

Sport star shoe portal

Project Management Plan

Using IEEE Std. 1058-1998

Version 1.0.0

17.11.2014.

Change history

Date	Version	Author	Changes
17.11.2014.	v1.0.0	Team	Document first version

Table of Contents

1. Overview.....	2
1.1. Project summary.....	2
1.1.1. Purpose, scope and objectives.....	2
1.1.2. Assumptions and constraints.....	2
1.1.3. Project deliverables.....	2
1.1.4. Schedule summary	3
1.2. Evolution of the plan	3
2. References.....	3
3. Definitions.....	3
4. Project organization	4
4.1. Organizational structure.....	4
4.2. Roles and responsibilities	4
5. Managerial process plan.....	5
5.1. Start-up plan.....	5
5.1.1. Estimation plan.....	5
5.1.2. Staffing plan	6
5.1.3. Project staff training plan	7
5.2. Work plan	8
5.2.1. Work activities	8
5.2.2. Schedule allocation	8
5.2.3. Resource allocation	9
5.3. Control plan	10
5.3.1. Requirement control plan.....	10
5.3.2. Schedule control plan	10
5.3.3. Quality control plan	10
5.3.4. Reporting plan	11
5.4. Risk management plan	12
5.5. Closeout plan	12
6. Technical process plan.....	13
6.1. Process model	13
6.2. Methods, tools, and techniques	13

1. Overview

1.1. Project summary

1.1.1. Purpose, scope and objectives

During the project a Sport star shoe portal will be developed (see table 1.1.). The portal will offer customers to publish information about superstar sport shoes and exchange them with interested participants. Purchases regarding shoe exchange will not be offered by the portal. Also sport shoe fans can find details of shoes they are interested in and feedbacks from other visitors. Sport star shoe preference statistics and news will be offered.

The project is executed as part of the PA2515 course and except the sport star shoe portal development there are also study objectives. The team wants to gain new experience and knowledge in practical project management and software development processes.

Table No. 1.1.: Main project features

1	Publish and exchange sport star shoes
2	Statistics and news of sport star shoe preferences and shoes itself
3	Gain and view visitor feedback
4	Sport shoe product share via social networks

1.1.2. Assumptions and constraints

- This is a study project with limited number of resources.
- The team members allocated for this project are limited to eight people with a different level of experience and it cannot be changed.
- The time given for the initial release of the project is 11 calendar weeks until project final presentation on 15.01.2014.
- The project is an open source project and open source software tools will be used for development.
- The project requirements may change during the project execution depending on time, resources or other relevant constraints.
- Course responsible is one of the stakeholders of the project, who is expected to receive project deliverables and also provide feedback.

1.1.3. Project deliverables

Project has four main deliverables, which are stated by course requirements (see table 1.1.3.).

Table No. 1.1.3.: Project deliverables

Deliverable	Purpose
Project Management Plan	Describes roles and responsibilities, scope, time management, estimations, risk management and managerial process plan
Project Plan Presentation	Presentation of work progress, idea, challenges and techniques used
Final Project Presentation	Presentation of Project to the course in-charge, basically in this presentation, group members will present and describe what they have done in the project.
Sport star Shoe Portal	Project execution result product regarding its scope.

1.1.4. Schedule summary

The projects schedule depends on study course schedule constraints (see table 1.1.4.). the projects total time is eleven calendar weeks - from 04.11.2014. to 15.11.2014. Total hours for the project are 188 hours per member, excluding holidays (24.12.-26.12.14 and 31.12.14.-01.01.15.) and including lectures, meetings and other work. The project consists of four phases and three construction iterations (see figure 1.1.4.).

Table No. 1.1.4.: Project schedule main dates

Date	Event	Deliver	Location
17.11.2014.	Deliver Project Management Plan	Project Management Plan initial version	its learning portal
25.11.2014.	Project Plan Presentation	Presentation of work progress, idea, challenges and techniques used	BTH J1650, 09:00 - 09:50
17.12.2014.	Project control meeting with course responsible	Status (monitor and control) about the project execution	BTH J1640
15.01.2015.	Final project presentation	Sport star Shoe Portal delivery	BTH J1610

Figure No. 1.1.4.: Project timeline



1.2. Evolution of the plan

Everything cannot be planned in advance and changes to the project plan will rise during the project execution. These changes need to be identified and recorded in the current plan, especially changes in responsibilities, time planning and technical resources. These changes may raise misunderstandings in project execution and trigger lags in schedule.

2. References

1. The COSMIC Functional Size Measurement Method, Measurement Manual, Version 3.0, September 2007
2. Course "PA2515 - Applied Software Project Management" requirements, third quarter 2014
3. IEEE Std 1058-1998, IEEE Standard for Software Project Management Plans, December 1998

3. Definitions

VCS - version control system.

GitHub - online Git version control system service.

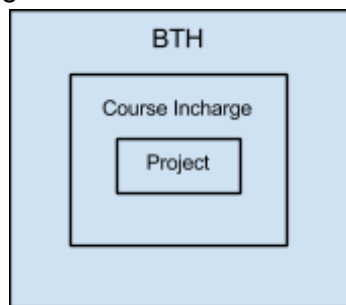
PMP - Project Management Plan
DBMS - Database Management System
LOC - Lines of Code
FP - Functional Points
CFP - COSMIC Functional Points

4. Project organization

4.1. Organizational structure

The project relates to the BTH course - PA2515 Applied Software Project Management. The project is constrained by course requirements. The responsible person for the course is Simon Poulding, who can be contacted via e-mail (simon.poulding@bth.se). The project team is not very big and it has various roles and responsibilities assigned to each member (see table 4.2.1.). We plan to progress in our project through peer reviews and feedbacks offered on each other's work. Project structure is summarized in the figure (see figure 4.1.).

Figure No. 4.1.: Project organization structure



4.2. Roles and responsibilities

As showed survey the project's members have different skills and expertise. The team members responsibilities and roles (see table 4.2.1.), where assigned regarding their skills, experience (see table 5.1.2.) and willingness to do the job. During the project execution there may arise a need for new responsibilities. Any new responsibilities need to be clearly stated in the table below (see table 4.2.1.) and discussed with the responsible person and project manager for clarity.

Table No. 4.2.1.: Members' responsibilities

Role/Responsibility	Description	Responsible
Meeting manager	Plan team meetings, inform team members about meetings, track meetings in Google calendar, track meeting results in Meeting Journal.	Gopi Krishna Devulapally
Project schedule management	Project schedule progress monitoring and maintenance. Inform about scheduled events, planned work and possible lags. Record actual work progress and its effort (Week time allocation spreadsheet).	Yilei Liu (Greeny)
Product owner	Monitor software progress and its mapping to the	Jian Gao

	requirements. Control if developed software matches requirements and inform about inconsistencies. Confirm changes to requirement requests.	
Software architecture	Design and maintain software architecture. Information security planning.	Romans Grisins
Database administration	Design and maintain database structure and data.	Jaya krishna Raavi, Sai Sandeep Chikkala
Version control system administration	Overview VCS repository status and maintain consistency.	Pavan Mudduluru
Design and ergonomics	Create and maintain user interface design and ergonomics.	Romans Grisins, Gopi Krishna Devulapally
Testing process planning and control	Plan, overview and control software testing processes. Prepare sample data.	Jian Gao
Staff training planning	Identify the need for staff training and plan it.	Alex Bramah- Lawani
Project management	Manage project integrity and execution. Lead project meetings.	Romans Grisins

5. Managerial process plan

5.1. Start-up plan

5.1.1. Estimation plan

Size is the base measure for estimating effort and costs during software development, and there are also different methods to measure size in software development. In this project, functional size of the software is used as a base measure for estimating effort. LOC is not chosen as a base measure, since this team lacks experience and also lacks industrial data to estimate LOC for this project. Hence, functional size is chosen as a base measure, since this only requires amount of functionality the project provides. WBS (as seen in section 5.2.1) is used to identify functional processes (which can be seen in Appendix No. 1). Using a functional size measurement method the amount of functionality is calculated. In this project, COSMIC functional points are used for functional size measurement, since this method is relatively new, the team wanted to explore this method and also this method supports business applications (this project develops an application which comes under this category). Function points are a base measure for functionality, using this method function points for different functional processes are calculated (see appendix No. 1). To estimate effort and duration, a regression based model is used. This method requires some past industrial data, which is given by course in-charge (see appendix No. 1.). Data given by course in-charge has been modified by eliminating a row, since inclusion of that row ("ROW:7 FP: 751 Total Time: 147") varies the correlation factor to a larger extent, hence making it a more horizontal linear regression and also the team has identified this data set to be unrealistic. After performing regression analysis using the past data, development time is predicted as 319 hours. To this predicted development time, additional 10% variance is considered as the team is inexperienced and also it is found that 60% of the companies fail in their estimations. After considering additional 10% of variance it is

found that we have additional 5.3% of buffer to match up the predicted development time with estimated time (which in total is 368 hours).

Figure No. 5.1.1.1.: Total project estimated time allocation

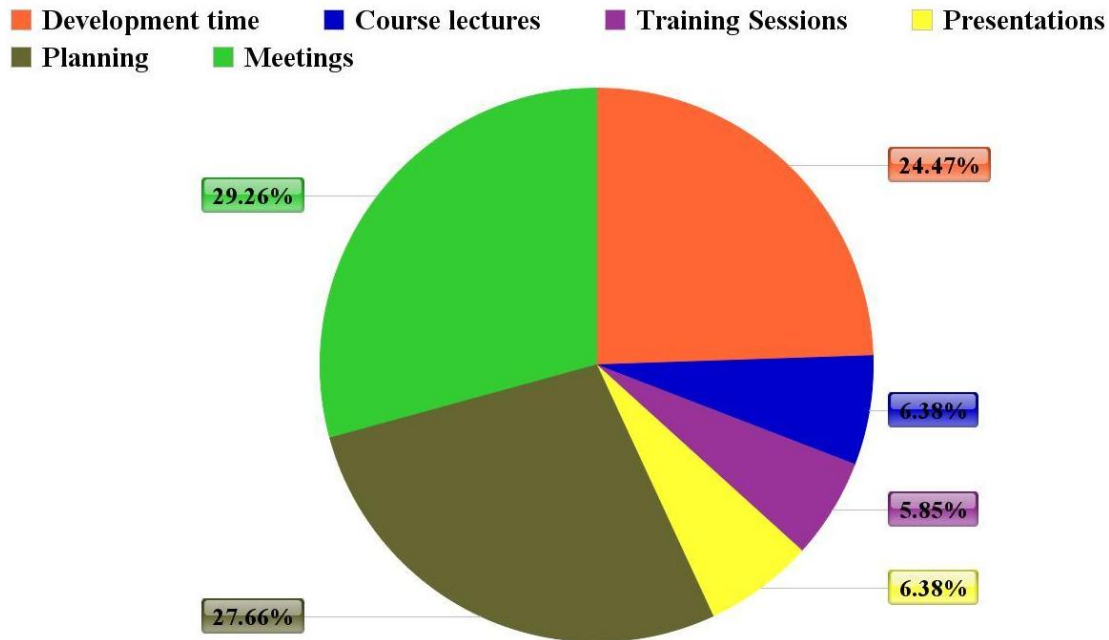


Table No. 5.1.1.2.: Industry Project Data Regression Line for COSMIC functional points

Training - course lectures	Training - team sessions	Project presentations/ deliveries	Team meetings (3 meeting per week in total of 5 hours)	Planning 04.11-20.11.14. (13 days)	Development time
12 hours per person	11 hours per person	12 hours per person	55 hours per person (11 weeks * 5 hours)	52 hours per person (13 days * 4 hours)	319 person hours + 15.3% = 368 person hours or 46 hours per person

Total project time of 188 hours (11 calendar weeks) is allocated among different project events (see table 5.1.1.2. and figure 5.1.1.1.).

5.1.2. Staffing plan

A team of eight members has been created at the beginning of the project and cannot be changed during the project. At the beginning of the project team members' skills were identified using a survey (see table 5.1.2.). Almost all project members have background in computing. Team members have different skills and experience. Not all of the team members have experience in web programming. Team member skills may be discovered during the project execution and will be recorded. As the team is big and its member expertise and skills vary, the team decided to perform regular meetings and joint training.

Table No. 5.1.2.: Teams members' skills

Name	Technical skills	Other skills
Romans Grisins	Java, PHP, JavaScript, Subversion, Git, Oracle	Usability, design,
Gopi Krishna Dewulapally	C, C++	Requirement Elicitation, Effort Estimation, Capital Budgeting, Gantt Preparation,
Jaya krishna Raavi	C, C++, PHP, SQL	Design, Gantt schedule preparations.
Sai Sandeep Chikkala	C, JAVA	Analyze and manage estimations
Alex Bramah-Lawani	JAVA, PHP, C++,C, SQL, ANDROID	SSAD, UML, TRAINING
Yilei Liu (Greeny)	C, C++	Design, Business module
Jian Gao	JAVA, PHP, SQL	E-commerce
Pavan Mudduluru	C#, PHP	Gantt schedule preparations

5.1.3. Project staff training plan

As shown in the survey, the project's team has different experiences and skills (see table 5.1.2.). The team identified that training is an important part of this project to prepare each team member for the projects execution tasks, such as web development, design and testing using different tools and approaches. The team identified few training sessions to prepare the team before each project stage (see table 5.1.2.). Sessions should prepare the team for a particular project tool, technique and approach usage. Course lectures also are classified as team trainings. Mentors are chosen regarding team members' expertise in particular areas.

Table No. 5.1.3.: Team training sessions and lectures

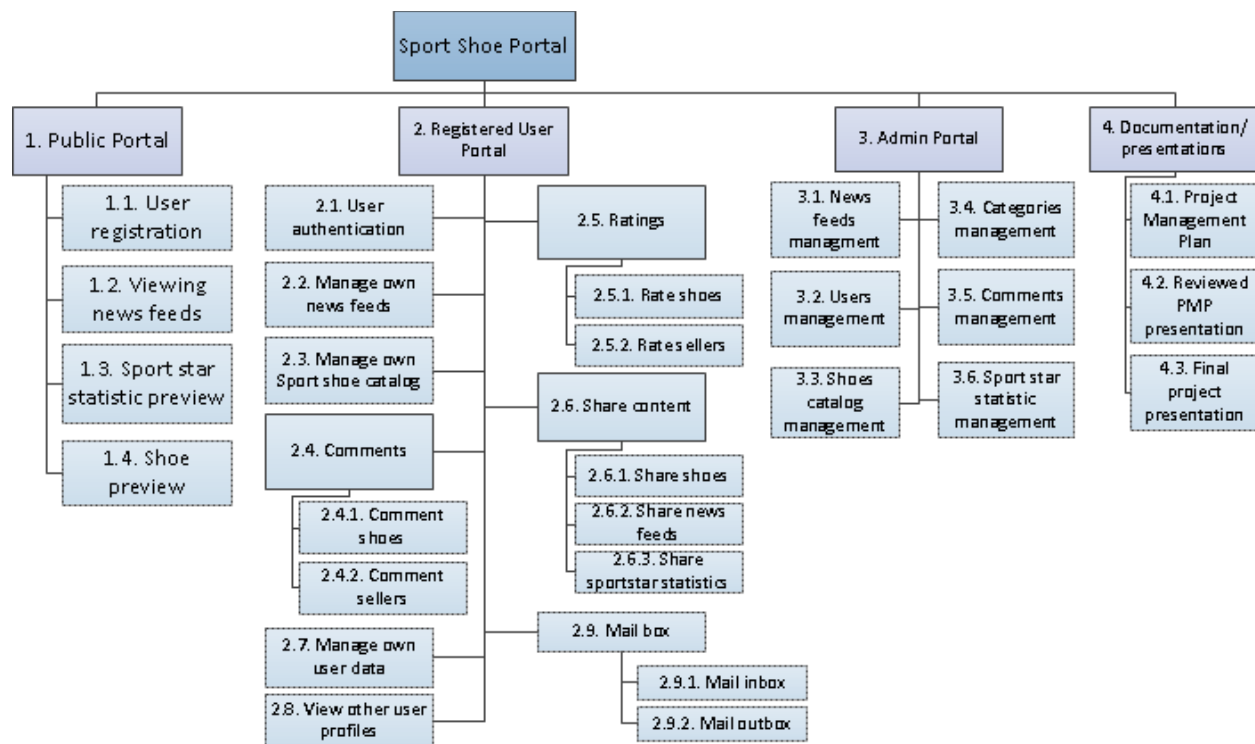
Training	Type	Timing	Estimation	Mentors
Web development session and GitHub	Team private session	Before implementation starts	3 hours	Romans
Understanding Php	Team private session	Before and during development	2 hours	Alex Bramah-Lawani
Symfony2, Doctrine and IDE session	Team private session	Before implementation starts	3 hours	Romans
Design tools and technique session (databases, prototyping and web)	Team private session	Before software design stage	3 hours	Jaya Krishna Raavi, Alex
Testing tools and approaches	Team private session	Before first iteration design stage	2 hours	Romans
Introduction, team building and project management overview	Lecture	04.11.2014.	3 hours	Simon Poulding
Estimation and Effort	Lecture	05.11.2014.	3 hours	Michael Unterkalmsteiner
SimSE seminar	Seminar	10.11.2014.	3 hours	Simon Poulding

5.2. Work plan

5.2.1. Work activities

The project consists of four main packages (see figure 5.2.1.). The first three are parts of the sport star shoe portal: public portal, registered user portal and admin portal. This separation allows to look at the portal functionality from different user roles. The fourth contains documentary deliverables. Description of the WBS in detail is described in WBS dictionary (see appendix 2.).

Figure No. 5.2.1.: Work Breakdown Structure



5.2.2. Schedule allocation

The project starts at 04.11.2014. and ends at 15.01.15. and its total duration is 188 hours per person. The project consists of four phases (as RUP lifecycle defines) and three construction iterations (see table 5.2.2.). The first iteration consists of most the important features. The second iteration adds delighters, such as news, statistics and mailbox. The third iteration integrates social media and user feedback. The second and third iteration stands for portal attractiveness growth. All project events with duration and allocated resources can be seen in table (see appendix 3). Project Gantt chart depicts whole project activity dependencies and allocation (see appendix 4). Iteration activities and its order were picked regarding task priorities and available resources. Gantt chart includes trainings, lectures, development and deliveries. A time required for the meetings is included in the activities and is not displayed separately, as it complicates view. Detailed WBS package activities also do not present in Gantt

chart as it degrades readability. WBS package functional processes are described during work estimation and can be interpreted as detailed descriptions.

Table No. 5.2.2.: Main schedule phases and events

Phases	Start	End	Tasks
Inception phase	2014.11.04	2014.11.19	Prepare and submit Project Management Plan
Training	2014.11.04	2014.11.10	Introduction, team building and project management overview, estimation and effort and SimSE seminar
Elaboration phase	2014.11.20	2014.11.26	Design architecture, design database, design portal GUI and prepare for the progress meeting
Training	2014.11.20	2014.11.20	Training team for design activities
Construction phase	2014.11.27	2015.01.09	Implement the portal
Training	2014.11.27	2014.12.03	Web development session and GitHub, Symfony2, Doctrine and IDE session and testing tools and approaches
Iteration 1	2014.12.04	2014.12.16	Public portal (user registration and shoe preview), registered user portal (manage own sport shoe catalog, user authentication, manage own user data, view other user profiles) and admin portal (users management, shoe catalog management, categories management)
Iteration 2	2014.12.18	2015.01.02	Public portal(viewing news feeds,sport star statistics preview), registered user portal (write private message, mailbox, manage own news feeds) and admin portal (news feeds management, sport star statistics management)
Iteration 3	2015.01.05	2015.01.08	Registered user portal (comments, ratings, share content) and admin portal(comments management)
Transition phase	2015.01.09	2015.01.16	Prepare for final project presentation and final project presentation

5.2.3. Resource allocation

Resource allocation is mainly based on the following:

1. required skills,
2. roles and responsibilities of the team members and
3. resource availability.

As the team has a lack of experience and pair programming was chosen as quality assurance technique, the team was divided in three sub-teams:.

Sub-team 1: Jaya krishna Raavi, Pavan Mudduluru and Sai Sandeep Chikkala

Sub-team 2: Alex Bramah-Lawani, Jian Gao, Yilei Liu (Greeny)

Sub-team 3: Romans Grisins and Gopi Krishna Devulapally

Whole team resource allocation can be seen in table (see appendix 3). All team members participate in project planning, lectures, training, meetings and deliveries. Each team members' approximate workload is 188 hours.

5.3. Control plan

5.3.1. Requirement control plan

The Project idea and requirements are set by the project team. Changes in the requirements can come from the project team and from the course responsible, if those do not meet course objectives, expected effort or time constraints. The possibility of changes in requirements is very slight. The main change factors of product final functionality are time constraints. The project idea was picked using a survey among team members after each participant presented an idea. The team picked a product owner (see table 4.2.1.), who is responsible for idea consistency and clarity of the vision. The product owner actually is a team member, whose idea was picked by the team. The product owner is the main person, who can accept team requested requirement changes.

5.3.2. Schedule control plan

Daily project management plan updates are carried out in the schedule. Necessary updates to the schedule and resource estimates will be included in these PMP updates. However, updates will only take place in necessary circumstances, such as Scope and quality changes or to underestimate the conditions of project implementation.

Table No. 5.3.2.: Schedule control tools and techniques

Name	Description
Meeting journal	Record meeting time, agenda, participants and summary to track effort, and progress.
Week time allocation	Track team's effort allocation: meetings, trainings, planning, testing, deliveries, implementing and designing. This will help to track already used time and time which is left for further work.
Gantt chart	Whole project schedule overview using Gantt chart will help to track project progress and identify lags and leads between activities. This will help to assign resources and track total project progress.
Critical Path Method	Identifies critical paths in the project activity diagram. These critical paths will help schedule manager to calculate whether planned progress is matching up with current progress.

The schedule is maintained by schedule manager (see 4.2.1.). Schedule manager should check the accomplishment and quality of the schedule. Compare actual progress to plan progress, and to implement corrective actions when actual progress does not conform to planned progress.

5.3.3. Quality control plan

The process of quality control is carried out throughout the projects life cycle.

Change control. The project team sticks to the requirements most of the time. In case if more requirements appear, the team and product owner shall clarify, what is important and what is not, and accommodate the change. The product owner is the main person, who is responsible for requirement change acceptance. Changes in the project tools, techniques and

methods need to be approved by team members, because ease of change can be identified only by them.

Peer reviews and pair programming. Peer reviews and pair programming will help in evaluating each other's work, which leads to identification of deviations in product development. Peer reviews are conducted regularly. Pair programming shall be used, where it is necessary regarding responsible person experience and task complexity.

Testing process. The whole testing stage involves identifying the errors that leads to quality control. Different testing techniques will be used to test software: usability testing and functionality testing. Portal usability and functionality correctness are the main aims.

Team coordination. Because of the team members' different technological backgrounds and cultural differences communication and coordination is very important. The meeting manager is the main person, who identifies the need for meetings and plans them. Weekly regular meetings are the main aim. The project manager is responsible for leading the project meetings and delegating tasks among team members.

Identified quality attributes. We identified the following quality attributes for the web site.

- Usability. Portal graphical interface usage ease for inexperienced portal users.
- Fault tolerance. User need to be informed about any erroneous situations: incorrect input, server errors etc. Testing for these situations needs to be performed.
- Functional correctness. Portal testing for requirement matching implementation.
- Interoperability. The web site needs to support different browsers, testing for interoperability will be done.

Feedback from course in-charge: The course in-charge gives feedback on product quality during meetings and presentations. So, we can improve and control quality in further releases.

5.3.4. Reporting plan

The team has no previous experience working together and has no stable communication channels between all members. During the team meeting the main communication channel was identified. Viber shall be used for instant communication among team members, for example, to check attendance for the meeting. E-mails shall be used for more official communication, such as informing team members about important events, changes and progress. As additional communication channels Facebook, Google Hangouts and Skype were identified. The team members' contacts are listed in table (see table 5.3.5.) and should be updated, if any changes arise.

Table No. 5.3.4.: Team members' contacts

Name	Email Address	Skype	Phone
Romans Grisins	romans.grisins@gmail.com	rommen2077	+46-767957757
Gopi Krishna Devulapally	gopikrishna2403@gmail.com	gopi.krishna198	+46-767955939
Jaya krishna Raavi	raavijayakrishna05@gmail.com	jaya krishna raavi	+46-727317498
Sai Sandeep Chikkala	cssandeep.rsh@gmail.com	sandeep chikkala	+46-707865779

Alex Bramah-Lawani	hellobramah@gmail.com	hellobramah	+46-767955926
Yilei Liu (Greeny)	greenyyilei@gmail.com	liuyilei666	+46-764537582
Jian Gao	danggao12345@gmail.com		+46-764336848
Pavan Mudduluru	m.pavan599@gmail.com	pavan.mudduluru1	+46-738096754

5.4. Risk management plan

The project has a few risks, which mainly are related to the project team in-experience (see table 5.4.). Main mitigation techniques are related to team experience and communication increment. This approach should increase understandability of ongoing project tasks. Risk owners are chosen regarding team member responsibilities.

Table No. 5.4.: Risk register

No.	Risk	Risk source	Probability	Impact	Priority	Action	Risk owner
1	Inadequate knowledge on advanced tools and techniques required for the project	Team members knowledge on advanced tools/technology used in project development	Medium	High	High	Providing a training session about tools and technologies by the training manager	Training manager (Alex)
2	Communication and coordination gap among team members	Different background and culture of team members	Medium	High	High	Regular face to face meetings and using common communication channels monitored by the meeting manager	Meeting Manager (Gopi)
3	Get behind schedule	Failure to accomplish tasks in time	High	High	High	The schedule manager continuously monitors the tasks and applies corrective actions to the schedule	Schedule manager (Greeny)
4	Failure to follow life cycle model	Inexperience in project management	Medium	Medium	Medium	Regular team progress meetings	Project manager (Romans)

5.5. Closeout plan

We plan to carry out the following events for project closeout.

Project acceptance

We close this project when we receive responsible stakeholder (course responsible) approval for all the project deliverables (see table 1.1.3.).

Post project review

A Project review can be done to compare planned and actual events of the project as the project progressed. This review can provide implications to design a better plan for future similar projects.

Lessons Learned

Lessons to learn from this project can be gathered from feedback of course responsible and from conducting a project debriefing meeting with the team members. Lessons learned document consists of issues (managerial and technical) faced by the team during development, the impact of these issues and suggestions regarding these them.

Archive project data

Archive all the Project documents like Estimations, Project management documents, Source code, test data, status reports, etc. for future referencing and reuse.

6. Technical process plan

6.1. Process model

To ensure high deliverability and reaction to project schedule lags software will be developed in interactions. Due to the need to develop the project with high deliverability, iterative project lifecycle needs to be adapted: Agile Scrum, Extreme Programming (XP) or Rational Unified Process (RUP).

Iterative Agile project lifecycle offers not end date driven software development in iterations. One of the main success factors of Agile teams is its members' expertise and experience (as the particular team does not possess). Usually each next iteration plan is created at the end of the previous iteration. In spite of that the course requires whole project schedule as a part of project management plan with particular date driven delivery and presentation dates.

For the particular project Rational Unified Process (RUP) lifecycle was chosen. RUP provides a simple and iterative software development framework, whose goal is to provide working software, which can be demonstrated to stakeholders after each iteration (course in-charge and product owner). Lifecycle has no pre-defined iteration length with end date driven conclusion (as course schedule defines). Special pre-planning phases are provided to pre-define scope, collect the requirements and design the system. In this course case project management plan needs to be provided in predefined time.

6.2. Methods, tools, and techniques

To ease the project management process and product design, implementation and testing many different tools will be used (see table 6.2.). The main tool choice criteria are team member experience, ease of use, opportunity of simultaneous usage by team members and free of charge usage, which were identified during meetings. Google services are a very common choice for student project execution and each member has experience with it.

Microsoft Project is a common schedule management tool using Gantt chart and the project schedule manager has experience in its usage. Also MS Project provides many views to the project schedule, which may help in project management. Gantt chart will provide overview of all the project activities, their dependencies, resource allocation and timing. High level overview will provide a mechanism to track mismatches between actual work progress and the plan. The project meeting journal, where all meeting agendas, summaries and used time will be tracked, and week time allocation spreadsheet, where actual team task and effort will be tracker, will help the project schedule manager to track actual project progress. Programming languages, implementation, design and testing tools are chosen by the team members regarding their preferences, experience and compliance to the particular project product characteristics. To track source code changes and insure its availability to the course in-charge, GitHub public repository will be used.

Table No. 6.2.: Project tools, technologies and standards

Task	Tool/Technology/Standards	Details/Location
Document Management	Google Drive, Google Docs	https://drive.google.com/open?id=0B7FT7TqaXd-rX3FDMndPaGFYdHc&authuser=0
Team meeting planning	Google Calendar, Meeting journal (document to state agenda, spent time and summary)	https://drive.google.com/open?id=0B7FT7TqaXd-rX3FDMndPaGFYdHc&authuser=0
Communication	Viber, E-mail, Facebook, Google Hangouts and Skype	Table No. 5.3.4.: Team members contacts
Project schedule planning	MS Project, Week time allocation table (document with actually done work hours and task allocation)	https://drive.google.com/open?id=0B7FT7TqaXd-rX3FDMndPaGFYdHc&authuser=0 , Table No. 5.3.2.
Version Control System	GitHub	https://github.com/rommen/octagon/
Web development technologies and frameworks	HTML PHP 5.6., JavaScript, CSS3, Bootstrap 3.3.0., Symfony2 2.5., Doctrine 2.4., jQuery 1.11., W3C web development standards(JS, CSS, HTML)	http://www.doctrine-project.org/getbootstrap.com , http://www.w3schools.com/ , http://symfony.com/ , http://jquery.com/
Web server	Built-in Symfony2 framework web server	http://symfony.com/doc/current/quick_tour/the_big_picture.html#running-symfony
Data Management System	MySQL 5.6., Workbench, db4free.net	MySQL DBMS homepage: http://www.mysql.com/ , database design and management tool: http://www.mysql.com/products/workbench/ , Free online MySQL hosting: http://www.db4free.net/

Web development tools	NetBeans, Eclipse or other IDE regarding developers preferences	https://netbeans.org/ , https://www.eclipse.org/
Prototyping	BootTheme	Online bootstrap mockup tool: https://www.boottheme.com/
Testing tools	Selenium, PHPUnit	Case based testing tool: http://www.seleniumhq.org/ and PHP unit testing: https://phpunit.de/

Appendix No. 1. : Functional processes and COSMIC functional points

Level	WBS package	Functional process	COSMIC Functional Points
1.1.	User registration	Register in the portal	6
1.2.	Viewing news feeds	Preview news feed page	5
1.3.	Viewing sport star statistic preview	Preview sport star statistics page	5
1.4.	Shoe preview	Preview shoe catalog page	5
		Preview particular sport star shoe details (view ratings, comments, number of shares)	13
2.6.1.	Share shoes	Share sport star shoe details via Facebook	5
		Share sport star shoe details via Twitter	5
2.6.2.	Share news feeds	Share news feeds via Facebook	5
		Share news feeds via Twitter	5
2.6.3.	Share sport star statistics	Share sport star statistics via Facebook	5
		Share sport star statistics via Twitter	5
2.1.	User authentication	Authenticate in the portal	5
2.2.	Manage own news feeds	Add new news feeds	4
		Remove own created news feeds	5
		Edit own created news feeds	6
2.3.	Manage own sport star shoe catalog	Add new shoes	4
		Remove own created shoes	5
		Edit own created shoes	6
2.4.1	Comment shoes	Add shoe comment	4
		Remove own created shoe comment	5
		Report other user comments	4
2.4.2	Comment sellers	Comment on seller	4
		Remove own created seller comment	5
		Report seller comment	4

2.5.1.	Rate shoes	Rate particular sport star shoe	4
2.5.2.	Rate sellers	Rate particular shoe seller	4
2.7.	Manage own user data	Remove own profile	6
		Edit own profile data	6
2.8.	View other user profiles	Preview particular user details	13
		Report user profile	4
		Write private message	6
2.9.1.	Mail inbox	Preview own received messages	5
		Preview particular received message	6
		Delete own received message	5
		Reply to received message	5
2.9.2.	Mail outbox	Preview own sent messages	5
		Preview particular sent messages	6
		Delete own sent messages	5
		Write new message	4
3.1.	News feeds management	Remove any news feeds	4
		Edit any news feeds	6
		Preview all news feed catalog	5
3.2.	User management	Block particular user	4
		Preview of reported users	5
		Preview user catalog	5
3.3.	Shoe catalog management	Preview whole shoe catalog	5
		Remove any shoes	4
		Edit any details of shoes	6
3.4.	Category management	Add new categories	4
		Remove existing categories	4
		Edit existing categories	6
		Preview categories details	5
		Preview category shoes	5
3.5.	Comment management	Remove comments	4
		Preview reported comments	5
		Approve comment report	4

3.6.	Sport star statistics management	Remove existing sport star shoe statistics	4
		Edit existing sport star shoe statistics	6
		Add new sport star shoe statistics	4
		TOTAL	304 CFP

Appendix No. 2.: Work breakdown structure dictionary

ID	Package	Description
1.	Public Portal	Portal for new or non-registered users. Opening page of the portal
1.1	Registration	Helps New user or Non-users to register in the portal
1.2	Viewing news feed	Displays news or latest activities on the portal
1.3	Sport Star Statistics Preview	Displays statistics about trending shoes used by different sport stars
1.4	Shoe Preview	Displays available shoes from different sellers in different sports categories
2.	Registered User Portal	Portal for registered users
2.1	User Authentication	Verifies the identity of a user who wishes to access the portal
2.2	Manage own news feed	Displays news or latest activities on the portal
2.3	Manage own Sport Shoe Catalog	Displays the list of shoes which are selected by the user and also displays the list of shoes available for other users
2.4	Comment	Helps user to comment on different posts in news feed
2.4.1	Comment shoe	Helps user to comment on shoes
2.4.2	Comment sellers	Helps user to comment on sellers
2.5	Ratings	Helps user to give ratings on shoes and sellers
2.5.1	Rate Shoe	Helps user to give ratings on shoes
2.5.2	Rate sellers	Helps user to give ratings on sellers
2.6	Share content	Helps user to post an activity on social media: Facebook and Twitter
2.6.1	Share shoes	Share a post about a shoe on social media: Facebook and Twitter
2.6.2	Share news feed	Share a post in social media: Facebook and Twitter
2.6.3	Share sport star statistics	Share post sport star statics on social media: Facebook and Twitter
2.7	Manage own user data	Displays user personal details such as profile
2.8	View other user profiles	Preview other users details on the portal
2.9	Mail box	Portal inner messaging
2.9.1.	Inbox	Portal user mail inbox
2.9.2.	Outbox	Portal user mail outbox
3.	Admin Portal	Portal for administration
3.1	News feed Management	Admin can manage news feed content for the public and registered user portal
3.2	User Management	Admin can manage different users of the portal
3.3	Shoe Catalog Management	Helps admin to manage contents in shoe catalog
3.4	Categories Management	Helps admin to add, delete and modify categories in show portal
3.5	Comments management	Admin can manage different comments posted by registered

		users, such delete, modify in case of inappropriate
3.6	Sport Star Statistics management	Admin uses platform to update the statistics of trending shoes of different sport stars
4.	Documentation/ Presentations	Documents and presentations given to stakeholder (Course in-charge)
4.1	Project Management Plan	Activity which involves the whole team to prepare PMP and revise it
4.2	Reviewed PMP presentation	Activity which involves the whole team to give a presentation to stakeholder (Course in-charge) about the revisions done to PMP document after the review
4.3	Final project presentation	Activity which involves the whole team to give presentation to stakeholder (Course in-charge) before delivering the finished project to the stakeholder

Appendix No. 3.: Resource allocation

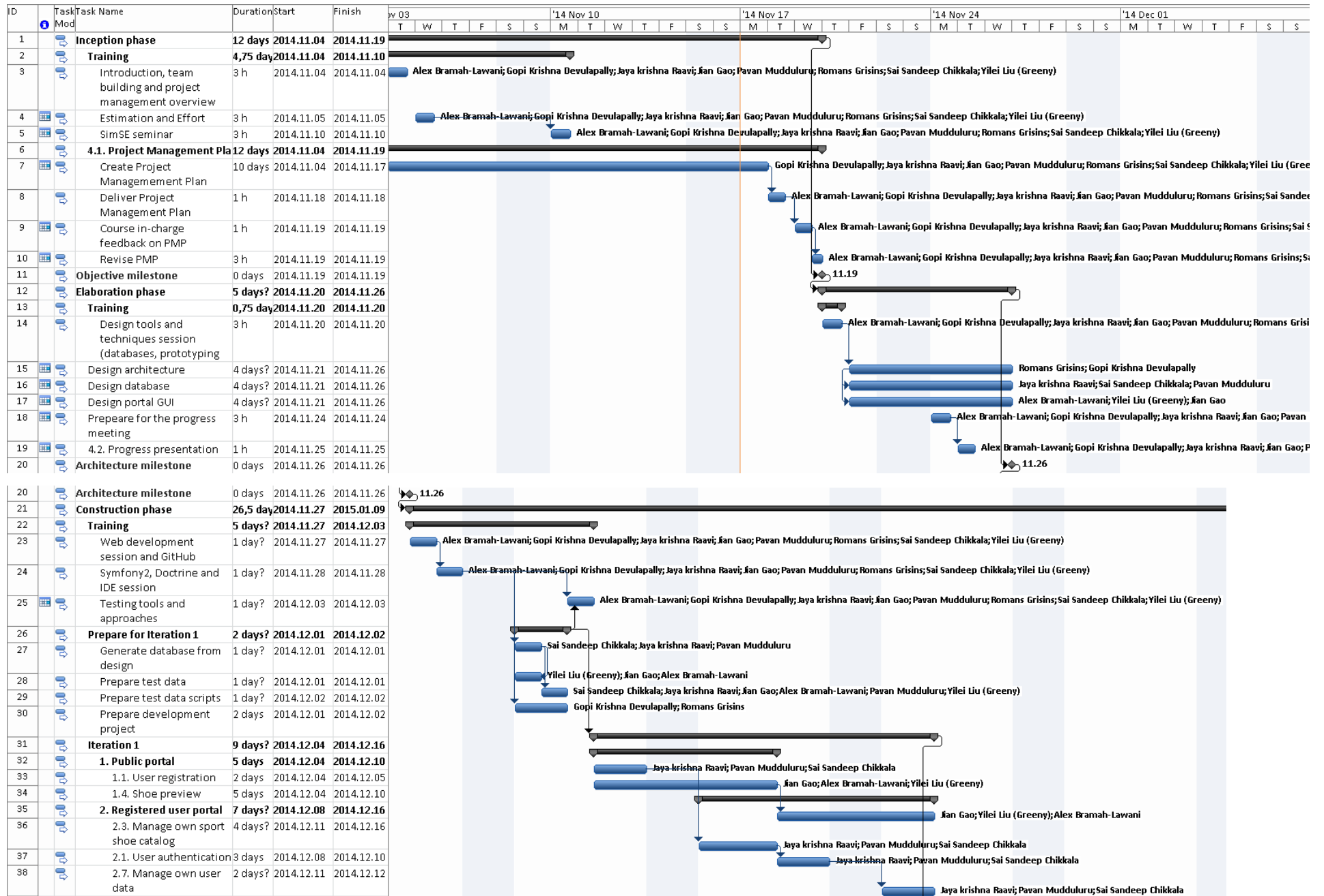
Name	Start	Finish	Duration	Resources
Inception phase	2014.11.04.	2014.11.19 .	12 days	
Training	2014.11.04.	2014.11.10 .	4,75 days	
Introduction, team building and project management overview	2014.11.04.	2014.11.04 .	3 h	All team
Estimation and Effort	2014.11.05.	2014.11.05 .	3 h	All team
SimSE seminar	2014.11.10.	2014.11.10 .	3 h	All team
4.1. Project Management Plan	2014.11.04.	2014.11.19 .	12 days	
Create Project Management Plan	2014.11.04.	2014.11.17 .	10 days	All team
Deliver Project Management Plan	2014.11.18.	2014.11.18 .	1 h	All team
Course in-charge feedback on PMP	2014.11.19.	2014.11.19 .	1 h	All team
Revise PMP	2014.11.19.	2014.11.19 .	3 h	All team
Objective milestone	2014.11.19.	2014.11.19 .	0 days	
Elaboration phase	2014.11.20.	2014.11.26 .	5 days	
Training	2014.11.20.	2014.11.20 .	0,75 days	
Design tools and techniques session (databases, prototyping and web)	2014.11.20.	2014.11.20 .	3 h	All team
Design architecture	2014.11.21.	2014.11.26 .	4 days	Romans Grisins;Gopi Krishna Devulapally
Design database	2014.11.21.	2014.11.26 .	4 days	Jaya krishna Raavi;Sai Sandeep Chikkala;Pavan Mudduluru
Design portal GUI	2014.11.21.	2014.11.26 .	4 days	Alex Bramah-Lawani;Yilei Liu (Greeny);Jian Gao
Prepare for the progress meeting	2014.11.24.	2014.11.24 .	3 h	All team

4.2. Progress presentation	2014.11.25.	2014.11.25	1 h	All team
Architecture milestone	2014.11.26.	2014.11.26	0 days	
Construction phase	2014.11.27.	2015.01.09	26,5 days	
Training	2014.11.27.	2014.12.03	5 days	
Web development session and GitHub	2014.11.27.	2014.11.27	1 day	All team
Symfony2, Doctrine and IDE session	2014.11.28.	2014.11.28	1 day	All team
Testing tools and approaches	2014.12.03.	2014.12.03	1 day	All team
Prepare for Iteration 1	2014.12.01.	2014.12.02	2 days	
Generate database from design	2014.12.01.	2014.12.01	1 day	Sai Sandeep Chikkala;Jaya krishna Raavi;Pavan Mudduluru
Prepare test data	2014.12.01.	2014.12.01	1 day	Yilei Liu (Greeny);Jian Gao;Alex Bramah-Lawani
Prepare test data scripts	2014.12.02.	2014.12.02	1 day	Sai Sandeep Chikkala;Jaya krishna Raavi;Jian Gao;Alex Bramah-Lawani;Pavan Mudduluru;Yilei Liu (Greeny)
Prepare development project	2014.12.01.	2014.12.02	2 days	Gopi Krishna Devulapally;Romans Grisins
Iteration 1	2014.12.04.	2014.12.16	9 days	
1. Public portal	2014.12.04.	2014.12.10	5 days	
1.1. User registration	2014.12.04.	2014.12.05	2 days	Jaya krishna Raavi;Pavan Mudduluru;Sai Sandeep Chikkala
1.4. Shoe preview	2014.12.04.	2014.12.10	5 days	Jian Gao;Alex Bramah-Lawani;Yilei Liu (Greeny)
2. Registered user portal	2014.12.08.	2014.12.16	7 days	
2.3. Manage own sport shoe catalog	2014.12.11.	2014.12.16	4 days	Jian Gao;Yilei Liu (Greeny);Alex Bramah-Lawani
2.1. User authentication	2014.12.08.	2014.12.10	3 days	Jaya krishna Raavi;Pavan Mudduluru;Sai Sandeep Chikkala

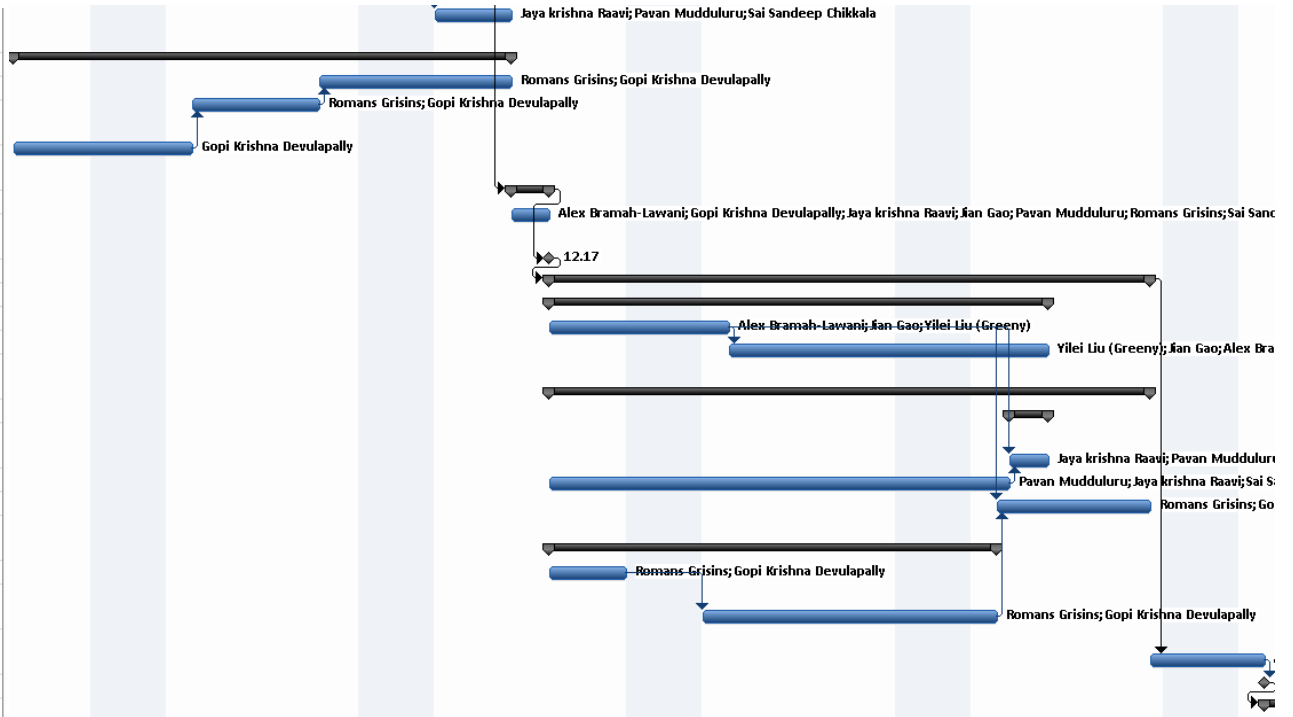
2.7. Manage own user data	2014.12.11.	2014.12.12 .	2 days	Jaya krishna Raavi;Pavan Mudduluru;Sai Sandeep Chikkala
2.8. View other user profiles	2014.12.15.	2014.12.16 .	2 days	Jaya krishna Raavi;Pavan Mudduluru;Sai Sandeep Chikkala
3. Admin portal	2014.12.04.	2014.12.16 .	9 days	
3.2. Users management	2014.12.12.	2014.12.16 .	3 days	Romans Grisins;Gopi Krishna Devulapally
3.3. Shoe catalog management	2014.12.08.	2014.12.11 .	3,5 days	Romans Grisins;Gopi Krishna Devulapally
3.4. Categories management	2014.12.04.	2014.12.08 .	2,5 days	Gopi Krishna Devulapally
Handle iteration 1	2014.12.17.	2014.12.17 .	1 day	
Project control meeting with course responsible	2014.12.17.	2014.12.17 .	1 day	All team
Iteration 1 ended	2014.12.17.	2014.12.17 .	0 days	
Iteration 2	2014.12.18.	2015.01.02 .	6,5 days	
1. Public portal	2014.12.18.	2014.12.30 .	6 days	
1.2. Viewing news feeds	2014.12.18.	2014.12.22 .	2,5 days	Alex Bramah-Lawani;Jian Gao;Yilei Liu (Greeny)
1.3. Sport star statistics preview	2014.12.22.	2014.12.30 .	3,5 days	Yilei Liu (Greeny);Jian Gao;Alex Bramah-Lawani
2. Registered user portal	2014.12.18.	2015.01.02 .	6,5 days	
2.8. View other user profiles	2014.12.30.	2014.12.30 .	1 day	
Write private message	2014.12.30.	2014.12.30 .	1 day	Jaya krishna Raavi;Pavan Mudduluru;Sai Sandeep Chikkala
2.9. Mail box	2014.12.18.	2014.12.29 .	5 days	Pavan Mudduluru;Jaya krishna Raavi;Sai Sandeep Chikkala
2.2. Manage own news feeds	2014.12.29.	2015.01.02 .	2 days	Romans Grisins;Gopi Krishna Devulapally
3. Admin portal	2014.12.18.	2014.12.29 .	4,5 days	
3.1. News feeds management	2014.12.18.	2014.12.19 .	2 days	Romans Grisins;Gopi Krishna Devulapally

3.6. Sport star statistics management	2014.12.22.	2014.12.29 .	2,5 days	Romans Grisins;Gopi Krishna Devulapally
Handle iteration 2	2015.01.02.	2015.01.05 .	1 day	All team
Iteration 2 ended	2015.01.05.	2015.01.05 .	0 days	
Iteration 3	2015.01.05.	2015.01.08 .	3 days	
2. Registered user portal	2015.01.05.	2015.01.08 .	3 days	
2.4. Comments	2015.01.05.	2015.01.07 .	2 days	Jaya krishna Raavi;Pavan Mudduluru;Sai Sandeep Chikkala
2.5. Ratings	2015.01.05.	2015.01.08 .	3 days	Alex Bramah-Lawani;Jian Gao;Yilei Liu (Greeny)
2.6. Share content	2015.01.07.	2015.01.08 .	1 day	Sai Sandeep Chikkala;Jaya krishna Raavi;Pavan Mudduluru
3. Admin portal	2015.01.05.	2015.01.08 .	3 days	
3.5. Comments management	2015.01.05.	2015.01.08 .	3 days	Romans Grisins;Gopi Krishna Devulapally
Handle iteration 3	2015.01.08.	2015.01.09 .	1 day	All team
Iteration 3 ended	2015.01.09.	2015.01.09 .	0 days	
Initial operational capability	2015.01.09.	2015.01.09 .	0 days	
Transition phase	2015.01.09.	2015.01.16 .	5 days	
Prepare for final project presentation	2015.01.09.	2015.01.15 .	4 days	All team
4.3. Final project presentation	2015.01.15.	2015.01.16 .	1 day	All team
Product release	2015.01.16.	2015.01.16 .	0 days	

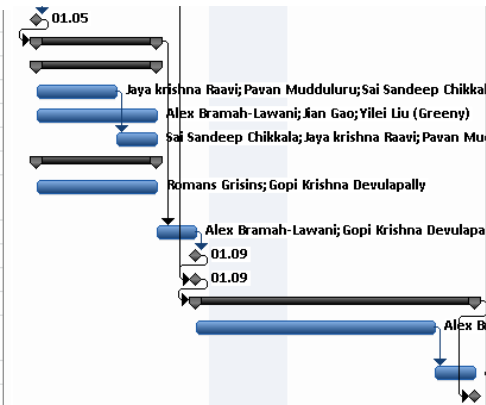
Appendix No. 4.: Project Gantt chart



39		2.8. View other user profiles	2 days	2014.12.15	2014.12.16
40		3. Admin portal	9 days	2014.12.04	2014.12.16
41		3.2. Users management	3 days	2014.12.12	2014.12.16
42		3.3. Shoe catalog management	3,5 days	2014.12.08	2014.12.11
43		3.4. Categories management	2,5 days	2014.12.04	2014.12.08
44		Handle iteration 1	1 day?	2014.12.17	2014.12.17
45		Project control meeting with course responsible	1 day?	2014.12.17	2014.12.17
46		Iteration 1 ended	0 days	2014.12.17	2014.12.17
47		Iteration 2	6,5 days	2014.12.18	2015.01.02
48		1. Public portal	6 days	2014.12.18	2014.12.30
49		1.2. Viewing news feed	2,5 days	2014.12.18	2014.12.22
50		1.3. Sportstar statistics preview	3,5 days	2014.12.22	2014.12.30
51		2. Registered user portal	6,5 days	2014.12.18	2015.01.02
52		2.8. View other user profiles	1 day?	2014.12.30	2014.12.30
53		Write private message	1 day?	2014.12.30	2014.12.30
54		2.9. Mail box	5 days	2014.12.18	2014.12.29
55		2.2. Manage own news feeds	2 days	2014.12.29	2015.01.02
56		3. Admin portal	4,5 days	2014.12.18	2014.12.29
57		3.1. News feeds management	2 days	2014.12.18	2014.12.19
58		3.6. Sportstar statistics management	2,5 days	2014.12.22	2014.12.29
59		Handle iteration 2	1 day?	2015.01.02	2015.01.05
60		Iteration 2 ended	0 days	2015.01.05	2015.01.05



60		Iteration 2 ended	0 days	2015.01.05	2015.01.05
61		Iteration 3	3 days?	2015.01.05	2015.01.08
62		2. Registered user portal	3 days?	2015.01.05	2015.01.08
63		2.4. Comments	2 days	2015.01.05	2015.01.07
64		2.5. Ratings	3 days	2015.01.05	2015.01.08
65		2.6. Share content	1 day?	2015.01.07	2015.01.08
66		3. Admin portal	3 days	2015.01.05	2015.01.08
67		3.5. Comments management	3 days	2015.01.05	2015.01.08
68		Handle iteration 3	1 day?	2015.01.08	2015.01.09
69		Iteration 3 ended	0 days	2015.01.09	2015.01.09
70		Initial operational capability	0 days	2015.01.09	2015.01.09
71		Transition phase	5 days?	2015.01.09	2015.01.16
72		Prepare for final project presentation	4 days	2015.01.09	2015.01.15
73		4.3. Final project presentation	1 day?	2015.01.15	2015.01.16
74		Product release	0 days	2015.01.16	2015.01.16



Appendix No. 5.: Past Industrial Data

No	Function Points	Development Time
1	183	459
2	202	243
3	111	79
4	115	383
5	172	312
6	35	82
7	751 (Excluded)	147 (Excluded)
8	44	206
9	157	268
10	210	314
11	470	495
12	224	188
13	379	210
14	190	134

