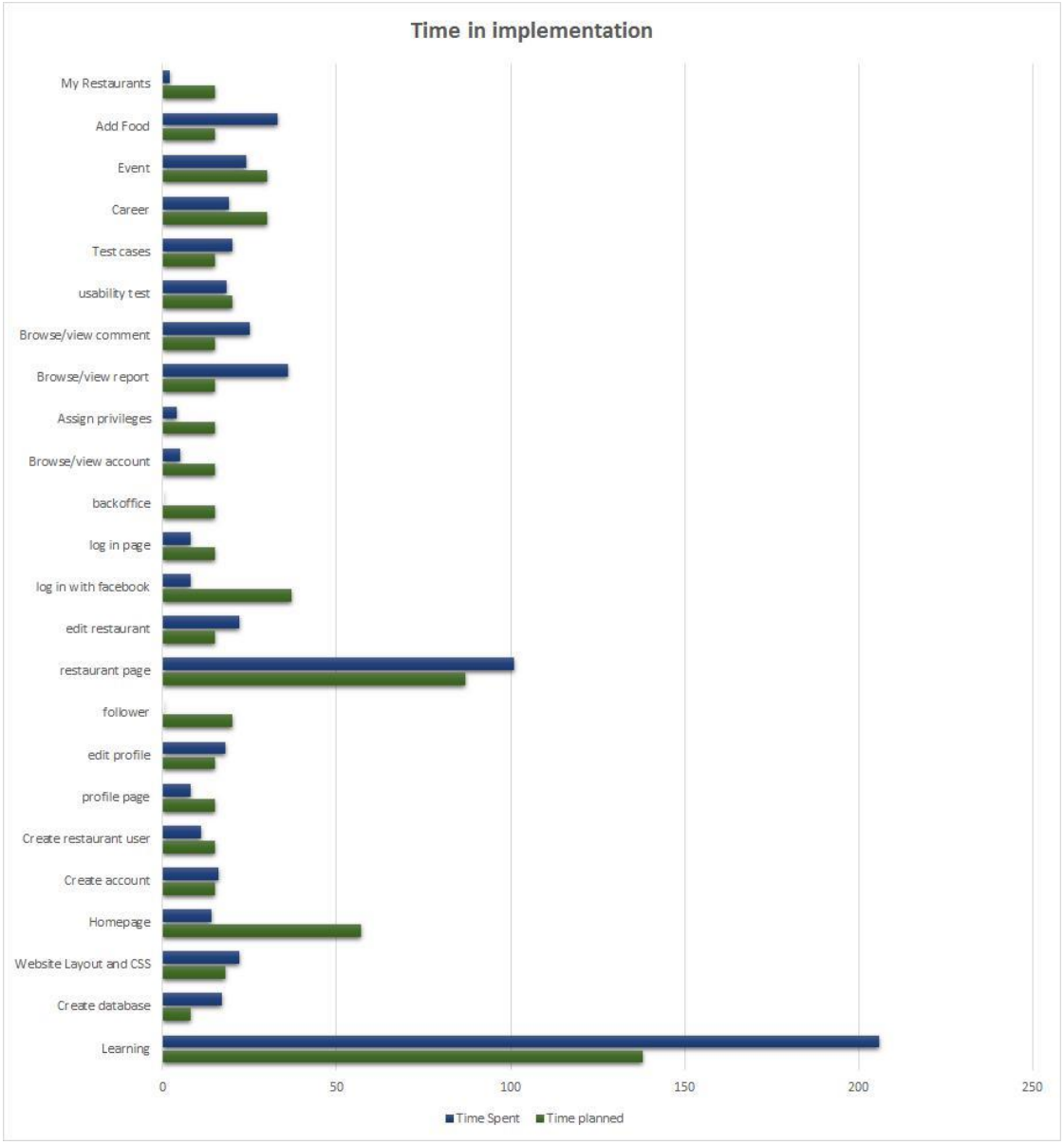
[2] G. Braught, L. M. Eby, and T. Wahls, “The effects of pair-programming on individual programming skill,” *ACM SIGCSE Bull.*, vol. 40, no. 1, pp. 200–204, 2008.

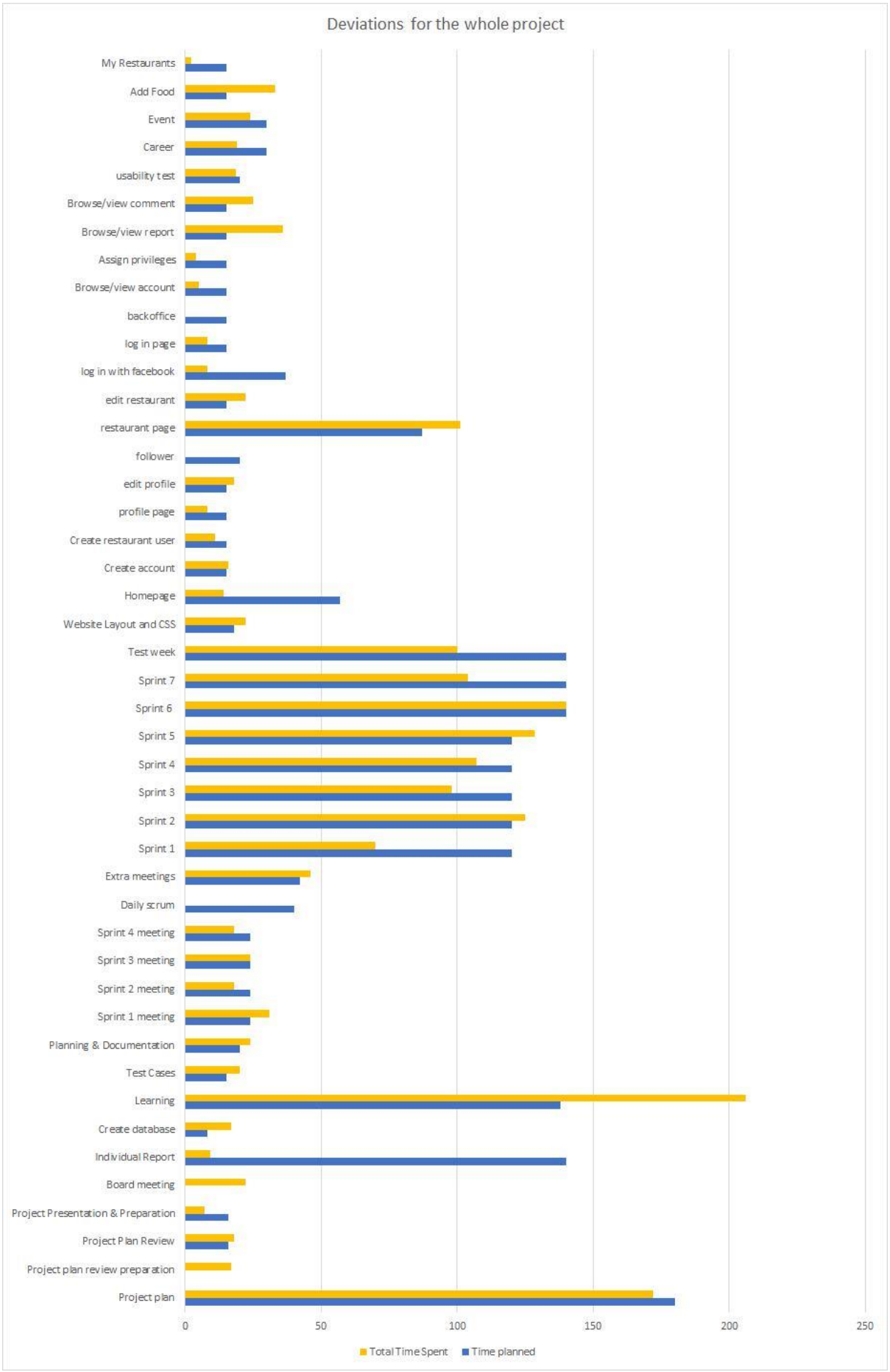
[3] Navneeth chamala, Hamid Arsalan, Uday Majeti, Waleed Anwar, Frederic Moreira, Helen Wilhelmsson, Huanyu Zhi, Ce Zhou, course "PA2515 Applied software Project Managemnt" project management plan, 2014, pp. 1-38

Appendix:

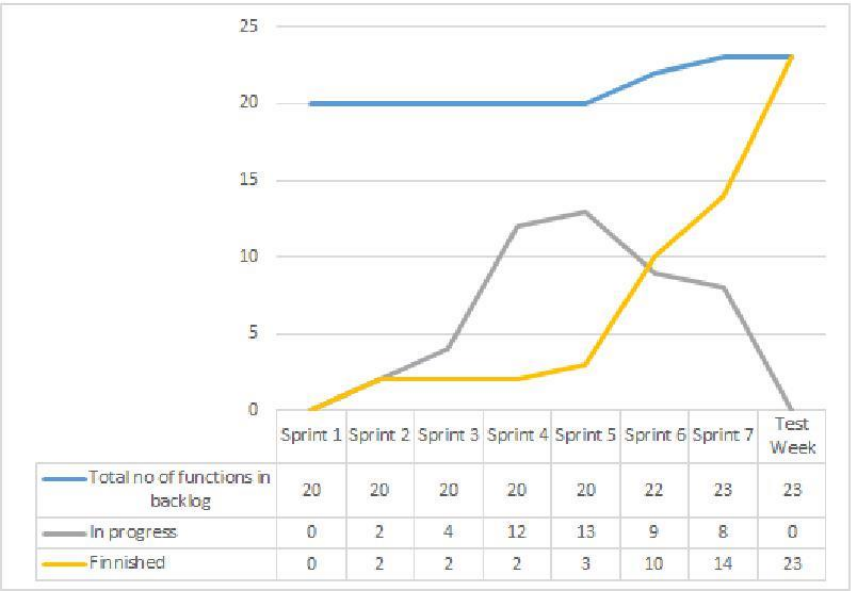

Time available vs time spent
300
250
200
150
100
50
0
Axeltitel
Pre-phase
Sprint 1
Sprint 2
Sprint 3
Sprint 4
Sprint 5
Sprint 6
Sprint 7
Test week
Presentation week
Planned 240 120 120 120 120 140 140 140 140 140
Spent 167 70 125 98 107 128,5 140 104 106


Project burn-down
1600
1400
1200
1000
800
600
400
200
0
Axeltitel
W 45
W 46
W 47
W 28
W 49
W 50
W 51
W 52
W 1
W 2
Planned 1360 1224 1088 952 816 680 544 408 272 136
Spent 1360 1244 1174 1049 951 844 716 576 472 366


Time in implementation
My Restaurants
Add Food
Event
Career
Test cases
usability test
Browse/view comment
Browse/view report
Assign privileges
Browse/view account
backoffice
log in page
log in with facebook
edit restaurant
restaurant page
follower
edit profile
profile page
Create restaurant user
Create account
Homepage
Website Layout and CSS
Create database
Learning
0
50
100
150
200
250
Time Spent
Time planned


Deviations for the whole project
My Restaurants
Add Food
Event
Career
usability test
Browse/view comment
Browse/view report
Assign privileges
Browse/view account
backoffice
log in page
log in with facebook
edit restaurant
restaurant page
follower
edit profile
profile page
Create restaurant user
Create account
Homepage
Website Layout and CSS
Test week
Sprint 7
Sprint 6
Sprint 5
Sprint 4
Sprint 3
Sprint 2
Sprint 1
Extra meetings
Daily scrum
Sprint 4 meeting
Sprint 3 meeting
Sprint 2 meeting
Sprint 1 meeting
Planning & Documentation
Test Cases
Learning
Create database
Individual Report
Board meeting
Project Presentation & Preparation
Project Plan Review
Project plan review preparation
Project plan
0
50
100
150
200
250
Total Time Spent
Time planned

	Sprint 1	Sprint 2	Sprint 3	Sprint 4	Sprint 5	Sprint 6	Sprint 7	Test Week
Total no of functions in backlog	20	20	20	20	20	22	23	23
Not started	20	16	14	6	5	1	1	0
In progress	0	2	4	12	13	9	8	0
Finnished	0	2	2	2	3	10	14	23
Cancelled	0	0	0	0	0	2	0	0



	Sprint 1	Sprint 2	Sprint 3	Sprint 4	Sprint 5	Sprint 6	Sprint 7	Test Week
Total no of functions in backlog	20	20	20	20	20	22	23	23
In progress	0	2	4	12	13	9	8	0
Finnished	0	2	2	2	3	10	14	23