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Advanced Software Process |CPSC 544 INSTRUCTOR- PROF. CHANG-HYUN JO

Homework 2

Team 1

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Revision Table

Name	Work Description	Date
Saranya Arunachalam	Read and understand the Homework 2 Outline	10/01/2017
	Work on the Phase 2- Diagnosing Phase - MDD 2 activities	10/20/2017
	Work on the Derive Findings and Goals Mapping Template for the agile process (Scrum and XP) to CMMI (PP_REQM_PMC_CM_PPQA)	10/22/2017
	Work on the Process Area Ratings	10/31/2017
	Work on the appraisal result	11/06/2017
	Create Revision Table, Table of Contents, Figure list, Team Charter, Evaluation Sheet	11/24/2017
	Final changes to the report	11/24/2017
	Consolidate the Final report and send for team review	11/24/2017
Charushila Awhad	Read and understand the Homework 2 Outline	10/01/2017
	Work on the Introduction and Phase 1- Initiating phase	10/7/2017
	Work on the Phase 2- Diagnosing Phase- (MDD 3 activities)	11/11/2017
	Work on the Phase 3- The Establishing Phase	11/15/2017
	Review the report	11/25/2017
Ketaki Shikarpur	Read and understand the Homework 2 Outline	10/01/2017
	Work on the Derive Findings and Goals	10/22/2017

	Mapping Template for the agile process (Scrum and XP) to CMMI (PP_REQM_PMC_CM_PPQA)	
	Work on the Process Area Ratings	10/31/2017
	Work on the appraisal result	11/06/2017
	Final inputs and changes to the report	11/24/2017
	Review the report	11/25/2017
Sonal Patil	Read and understand the Homework 2 Outline	10/01/2017
	Work on the Diagnosing Phase (Phase 2)- MDD1	10/15/2017
	Work on the Phase 3- The Establishing Phase- (Action plan)	11/21/2017
	Review the report	11/25/2017

Contents

Figure List

1. INTRODUCTION

1.1 Process Definition

The below process is used to improve the current process using standard models. The IDEAL model was used as improvement process model. IDEAL model is an organizational improvement model that serves as a roadmap for initiating, planning and implementing improvement actions. This model forms an infrastructure to guide an organization in planning and implementing an effective SW process improvement program. IDEAL model named for five phases it describes: initiating, diagnosing, establishing, acting and learning.

First Phase: Initiating phase

This phase described the need for improvement. It included the following:

- Stimulus for change: It has described the event or condition that indicates some sort modification or change was needed and therefore initiated the IDEAL cycle.
- Set context: It has defined the response to above stimulus. In this case it was to initiate the improvement process by assessing it.
- Build sponsorship: It involved activities such as convincing all teams related to the change initiative and then obtained their agreement to become visible and active sponsors of the change initiative.
- Charter infrastructure: It has described the people involved in the process who were accountable for taking actions.
- Organization's business goals: The goals of organization for undertaking the improvement process which in turn was directly or indirectly responsible for the organization's success.
- Scope of appraisal: This section described the limitation to this appraisal.

Second Phase: Diagnosing Phase

This phase was responsible for the following activities:

- The current process we used was compatible with the SCRUM and XP. We assessed the current process with CMMI to find the gaps in the process and improve the capability level of the process.
- We used SCAMPI-compliant appraisal for an assessment of current process level. SCAMPI consists of three phases to evaluate the process are: Plan and prepare for appraisal, conduct appraisal and Report appraisal.

- Based on gaps founded in the assessment of three phases, we developed the recommendation to improve process level.

Phase Three: Establishing Phase

This phase had the following activities:

- The priorities for recommendations built in the above phase has been set. We considered top five prioritized recommendations.
- An approach has been built to deal with those five priorities. It states the action needed to improve the process.
- Finally built action plan based on the report.

Phase four: Acting

Phase five: Learning

1.2 Objective

- To learn the software development process.
- To assess the current process.
- To improve the current process to meet the business goals.
- To learn and use standard process such as CMMI.
- To learn how to find the weaknesses in current process and make improvements.

1.3 Scope

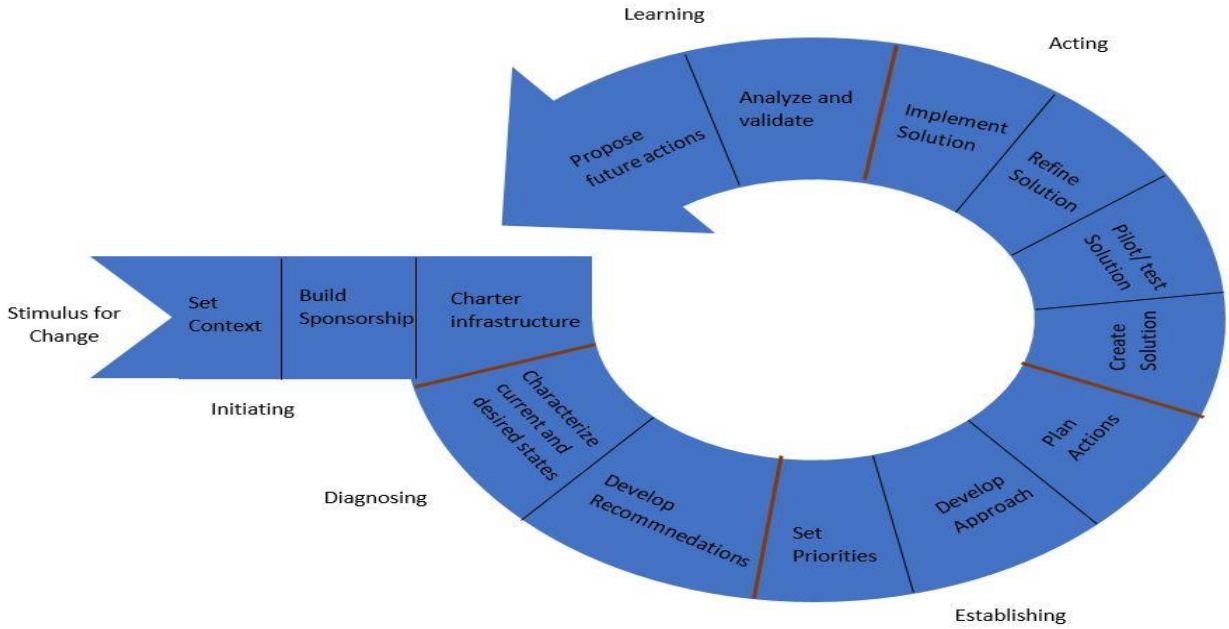

Figure 1. Phases of Process Improvement

2. Phase 1 – The Initiating Phase

2.1 Stimulus for Change

The stimulus for improvement are as follows:

- Customer need to follow CMMI-DEV v1.3 compliant process instead of current process.
- Improving the maturity level of process from CMMI level 1 to 2 for some of the process areas.
- As a part of benchmarking activity as a part of continuous improvement approach.

2.2 Set Context

The above response to the stimulus of change was to:

- Assess the current process in contradiction with standard process given by customers.
- Find current process weakness.
- Improve the current process to satisfy the business goals.

2.3 Build Sponsorship

The higher management of the organization agree for need to assess the current process and participated and cooperated in improving the current process which in turn will result in good for organization from business goal perspective.

2.4 Charter Infrastructure

Once the change reason and context are understood and key sponsors are committed to the effort, the organization must set up the mechanism for managing the implementation details for the effort.

The process infrastructure consists of:

1. Management steering committee (site manager): The manager is “Sonal”. She will control the process improvement project. She will take weekly meetings to review progress and will make major decisions regarding process improvement project.

2. Process group (Appraisal team): The team head is “Saranya”. The team is responsible to define, maintain and improve the organization’s process. They establish their process that also includes decision making, meetings, risk management, action items, reviews, performance tracking, resource tracking and configuration management. The team also establishes the process improvement library and process improvement repository. The library contains information (e.g., articles, books) that might be referred for process

improvement. The repository holds the information generated by process group, including process, plan, form, procedure, templates and training material.

3. Technical working groups (support group): The team head is "Charushila". The group is responsible to solve the specific problems acknowledged by process team. They also define new and existing processes, evaluate process by comparing them to CMMI model. Also, they help others to implement recent technology and processes.

2.5 Organization's Business Goals:

- Gaining customer satisfaction

Customer satisfaction is the major goal of the organization. We must have to gain customer satisfaction by meeting all their expectations. It can be measured by customer expectations versus the delivered product. It will help to demonstrate organization's effectiveness and worth to its customer's.

- Increase competitiveness

Organizations can enhance the competitiveness by modifying current model to new, efficient and low cost operating model and finding out faults of the current process.

- Improve performance

It can be improved by improving the skills and knowledge required for the improvement and change process model to enhance the process.

- Improve deliverable quality

Organizations can improve the deliverable quality by quality assurance and by getting feedbacks.

- Completing under estimated schedule and budget

One of the major goal of the organization is to complete the project within estimated schedule and budget. Otherwise it will not be profitable for organization. If the customer satisfaction is not accomplished and budget exceeds then the project can be disaster for the organization.

2.6 Scope of Appraisal:

There are 21 process areas considered for process improvement. We are considering four process areas (Project Planning, Configuration Management, Process Monitoring and

control, Process and Product Quality Assurance). There are five Capability Levels from CL1 to CL5. We are considering CL2. Our current process in at Capability level CL1.

3. Phase 2 – The Diagnosing Phase

Current verses Desired Process Status

To achieve the desired process status, we are considering four processes to improve and fill the gap between SCRUM and XP practice and the specific practices. Below are the four process areas we are considering:

7. CM – Configuration Management
7. PMC – Project Monitoring and Control
7. PP – Project Planning
7. PPQA – Process and Product Quality Assurance

3.1 Configuration Management (CM)

3.3 Identifying the configuration of selected work products that compose the baselines at given point

The technical and configuration settings is same across the team and we have maintained same version of IDE during the development of "Bubble Sort App to avoid any configuration and technical issuers. However, we have not stated any baseline for our current process. So, the activity is not satisfied.

3.3 Controlling changes to the configuration items

By maintaining single copy of the code which helped to team to resolve any configuration issues. Moreover, single copy of the code was easy for the team to revert to older version of the code whenever there are issues in the newer version. Hence controlling changes to the configuration items was easy and this is satisfied.

3.3 Building or providing specifications to build work products from the configuration management system

In our current process, we have developed product by maintaining same technical and configuration specifications which resulted in building desired product. Hence this activity is satisfied.

3.3 Maintaining the integrity of baselines

As mentioned earlier, we have not maintained any baseline for our current process in the term of configuration specifications. Moreover, each team member reviewed their each other work and satisfied with changes. Hence, this activity is not satisfied.

3.3 Providing accurate status and current configuration data to developers, end users and customers

This activity is partially satisfied because testing team maintained all the changes in the application and test cases helped the development team to resolve conflicts related to configuration. Hence, development team was aware of the changes related to configuration or any change in the status. But, these changes were never reached to end users and customers.

3.2 Project Monitoring and Control (PMC)

Project Management and Control includes 10 specific practices and grouped into 2 specific goals (SG 1 Monitor Project Against Plans and SG2 Manage Corrective Action to Closure)

SG 1 Monitor Project Against Plans

SP 1.1 Monitoring project planning parameters

As part of the project planning in our current process, meetings, number of items in product backlog and maintaining sprint burn down chart helped the team keep track of the process. However, monitoring project parameter was not part of the plan. So, this activity is partially satisfied.

SP 1.2 Monitor commitments

In our current process, commitments are made during sprint planning meeting. This meeting is conducted during start of the sprint and scrim master monitors progress of the sprint. During sprint planning, each team members are committed to the tasks to complete it by the end of the sprint and tasks which are not completed are carried to next sprint. Hence, this activity is satisfied.

SP 1.3 Monitor project risks

During the sprint, items will be at risk when committed items are not completed by the team members. This kind of risks are carried out before end of the sprint and carried out the activity called risk management. Hence, risks are identified and monitored during the sprint and this activity is satisfied.

SP 1.4 Monitor data management

In our current process, this activity is not satisfied because we never conducted or followed any procedure to monitor or track data management for any activity.

SP 1.5 Monitor stakeholder involvement

The product backlog, sprint backlog and burn down chart in our current process gives complete picture of the team progress towards delivering product. And stakeholder involvement with the team so it gives them overall progress of the team and what team is achieving. Hence, monitoring stakeholder involvement satisfies this activity.

SP 1.6 Conduct progress reviews

In our current process, daily sprint meeting and burn down chart gives teams progress and performance of each team members. Hence, progress is reviewed and monitored, and this activity is completely satisfied.

SP 1.7 Conduct milestone reviews

At the end of the sprint, sprint retrospective or sprint review meeting is carried out by our Scrum Master Ketaki. In this meeting, team discuss about the project progress, what went well during this sprint and what needs to be improved by taking sprint backlog as reference. Hence, milestone reviews show overall picture of the project and this activity is completely satisfied.

SG 2. Manage Corrective Action to Closure

SP 2.1 Analyse issues

During scrum meetings or team reports any issues against expected quality with actual one and any performance issue with application in our current process. Also, any issues faced by testing team. These issues are then prioritized by the scrum master which needs to be resolved as soon as possible. Hence, issues are analysed, and this activity is satisfied.

SP 2.2 Take corrective actions

In our current process, scrum master takes responsibility of the corrective actions and assigning them to the team members. Suppose, testing team were not able to complete the testing of item within the current sprint then scrum master prioritizes this item as high priority. Hence, this activity is satisfied.

SP 2.3 Manage corrective actions

As mentioned earlier, scrum master is responsible of taking corrective actions and prioritizing them. So, all the corrective actions are monitored and resolved. But, result from these corrective actions never managed and analysed. Hence, this activity is partially satisfied.

3.3 Product and Product Quality Assurance (PPQA)

3.4 Objectively evaluating performed processes and work products against the applicable process descriptions, standards and procedure.

Suppose standards and procedures are not followed in our current process, it will be reviewed during quarterly review meetings. Hence, objectively evaluating performed processes and work products against the applicable process descriptions, standards and procedure activity is satisfied.

3.4 Identifying and documenting noncompliance issues

In our current process, by maintaining single copy of code helped to team to identify and resolve configuration issues. It was easy for the team to go back to older version of code if there any issues in the newer one. Also, baseline was maintained for each configuration activity. But, these issues never documented so this activity is partially satisfied.

3.4 Providing feedback to project staff and managers on the results of QA activities

In or current process, QA activities are performed but never provided feedback or reported to the project staff and managers. Hence, providing feedback to project staff and managers on the results of QA activities is partially satisfied.

3.4 Ensuring that noncompliance issues are addressed.

As mentioned earlier, all the noncompliance issues will be monitored and prioritized by the scrum master in our current process. For instance, testing team could not complete testing of the activity or item which is committed within the current sprint, then scrum master prioritizes and make it high priority for next sprint. Also, other teams like development team makes sure that all the tasks are completed before starting the new one. Hence, this activity is satisfied.

3.4 Project Planning (PP)

Project planning is considered of 3 specific goals and categorized into 14 specific practices. Below is list of 3 specific goals for project planning:

- Establish Estimates
- Develop project plan
- Obtain Commitment to the Plan

SG 1 Establish Estimates

SP 1.1 Estimate the scope of a project

Estimation of the project is carried during start of new sprint thru entire software development life cycle. In our current process, we followed agile methodologies where each piece of software is delivered incrementally. Scope of the project is estimated at the start of the project with stakeholders and all the required resources are estimated based on the scope of the project. All the required work items are categorized into product backlog. High priority items are selected for development and stored in sprint backlog. Hence, estimation of the project is followed, and this activity is satisfied.

SP 1.2 Establish Estimated of Work Product and Task Attributes

In our current process, we estimated scope of the during start of development process. So, estimation was never performed estimation on the features of work products and task attributes. Hence, establish estimated of work product and task attributes was not practiced ad this activity is not satisfied.

SP 1.3 Define project lifecycle

In our current process, we defined project lifecycle which are categorized into planning, staging, development and release.

- Planning – During planning, we divided all the work items needs to be completed into user stories and requirements. These user stories are grouped into product backlog and with required estimation for each user stories.
- Staging – In this stage, we prioritized user stories from the product backlog and bring into sprint and add to sprint backlog
- Development – All the required sprint items are developed and tested during this stage. So, development of the product is implemented at the end of each sprint.
- Release – During this stage, all the sprint items which are implemented is deployed for the release at the end of each sprint. Hence, defining project lifecycle is satisfied.

SP 1.4 Determine estimated of effort and cost

In our current process, effort for each team members are determined and estimated based on number of items in sprint backlog and product backlog. With the burndown chart, teams progress and performance evaluated at the end of the sprint. But, we did not carry any estimation for cost required to perform tasks. hence this activity is partially satisfied.

SG 2 Develop a Project Plan

SP 2.1 Establish the budget and schedule

In our current process, at the start of the sprint we estimated effort and time required to implement based on the number of items in the product backlog. Based on the team size all the prioritized items are brought into sprint and stored in the sprint backlog. But, establishment of budget was never specified and hence this activity is partially satisfied.

SP 2.2 Identify project risks

All the project risks which we encountered during the sprint and release were captured in project release plan. Then, we identified all types risks involved by performing risk management activity at the end of each sprint or release in our current process. Hence, activity for identify project risk is satisfied.

SP 2.3 Plan for data management

In our current process, we never promoted any activity which satisfied plan for data management. However, we maintained good communication among team member which helped us to perform task smoothly. So, this activity of planning for data management is not satisfied.

SP 2.4 Plan for project resources

In our current process, all the required project resources such as team allocation, schedule was done during the start of the project planning. Our Scrum Master Ketaki responsible for executing them by allocating required for each team members. Suppose allocated resources was not enough for the team then scrum master is responsible for managing it. Hence, this activity for of planning for project resources is satisfied.

SP 2.5 Plan for needed knowledge and skills

In our current process, each team member was assigned with specific roles and responsibilities to developed “Bubble sort app”. Each team member was given maximum of 1-week time to learn the process and android programming. Hence, this activity of planning for needed knowledge and skills is satisfied.

SP 2.6 Plan stakeholder involvement

In our current process, as mentioned earlier stakeholders and Product Owner Ketaki are always involved during planning and responsible for observing the progress of the team. Hence, this activity is satisfied.

SP 2.7 Establish the project plan

In our current process, we created sprint and product backlog. Sprint backlog consist of current sprint items which need to be worked on. Product backlog consists of functional and no functional requirements which are estimated, prioritized during planning. Product backlog and vision document which give overall picture of our project plan. During our project plan, activities which are considered such as understanding of the requirements, estimation of the resources, implementation. Hence, this activity is satisfied for establishing the project plan.

SG3 Obtain commitment to the Plan

SP 3.1 Review plans that affect the project

In our current process, all the planning is done during the start of the sprint. Suppose there is change in the requirements and technologies during the sprint, these changes are approved. At the end of sprint, all the previous sprint items are reviewed. Hence, for reviewing plans that affect the project activity is satisfied.

SP 3.2 Reconcile work and resource levels

In our current process, during sprint planning meeting tasks have been assigned to the available team members and putting strict time boundaries. Sprint planning meeting is carried out during beginning of the sprint and scrum master is responsible for leading this meeting. Daily stand up meeting and sprint retro meeting gives over picture of the progress of the sprint. Hence, the activity for reconciling work and resource levels is satisfied.

SP 3.3 Obtain plan commitment

During sprint planning meeting, product owner and scrum master are responsible for prioritizing the activities which need to be part of the sprint from the product backlog. And all the prioritized activities are brought to sprint backlog. Once sprint starts, if the team feels that items which are committed to the sprint requires more time to implement then product owner will decide which are the items can be removed from the sprint and added to future sprint. In contrast, if the team feels items more items can be implemented then committed ones, then product owner can add future sprint items to the current sprint. Hence, this activity for obtaining plan commitment is satisfied.

3.5 SCAMPI A Phase Summary

Method Definition Document 1 (MDD1)

Plan and prepare for appraisal

Phase	Process	Purpose	Activities
1 Plan and Prepare for Appraisal	1.1 Analyze Requirements	Understand the business needs of the organizational unit for which the appraisal is being requested. The appraisal team leader will collect information and help the appraisal sponsor match appraisal objectives with their business objectives.	1.1.1 Determine Appraisal Objectives 1.1.2 Determine Data Collection Strategy 1.1.3 Determine Appraisal Constraints 1.1.4 Determine Appraisal Scope 1.1.5 Determine Appraisal Outputs 1.1.6 Obtain Commitment to Initial Appraisal Plan
	1.2 Develop Appraisal Plan	Document the results of appraisal planning including the requirements, agreements, estimates, risks, method tailoring, and practical considerations (e.g., schedules, logistics, and contextual information about the organization) associated with the appraisal. Obtain and record the sponsor's approval of the appraisal plan.	1.2.1 Tailor Method 1.2.2 Identify Needed Resources 1.2.3 Develop Data Collection Plan 1.2.4 Determine Cost and Schedule 1.2.5 Plan and Manage Logistics 1.2.6 Document and Manage Risks 1.2.7 Obtain Commitment to Appraisal Plan
	1.3 Select and Prepare Team	Ensure that an experienced, objective, trained, and appropriately qualified team is available and prepared to execute the appraisal process.	1.3.1 Identify Appraisal Team Leader 1.3.2 Select Team Members 1.3.3 Document and Manage Conflicts of Interest 1.3.4 Prepare Team
	1.4 Obtain and Inventory Initial Objective Evidence	Obtain information that facilitates site-specific preparation and an understanding of the implementation of model practices across the organizational unit. Identify potential issues, gaps, or risks to aid in refining the plan. Strengthen the appraisal team members' understanding of the organization's operations and processes.	1.4.1 Obtain Initial Objective Evidence 1.4.2 Inventory Objective Evidence

Phase	Process	Purpose	Activities
	1.5 Prepare for Appraisal Conduct	Ensure readiness to conduct the appraisal, including confirmation of the availability of objective evidence, appraisal team commitment, logistics arrangements, risk status and associated mitigation plans. Plan and document data collection strategies.	1.5.1 Perform Readiness Review 1.5.2 Re-Plan Data Collection

1.1 Analyze Requirements

Purpose – The main purpose is to analyse and understand business requirements what an organization needs when appraisal is requested. The appraisal leader (Saranya) will collect the all the required information and gives it to site manager (Sonal) which corresponds to appraisal objectives with business objectives.

1.1.1 Determine Appraisal objectives

Based on the information received from the appraisal leader, the site sponsor determines all the required appraisal objectives to improve the quality of the current process. Once the objectives are determined, need to make sure they provide important justifications while conducting appraisal. These appraisal objectives can be set for improvement of current process such as: setting bench mark which can be documented and examine any risks to the organization.

1.1.2 Determine Data Collection Strategy

The data collection strategy is determined from the appraisal team (Saranya) and then passed to site manager (Sonal)

1.1.3 Determine Appraisal Constraints

To determine the appraisal constraints which includes, limitation to the methods, resource requirements and what preferences need to be considered. The team consists of Saranya and Sonal planned to provide parameters for the appraisal by maintaining stability among the constraints.

1.1.4 Determine Appraisal Scope

The appraisal scope is determined based on the SCAMPI model and organizational scope. As mentioned earlier during planning, the SCAMPLI model scope is determined and documented for the following areas: Configuration Management (CM), Process Planning (PP), Process Monitoring Control (PMC) and Process and Product Quality Control (PPQA).

1.1.5 Determine Appraisal Output

The team has determined appraisal output for the current process which includes: ratings is obtained during appraisal, recommendations for any finding and all the results are documented for future reference.

1.1.6 Obtain Commitment to Initial Plan

There is no commitment is made to the Initial Plan

1.2 Develop appraisal plan

Purpose – The main purpose of the developing appraisal plan is to provide documentation which consists of requirements, agreements. estimates, risk method tailoring, and practical considerations. Moreover, approval is required from sponsor to develop appraisal plan.

1.2.1 Tailor Method

The SCMAPI model determines methods which can be tailored for the following activities: tailor option is selected when performing any activity, making sure that tailoring decisions are consistent and well documented.

1.2.2 Identify Needed Resources

During planning meeting, all the required resources and information for the appraisal is collected from the team members, contributors, tools, equipment and other appraisal team members.

1.2.3 Develop Data Collection Plan

N/A

1.2.4 Determine Cost and Schedule

In this activity, costs and schedule is determined based on the number of activities included in the appraisal and time required to complete these activities by team. These activities are collected in product backlog and are prioritized during planning.

1.2.5 Plan and Manage Logistics

N/A

1.2.6 Document and Manage Risks

Appraisal leader (Saranya) is responsible for documenting and managing any risks during appraisal execution. Also, responsible for communicating with other team member which includes Ketaki, Charushila, Sonal about mitigation plans.

1.2.7 Obtain Commitment to Appraisal Plan

N/A

1.3 Select and Prepare team

Purpose – The purpose of selecting experienced, trained and qualified team is to execute appraisal process successfully without any issues

1.3.1 Identify Appraisal Team Leader

In this activity, Sonal as site manager selects team leader as Saranya who has knowledge, experience and skills to lead the appraisal team. The team leader is responsible for driving the team and making sure the appraisal process is executed smoothly. During appraisal execution team leader should be aware of the scope, requirements, objectives, and constraints meets the SCAMPI model.

1.3.2 Select Team Member

During this activity, team leader (Saranya) is responsible for choosing the team members who required knowledge, and skill set to execute the appraisal process. Site Manger (Sonal) is involved selecting team members for the appraisal team.

1.3.3 Document and Manage Conflict of Interest

In this activity, team leader (Saranya) documents and managing any conflict of interest during appraisal process execution and during appraisal planning. Additionally, documenting them help the team to avoid any kind of conflicts in future during appraisal execution process.

1.3.4 Prepare Team

In this activity, Saranya is responsible for the managing and preparing the team and assigning the team members specific appraisal activities based on the knowledge and skills set. Each member in the team is given required training to get acquaintance with appraisal process. Moreover, making sure that team is familiar with requirements, objectives and tools and techniques for the executing appraisal process.

1.4 Obtain and Inventory Initial Objective Evidence

Purpose – The purpose of this process to collect the required information which helps in the preparation and understanding the model throughout organizational unit. This results in

identifying issuers, gaps or risks when improving appraisal plan. Moreover, by strengthen the appraisal team members in understanding the appraisal plan and organizational process

1.4.1 Obtain Initial Objective Evidence

N/A

1.4.2 Inventory Objective Evidence

N/A

1.5 Prepare for Appraisal Conduct

Purpose – The purpose of this document is to prepare appraisal conduct and making sure the document includes availability of objective evidence, appraisal team commitment risk status and associated mitigation plans. Also, documenting data collection strategies for appraisal process.

1.5.1 Perform Readiness Review

The activity is performed to make sure appraisal conduct is achieved as planned and executed within the given schedule by the appraisal team. Data readiness, team readiness and appraisal risk status are several characteristics of the readiness review for approval conduct. Saranya and Sonal are responsible for making decision whether to process the appraisal conduct.

1.5.2 Re-Plan Data Collections

N/A

3.6 Method Definition Document 2 (MDD2)

Phase	Process	Activities
Conduct Appraisal	2.1 Prepare Participants	2.1.1 Conduct Participant
	2.2 Examine Objective Evidence	2.2.1 Examine Objective Evidence from Artifacts 2.2.2 Examine Objective Evidence from Affirmations
	2.3 Document Objective Evidence	2.3.1 Take/Review/Tag Notes 2.3.2 Record Presence/Absence of Objective Evidence 2.3.3 Document Practice Implementation 2.3.4 Review and Update the Data Collection Plan
	2.4 Verify Objective Evidence	2.4.1 Verify Objective Evidence 2.4.2 Characterize Implementation of Model Practices and Generate Preliminary Findings
	2.5 Validate Preliminary Findings	2.5.1 Validate Preliminary Findings
	2.6 Generate Appraisal Results	2.6.1 Derive Findings and Rate Goals 2.6.2 Determine Process Area Ratings 2.6.3 Determine Process Area Profile 2.6.4 Determine Maturity Level 2.6.5 Document Appraisal Results

Conduct Appraisal

This phase consists of several processes and activities as listed below.

2.1 Prepare Participants

The purpose is to ensure the participants are correctly informed about the appraisal process and communicate the objectives that needs to be met during appraisal process.

2.1.1 Conduct Participant Briefing

The members participating in the appraisal were given information about their roles & responsibilities performed during the appraisal, which helps them complete the tasks. The

appraisal team leader Saranya gave a brief lecture on the appraisal process and the participants about their roles in the appraisal.

2.2 Examine Objective Evidence

The purpose was to examine the information about the practices which are implemented in the organization and to conduct the process along with data collecting plan.

2.2.1 Examine Objective Evidence from Artifacts

The activity deals with the artifacts, the importance of the artifacts and provides information as what needs to be done by the appraisal team. The inventory contents can be found from the mapping data got from the organizational unit. The data used by the appraisal team is derived from the artifacts which help the implementation of the model practices. Using an artifacts review the insights about the organization can be known. The appraisal team performs task to update the inventory of artifacts which is used as a source of objective evidence, determine the model practices corresponding from the artifacts, review artifacts and to find out the level of organizational unit.

2.2.2 Examine Objective Evidence from Affirmations

The activity deals with the affirmations which are used to support implementation of model practices within the organizational scope of the appraisal. The appraisal team uses affirmations as an evidence on how process is implemented. Saranya works along with the other team members to group the most appropriate affirmation techniques. The Appraisal team reviews the information obtained from affirmations and consider whether it can be an objective evidence, determine the portions of organizational unit which corresponds to objective evidence obtained from affirmations.

2.3 Document Objective Evidence

The purpose of this process is to create records of the information collected and them transform the data into records which document gaps in practice implementation.

2.3.1 Take Review/Tag Notes

The purpose of this activity is to examine data sources, document the objectives and why and how are they are met. The appraisal team may record notes acquired from data-gathering sessions and to relate notes to correspond with the practices in the reference model.

2.3.2 Record Presence/Absence of Objective Evidence

The activity determines the presence or absence of the objective evidence and it done based on the information being collected during the data collecting sessions. The appraisal team records the presence or absence of objective evidence and is noted for each record of data.

2.3.3 Document Practice Implementation

The primary purpose of this activity was to derive from the data collected and show what the appraisal team was looking for to support claim in model practice of the organization.

2.3.4 Review and Update the Data Collection Plan

The activity is used to monitor the state of available objective evidence and to obtain full coverage of the organizational scope of the appraisal.

2.4 Verify Objective Evidence

The activity is to verify the objective evidence and describe the strengths and the weakness of the implementation of model practices. Each implementation is verified so that it can be compared to practices of the reference model.

2.4.1 Verify Objective Evidence

The purpose of this activity is to verify the correctness of the objective evidences on the practice implementation from data being collected during the data collection meetings.

2.4.2 Characterize Implementation of Model Practices

The activity is performed once the verification process on the objective evidence is completed and the appraisal team characterizes the implementation of model practices. Each model practice and each instance sampled the team will document the characterizations based on the implementation of model practices.

The appraisal team characterize the extent to which reference model practices are implemented, implementation characterization values to the organizational unit level, documenting the summary level weakness, and finally to aggregate the characterization values to organizational unit level.

2.5 Validate Preliminary Findings

2.5.1 Validate Preliminary Findings

The purpose is to validate the preliminary findings and discussing strengths and weaknesses with the other members of the organizational unit.

2.6 Generate Appraisal Results

The purpose is to rate the goal satisfaction based on the extent of practice implementation throughout the organization scope of appraisal. The practice implementation is done based on the validated data collected from the organization.

2.6.1 Derive Findings and Goals

Mapping Template for the agile process (Scrum and XP) to CMMI (PP_REQM_PMC_CM_PPQA)

PP						
Goal	**Practice**	**Instance**	**DA**	**IA**	**Affirmation**	**Gaps**
SG1	SP1.1	ORG				
		P1	1.**Sprint backlog**- It is a list of tasks identified by the scrum team to be completed during the sprints. It was done during the initial phase of the sprint 2.**Product backlog** –It is	1. Non-functional requirements 2. Functional requirements 3.User Stories	Sprint meeting minutes	

			a list of all the activities that need to be carried out without within the scope of the project. This was done during the pre-gaming phase of project.			
		P2				
		P3				
		P4				
	SP1.2	ORG				
		P1	2.**Product backlog** – It was used to estimate the efforts of the user stories. It was being done it terms of hours			No estimation tools or algorithms were used to estimate the task attributes like cost and schedule.
		P2				
		P3				

		P4				
	SP1.3	ORG				
		P1	1.**Release planning** – It has high level plan for multiple sprints and it mainly a guideline that shows the features which will be implemented and completed. **2.Product backlog** **3. Sprint backlog**	1.User stories	Sprint review meeting	
		P2				
		P3				
		P4				
	SP1.4	ORG				
		P1	1.**Product backlog**			In our project, there was no cost estimation or any

			2. **sprint backlog** These were used to perform the project effort estimation.			work product which estimations the cost.
		P2				
		P3				
		P4				
SG2	SP2.1	ORG				
		P1	1.**Release planning** – It is used to provide the project schedules. It was used to establish the project schedules which covers all the sprint within the project scope **2. Product backlog** **3.Sprint backlog**			The project budget was not estimated.

		P2				
		P3				
		P4				
	SP2.2	ORG				
		P1	1. **Architecture spike-** It was used to identify and estimate the areas of high risk and it was done during the first iteration 2.**Risk Management** - It consist of following activities such as, identification, assessment, prioritization, mitigation and communication.		Daily scrum meeting	
		P2				

		P3				
		P4				
	SP2.3	ORG				
		P1				For our Agile project, there are no activities for data management, privacy requirements, security requirements, data retrieval.
		P2				
		P3				
		P4				
	SP2.4	ORG				
		P1				In our project work packages, staffing requirements and status reports etc. was not carried out.
		P2				
		P3				
		P4				

	SP2.5	ORG				
		P1	1.**Team charter** Provides details of the team skills and knowledge for the project.		Knowledge transfer sessions.	In our project Staffing and new hire plans is not established
		P2				
		P3				
		P4				
	SP2.6	ORG				
		P1		In process description, the list of stakeholders was mentioned.	In sprint review the stakeholders were involved in reviewing each iteration.	There was no stakeholder involvement plan for our project.
		P2				
		P3				
		P4				
	SP2.7	ORG				
		P1	1.**Vision**			

			2.**Iteration planning** 3.**Release planning** They provide detailed project plan at high level, at sprint level and within the whole project scope. 2. Product backlog 3.Sprint backlog			
		P2				
		P3				
		P4				
SG3	SP3.1	ORG				
		P1				The recording of the review plans that affect the project is not carried out in our project.
		P2				

		P3				
		P4				
	SP3.2	ORG	1.**Sprint backlog** Revision of the requirements and schedule was carried out here.			Re-negotiating budgets, stockholder agreement, use of off the shelf etc was not carried out for our project.
		P1				
		P2				
		P3				
		P4				
	SP3.3	ORG				
		P1	1.**Revision history-** It consists of commitment of each team member.		Daily scrum meeting	
		P2				
		P3				
		P4				
GG1	GP1.1	ORG				

		P1				No specific practices of the process area to achieve specific goals was done.
		P2				
		P3				
		P4				
GG2	GP2.1	ORG				In our project, no organizational policy for planning and performing the process was maintained.
		P1				
		P2				
		P3				
		P4				
	GP2.2	ORG				
		P1				Project planning process is not established for our project.
		P2				
		P3				

		P4				
	GP2.3	ORG				
		P1	1.**Technology preparation documents** It provides the study plan to work on android platform for development purpose.		Learning new concept and technology	
		P2				
		P3				
		P4				
	GP2.4	ORG				
		P1	**1.Revision history-** In our project, the revision history has the details of the team members responsibilities in performing the specific			

			tasks of the process.			
		P2				
		P3				
		P4				
	GP2.5	ORG				
		P1	Trained people to have necessary skills to support the process like: domain application training, self-directed training			
		P2				
		P3				
		P4				
	GP2.6	ORG				
		P1				In our project, there is no configuration management established

		P2				
		P3				
		P4				
	GP2.7	ORG				
		P1				For our project, there is no planning done to identify and involve stakeholders during the execution of the process.
		P2				
		P3				
		P4				
	GP2.8	ORG				
		P1	**1. Product backlog** **2.Sprint backlog** **3. Burndown chart-** It is a graphical representation which shows the work which is			

			pending versus the time. **4. Velocity chart -**It mainly shows the rate of progress of the scrum team.			
		P2				
		P3				
		P4				
	GP2.9	ORG				
		P1	1.**Product backlog and Sprint backlog-** It gives the team an idea, if the effort falls behind the schedule.		1.Daily scrum meeting	The project does not have all the work products that address the non-compliance.
		P2				
		P3				
		P4				

	GP2.10	ORG				
		P1				For our project, we haven't been able to provide the higher-level management with necessary visibility of the activities, status, results of the process.
		P2				
		P3				
		P4				
GG3	GP3.1	ORG				
		P1				For our project, we haven't established or maintained a description of the process.
		P2				
		P3				
		P4				
	GP3.2	ORG				
		P1				For our project, there is no activity that

						collects experiences related to the process of planning and performing the activities.
		P2				
		P3				
		P4				

REQM						
Goal	**Practice**	**Instance**	**DA**	**IA**	**Affirmation**	**Gaps**
SG1	SP1.1	ORG				
		P1	**1.Product Backlog** **2.Sprint Backlog**	User stories- It consist of features which are derived from functional and non-functional requirements		
		P2				

		P3				
		P4				
	SP1.2	ORG				
		P1	1.Revision history- It documents the commitment to requirements by the scrum team.	Sprint Planning Meeting		
		P2				
		P3				
		P4				
	SP1.3	ORG				
		P1				For our project, we haven't incorporated the change management system but scrum method signifies the iterative approach and thus help manage changes.
		P2				
		P3				
		P4				
	SP1.4	ORG				

		P1	1.**Product backlog and sprint backlog-** These two are required to trace the requirements. When the requiremens in each sprint are met, it means that the product backlog is automatically satisfied.			
		P2				
		P3				
		P4				
	SP1.5	ORG				
		P1	1.**Product backlog and sprint backlog**		Sprint review meeting: For our project, we checked at the end of each sprint, whether the tasks completed have met the given	

					requirements.	
		P2				
		P3				
		P4				
GG1	GP1.1	ORG				Project planning process is not established for our project.
		P1				
		P2				
		P3				
		P4				
GG2	GP2.1	ORG				For our project, there is no policy which adhere the inconsistency between the requirements and the project plan
		P1	1.Product backlog and sprint backlog: are used to manage the requirements efficiently.		1Sprint review: Identifies any inconsistencies between requirements and project plans and	

					work products	
		P2				
		P3				
		P4				
	GP2.2	ORG				
		P1				Project planning process is not established for our project.
		P2				
		P3				
		P4				
	GP2.3	ORG				
		P1				Four projects, there is no requirements tracking tool and well as any other traceability tools.
		P2				
		P3				
		P4				
	GP2.4	ORG				
		P1	1.**Revision history**-			

			In our project, the revision history has the details of the team members responsibilities in performing the specific tasks of the process.			
		P2				
		P3				
		P4				
	GP2.5	ORG			Application domain training was given to the development team.	For our project, requirements management tools and negotiation and conflict resolution was not carried out.
		P1				
		P2				
		P3				
		P4				
	GP2.6	ORG				
		P1	1.**Sprint backlog-** It was used to trace the requirements in each sprint			For our project, no requirements traceability matrix was used.
		P2				

		P3				
		P4				
	GP2.7	ORG				
		P1			Daily stand-up calls: Any issues in understanding of the requirements can be solved.	The impact of requirement changes is not assessed in our project
		P2				
		P3				
		P4				
	GP2.8	ORG				
		P1				For our project, we don't have any activity that measures requirements volatility, schedule for coordination of requirements and schedule for analysis of a proposed requirements change.
		P2				

		P3				
		P4				
	GP2.9	ORG				
		P1	1.Product backlog and sprint backlog:			For our project, no requirements traceability matrix was used.
		P2				
		P3				
		P4				
	GP2.10	ORG				
		P1				For our project, we haven't been able to provide the higher-level management with necessary visibility of the activities, status, results of the process.
		P2				
		P3				
		P4				
GG3	GP3.1	ORG				
		P1				For our project, we haven't established or maintained a description of the process.
		P2				

		P3					
		P4					
	GP3.2	ORG					
		P1					For our project, no requirements traceability matrix and no documentation of the lesson learnt in resolving ambiguous requirements.
		P2					
		P3					
		P4					

PMC						
Goal	**Practice**	**Instance**	**DA**	**IA**	**Affirmation**	**Gaps**
SG1	SP1.1	ORG				
		P1	**1.Burndown chart**: Used to periodically check the progress		Sprint review and sprint retrospective.	For our project, cost performance report is not

			against the schedule.			created. Monitoring the resouces is not done.
		P2				
		P3				
		P4				
	SP1.2	ORG				
		P1		Daily scrum meeting Commitments were recorded in the form of minutes of meeting and was documented		
		P2				
		P3				
		P4				
	SP1.3	ORG				
		P1	1.Risk management The risk were identified and appropriate			

			mitigation plan was provided. 2.Architectural spike Used to resolve risk by breaking down the given problem as a smaller piece			
		P2				
		P3				
		P4				
	SP1.4	ORG				
		P1				For our project, there was no data management activities which was carried out
		P2				
		P3				
		P4				
	SP1.5	ORG				
		P1				For our project, there was no document to show the

						stakeholder involvement status.
		P2				
		P3				
		P4				
	SP1.6	ORG				
		P1	1.Sprint Backlog		Sprint review: It is used to review project's progress towards the completion.	
		P2				
		P3				
		P4				
	SP1.7	ORG				
		P1	1.**Sprint Review** **2.Incremental release**			
		P2				

		P3				
		P4				
SG2	SP2.1	ORG			Daily scrum meeting	For our project, there is no proof or documentation to justify that the issue is correctly analysed and resolved.
		P1				
		P2				
		P3				
		P4				
	SP2.2	ORG				
		P1				For our project, there is no corrective action plan addressed.
		P2				
		P3				
		P4				
	SP2.3	ORG				
		P1				For our project, we did not maintain any document for

						corrective actions
		P2				
		P3				
		P4				
GG1	GP1.1	ORG				
		P1				Project planning process is not established for our project.
		P2				
		P3				
		P4				
GG2	GP2.1	ORG				
		P1				For our project, there is no policy that establishes the organizational expectation for monitoring project progress.
		P2				
		P3				
		P4				
	GP2.2	ORG				

		P1				Project planning process is not established for our project.
		P2				
		P3				
		P4				
	GP2.3	ORG				
		P1				For our project, there is no activity or process is found to track the costs, effort reporting, scheduling programs and project management.
		P2				
		P3				
		P4				
	GP2.4	ORG				
		P1	1.**Revision history**- In our project, the revision history has the details of			

			the team members responsibilities in performing the specific tasks of the process.			
		P2				
		P3				
		P4				
	GP2.5	ORG				
		P1				For our project, we have not trained people on data and risk management.
		P2				
		P3				
		P4				
	GP2.6	ORG				
		P1	1.**Sprint backlog** **2. Product backlog**			For our project, measurement and data analysis, earned value reports are not created.
		P2				

		P3				
		P4				
	GP2.7	ORG				
		P1				For our project, risk, data management activities, managing corrective action is not reported to the stakeholders.
		P2				
		P3				
		P4				
	GP2.8	ORG				
		P1				For our project, there is no other activities to monitor and control the Measurements a nd work products.
		P2				
		P3				
		P4				

	GP2.9	ORG				
		P1	1.Sprint review: We have monitored the project progress against the project plan, at end of each sprint			For our project, there is no activity for monitoring the performance, and manage corrective actions.
		P2				
		P3				
		P4				
	GP2.10	ORG				
		P1				For our project, we haven't been able to provide the higher-level management with necessary visibility of the activities, status, results of the process.
		P2				
		P3				
		P4				
GG3	GP3.1	ORG				

		P1				For our project, we haven't established or maintained a description of the process.
		P2				
		P3				
		P4				
	GP3.2	ORG				
		P1				For our project, there is no record of deviation.
		P2				
		P3				
		P4				

CM						
Goal	**Practice**	**Instance**	**DA**	**IA**	**Affirmation**	**Gaps**
SG1	SP1.1	ORG				
		P1				For our project, there are no configuration

						items identified and documented.
		P2				
		P3				
		P4				
	SP1.2	ORG				
		P1				For our project, there are no practices identified to Configuration management and change of database
		P2				
		P3				
		P4				
	SP1.3	ORG				
		P1				For our project, there are no baselines established and described.
		P2				
		P3				
		P4				
SG2	SP2.1	ORG				
		P1	N/A			For our project, there are no practices

						identified for creation of request for change
		P2				
		P3				
		P4				
	SP2.2	ORG				
		P1				For our project, there are no revision history of configuration items and archives of baselines established.
		P2				
		P3				
		P4				
SG3	SP3.1	ORG				
		P1				For our project, there are no revision history of configuration items, change log and status of configuration items established and maintained.
		P2				
		P3				
		P4				

	SP3.2	ORG				
		P1				For our project, no configuration audit and corresponding action items were established..
		P2				
		P3				
		P4				
	SP3.3	ORG				
GG1	GP1.1	ORG				
		P1				Project planning process is not established for our project.
		P2				
		P3				
		P4				
GG2	GP2.1	ORG				
		P1				For our project, there is no organizational policy established for maintaining the baseline, tracking and controlling the changes.

		P2				
		P3				
		P4				
	GP2.2	ORG				
		P1				For our project, the configuration management process is not included in the project plan
		P2				
		P3				
		P4				
	GP2.3	ORG				
		P1				For our project, the following tools are not used: Configuration management tools, data management tools and database management system
		P2				
		P3				
		P4				
	GP2.4	ORG				

		P1				For our project, there is no responsibility and authority assigned for performing the process.
		P2				
		P3				
		P4				
	GP2.5	ORG				
		P1				For our project, there is no training on topics like: configuration library system, configuration management standards, procedures and methods.
		P2				
		P3				
		P4				
	GP2.6	ORG				
		P1				For our project, there is no access list, change report status, CCB meeting minutes, archived

						baseline are placed under control.
		P2				
		P3				
		P4				
	GP2.7	ORG				
		P1				For our project, stakeholder involvement for the activities like: establishing baseline, performing configuration audit , accessing the impact of change etc is not established.
		P2				
		P3				
		P4				
	GP2.8	ORG				
		P1				For our project, monitoring and controlling the changes to the configuration items is not done.
		P2				

		P3				
		P4				
	GP2.9	ORG				
		P1				For our project, baselines and integrity of baselines are not reviewed.
		P2				
		P3				
		P4				
	GP2.10	ORG				
		P1				For our project, we haven't been able to provide the higher-level management review.
		P2				
		P3				
		P4				
GG3	GP3.1	ORG				
		P1				For our project, we haven't established or maintained a description of the process
		P2				

		P3					
		P4					
	GP3.2	ORG					
		P1					For our project, we haven't established or maintained a trend in the status of configuring items
		P2					
		P3					
		P4					

PPQA						
Goal	**Practice**	**Instance**	**DA**	**IA**	**Affirmation**	**Gaps**
SG1	SP1.1	ORG				
		P1				For our project, there are no specific evaluation reports, non-compliance

						report were created.
		P2				
		P3				
		P4				
SG2	SP1.2	ORG				
		P1				For our project, there are no specific evaluation reports, non-compliance report were created.
		P2				
		P3				
		P4				
	SP2.1	ORG				
		P1				For our project, there are no communication regarding quality issues and resolution of non-compliance issues done

						with the staff and managers.
		P2				
		P3				
		P4				
	SP2.2	ORG				
		P1			The scrum master ensured that all non-compliance issues are addressed as planned	There is no formal documentation and as well as description of when and how it is addressed or resolved.
		P2				
		P3				
		P4				
	GP1.1	P1				Project planning process is not established for our project.
		P2				
		P3				
		P4				

GG2	GP2.1	ORG				
		P1	1.**Sprint review:** This mainly evaluates whether processes and associated tasks adhere to the activities described in sprint backlog.			For our project, there is no policy established for documenting quality assurance and addressing of the non-compliance issues.
		P2				
		P3				
		P4				
	GP2.2	ORG				
		P1				For our project, there is no formal planning to perform product quality assurance.
		P2				

		P3				
		P4				
	GP2.3	ORG				
		P1				For our project, there is no resources like: evaluation and noncompliance issues tracking tools
		P2				
		P3				
		P4				
	GP2.4	ORG				
		P1				For our project, there is no responsibility and authority assigned for process and product quality assurance.
		P2				
		P3				

		P4				
	GP2.5	ORG			Training will be given to developers on application domain	For our project, customer relation and quality assurance training is not provided by the organization.
		P1				
		P2				
		P3				
		P4				
	GP2.6	ORG				
		P1				For our project, there are no noncompliance reports and evaluation logs reports which are placed under control.
		P2				
		P3				

		P4				
	GP2.7	ORG				
		P1	.			For our project, there is no activity for resolving and tracking noncompliance issues.
		P2				
		P3				
		P4				
	GP2.8	ORG				
		P1				For our project, there is no activity that monitors and controls the variance of process evaluations and work product evaluations.
		P2				

		P3				
		P4				
	GP2.9	ORG				
		P1				For our project, there is no activity that reviews evaluating work products like evaluation logs and tracking non-compliance reports.
		P2				
		P3				
		P4				
	GP2.10	ORG				
		P1				For our project, we haven't been able to provide the higher-level management review
		P2				

		P3				
		P4				
GG3	GP3.1	ORG				
		P1				For our project, we haven't established or maintained a description of the process
		P2				
		P3				
		P4				
	GP3.2	ORG				
		P1				For our project, no process related experiences like evaluation logs, quality trends, non-compliance report is established.
		P2				
		P3				
		P4				

2.6.2 Determine Process Area Ratings

Practice	Instance	DA	IA	Affirmation	Instance Characterization	Organization Characterization	Goal Rating	PA Rating	Determine Capability Level
SP1.1	ORG					Fully Implemented	Unsatisfied	Unsatisfied	0
	P1	Product Backlog, Sprint Backlog	Functional and non-functional requirements	Sprint meeting	Fully Implemented			Unsatisfied	
	P2								
	P3								
	P4								
SP1.2	ORG					Fully Implemented			
	P1	Product Backlog			Fully Implemented				
	P2								
	P3								
	P4								
SP1.3	ORG					Partially Implemented			

	P1	Release planing, Product Backlog, Sprint Backlog	User stories	Sprint review meeting	Partially Implemented				
	P2								
	P3								
	P4								
SP1.4	ORG					Fully Implemented			
	P1	Product Backlog, Sprint Backlog			Fully Implemented				
	P2								
	P3								
	P4								
SP2.1	ORG					Partially Implemented	Unsatisfied		
	P1	Release planing, Product Backlo			Partially Implemented				

		g, Sprint Backlog							
	P2								
	P3								
	P4								
SP2.2	ORG					Fully Implemented			
	P1	Architectural spike, Risk management		Daily Scrum meeting	Fully Implemented				
	P2								
	P3								
	P4								
SP2.3	ORG					Not Implemented			
	P1				Not Implemented				
	P2								
	P3								
	P4								
SP2.4	ORG					Not Implemented			

	P1				Not Implemented				
	P2								
	P3								
	P4								
SP2.5	ORG					Partially Implemented			
	P1	Team Charter		Knowledge transfer session	Partially Implemented				
	P2								
	P3								
	P4								
SP2.6	ORG					Partially Implemented			
	P1		Process description	Sprint review	Partially Implemented				
	P2								
	P3								
	P4								
SP2.7	ORG					Fully Implemented			

	P1	Vision, release planning, product backlog, sprint backlog			Fully Implemented				
	P2								
	P3								
	P4								
SP3.1	ORG					Not Implemented	Unsatisfied		
	P1				Not Implemented				
	P2								
	P3								
	P4								
SP3.2	ORG					Fully Implemented			
	P1	Sprint Backlog			Fully Implemented				
	P2								
	P3								
	P4								

SP3.3	ORG					Fully Implemented			
	P1	Revision history		Daily Scrum meeting	Fully Implemented				
	P2								
	P3								
	P4								
SP3.3	ORG					Partially Implemented			
GP1.1	ORG					Not Implemented	Unsatisfied		
	P1				Not Implemented				
	P2								
	P3								
	P4								
GP2.1	ORG					Not Implemented	Unsatisfied		
	P1				Not Implemented				
	P2								
	P3								
	P4								

GP2.2	ORG					Not Implemented			
	P1				Not Implemented				
	P2								
	P3								
	P4								
GP2.3	ORG					Largerly Implemented			
	P1	Technology preparation document		Learning new concepts and technology	Largerly Implemented				
	P2								
	P3								
	P4								
GP2.4	ORG					Partially Implemented			
	P1	Revision history			Partially Implemented				
	P2								
	P3								
	P4								

GP2.5	ORG					Fully Implemented			
	P1	Train people			Fully Implemented				
	P2								
	P3								
	P4								
GP2.6	ORG					Partially Implemented			
	P1	Configuration management			Partially Implemented				
	P2								
	P3								
	P4								
GP2.7	ORG					Not Implemented			
	P1				Not Implemented				
	P2								
	P3								
	P4								
GP2.8	ORG					Fully Implemented			

	P1	Product Backlog, Sprint backlog, burndown chart, velocity chart			Fully Implemented				
	P2								
	P3								
	P4								
GP2.9	ORG					Fully Implemented			
	P1	Product Backlog, Sprint backlog			Fully Implemented				
	P2								
	P3								
	P4								
GP2.10	ORG					Not Implemented			
	P1				Not Implemented				
	P2								

	P3								
	P4								
GP3.1	ORG					Not Implemented	Unsatisfied		
	P1				Not Implemented				
	P2								
	P3								
	P4								
GP3.2	ORG					Not Implemented			
	P1				Not Implemented				
	P2								
	P3								
	P4								

2.6.3 Determine Profile

N/A

2.6.4 Determine Maturity Level

N/A

2.6.5 Document Appraisal result

Appraisal Result				
Organization				
Organization Name:	**Fullerton Software Company**			
Organizational Unit:	**Software development unit**			
Appraisal Sponsor Name:	**Ketaki S**			
Lead Appraiser Name:	**Saranya A**			
SEI Partner Name:	**Robert W**			
Organizational Unit Description				
Projects/Units/Support Groups	**AMSE Team 1**			
Organizational Sample Size				
% of people included:	**100**			
% of projects/units included:	**100**			
Org Scope Description:				
			PAs	**CL Rating**
Appraisal Description			CM	0
Appraisal End Date:	**28th November**		PMC	0
Appraisal Expiration Date:	**28th November**		PP	0

Appraisal Method Used:	**SCAMPI_ V1.3 A**					PP QA	0
Model Information:	**CMMI-DEV v1.3**						
Appraised Functional Areas Included:							
Model Scope and Appraisal Ratings							
Level 2	**Rating**	**Level 3**	**Rating**	**Level 4**	**Rating**	**Level 5**	
REQM	Unsatisfied	RD	Unsatisfied	OPP	Unsatisfied	OID	Unsatisfied
PP	Unsatisfied	TS	Unsatisfied	QPM	Unsatisfied	CAR	Unsatisfied
PMC	Unsatisfied	PI	Unsatisfied				
SAM	Unsatisfied	VER	Unsatisfied				
MA	Unsatisfied	VAL	Unsatisfied				
PPQA	Unsatisfied	OPF	Unsatisfied				
CM	Unsatisfied	OPD	Unsatisfied				
		IPM	Unsatisfied				
		RSKM	Unsatisfied				
		DAR	Unsatisfied				
ORGANIZATION UNIT	Maturity	**Level**	0				

		Rating		

3.7 Method Definition Document 3 (MDD3)

Phase	Process	Purpose	Activities
3. Report Results	3.1 Deliver Appraisal Results	Provide credible appraisal results that can be used to guide actions. Represent the strengths and weaknesses of the processes in use at the time. Provide rating (If planned for) that accurately reflect the capability level or maturity level of the processes in use.	3.1.1 Deliver Final Findings 3.1.2 Conduct Executive Session (s) 3.1.3 Plan for Next Steps
	3.2 Package and Archive Appraisal Assets	Preserve important data and records from the appraisal, and dispose of sensitive materials in an appropriate manner.	3.2.1 Collect Lessons Learned 3.2.2 Generate Appraisal Record 3.2.3 Provide Appraisal Feedback to the SEI 3.2.4 Archive and/or Dispose of Key Artifacts.

3.1 Deliver Appraisal Results:

The main aim of this process was to deliver the generated appraisal results. All ratings and findings will be used in generating the final appraisal result to the organizational unit.

3.1.1 Deliver Final Findings:

The final finding encompasses complete summary of positives and negatives for each process area. Appraisal team should document all findings with considering all appraisal team members.

3.1.2 Conduct Executive Session(s):

The goal of this activity is to executive session among all appraisal team members. The executive sessions are conducted to document the appraisal results.

3.1.3 Plan for next Steps:

The Plan for next step activity sums up the steps that needs to be taken care once the final findings are delivered. Appraisal report also consists of the steps that needs to be taken care and discussed with the team members. It is important to meet all these objectives.

3.2 Package and Archive Appraisal Assets:

3.2.1 Collect Lessons Learned:

This is one of the final activity to wrap up the appraisal. Teams typically record lesson learned from their experience. The goal of these lessons learned is to document what went right, what went wrong and providing any suggestion or recommendation to improve method or its execution.

3.2.3 Generate Appraisal Record:

N/A

3.2.3 Provide Appraisal Feedback to the SEI

N/A

3.2.4 Archive and/or Dispose of Key Artifact

N/A

3.3. Recommendations:

- It is recommended to use some estimation tools and algorithms to estimate the attributes such as cost and schedule.
- It is recommended to include the cost estimation process to estimate and calculate the project budget. It will help to provide the clear idea of resource requirement for accomplishment of the project.
- Recommended to add activities for data management, privacy requirement, Security requirements and data retrieval.
- It is recommended to have a plan for project resources such as staff hiring, to make sure the organization success and hire the excellent people to complete their work.
- Recommended the staff training. It will be directly related to staff knowledge, skills and strategies necessary to do a job. It will include teaching new skills, exposing employees to unfamiliar ideas, giving them chance to practice and getting feedback on specific technique or style of working with the people.
- It is recommended to have a stakeholder involvement plan. As in sprint review the stakeholder were involved in reviewing each sprint. It is good to have documentation for involvement and feedback from the stakeholders.
- It is recommended to establish organizational policy for planning and performing the process.
- The Monitoring and controlling process is recommended.
- It is recommended to establish the configuration management lifecycle.
- The process for project planning should be carried out as the project planning defines the project activities and end products that will be performed and how the activities will be accomplished. The project planning defines the major tasks and estimate the resource and time required and provides the framework for management and control.

4. Phase 3- The Establishing Phase

4.1 Set Priorities

The main goal of phase 3 is to improve the process. To improve our process from Capability level 0 to Capability level 2. The following process areas should be satisfied:

1. Project Planning
2. Project Monitoring and Control
3. Supplier agreement Management
4. Requirement Management
5. Process and product Quality Assurance
6. Configuration Management
7. Measurement and Analysis

In our process, we a mainly concerned about Project Planning.

The following are top 5 prioritized recommendations to satisfy the Project Planning Process Area:

- Establish an estimation plan

We should satisfy a formal estimation plan that incorporates but not limited to the following such as, task and cost estimation.

- Establish project planning:

We should establish the formal or complete project plan to manage the project.

- Resource Planning:

We should develop a proper resource plan that summarize the resource requirement for the accomplishment of the project.

- Establishing a data management plan:

We should deploy a data management plan that outlines how the data is handled during and completion of project.

- Establish a configuration management:
  We should conduct the configuration management to control and manage the process and project.

4.2 Develop Approach

Based on recommendations the following approaches need to develop to improve the current process.

- Establishing an estimation plan for the process can be possible through establish and maintain estimates of the work products, tasks and their costs. In order to do these the following should be done: technical approach for estimation, identify task size and complexity, work products and use of an estimation models.

- Establish a formal project plan for managing the project that can be done through the following:
  - Establish and maintain the project's budget. A rational estimation must be done for the budget to avoid risks.
  - Plan for expected knowledge and skills needed to perform the project. A staffing, new hire plans and database should be provided in order to perform the plans.
  - Identification of relevant stakeholders how they are performed.

- Establish and maintain the resource plan for project planning processes, developing the work products and providing various services to the process. The following should be provided to identify and allocate the resources such as, special tools, equipment and training. Also, a profile of labor and staff report showing effort spent on performing the process should be provided. The project resources can be established by providing the following:
  - Work breakdown structure work packages.
  - Work breakdown structure task dictionary.
  - Staffing need based on project size and scope.

- Establishing a plan for data management for process can be done by providing the following:
  - Data management plan.
  - Master list of managed data.
  - Data content and format description.
  - Data requirements list for acquirers and suppliers.
  - Privacy requirements.

- Security requirements and procedures.
- Mechanism for information retrieval, reproduction and distribution.
- Schedule for collection of project data.
- Listing of project data to be collected.

- Establishing and maintaining configuration management can be done through the following:

  - Monitor and control the process. This can be done by going through the accomplishments and results of the process against the plan for performing the process and actual performance against the plan for performing the process.

  - Control the work products through project lifecycle.

  - Place chosen work products of the project planning process under proper levels of control.

4.3 Action Plan

Findings	Recommendations	Priorities	Feasible Approach
Cost Estimation should be established. We have not provided cost estimation in our current process and stated architectural spike and different ways to identify as cost	Cost estimation is recommended for any project which gives overview about the number of resources required to complete the project.	Priority level 1	Plan for project cost estimation can be established and maintained through number of work products and tasks needs to be implemented. It can be achieved based on the size and complexity of the tasks and work products. Also, use of estimation tools and models.
Data management plan should be maintained and established	Data management plan activity is recommended because the organization data is very important	Priority level 2	The key elements for establishing data management plan are as follows: • Data description such as nature,

	resource which indicates organization business activities and practices. The advantages of data management plan such as increases productivity, reduces cost efficiency, operational nimbleness, security risks are reduced, reduce the risk of losing vital information.		scope and scale of data • Data Management plan • Identifying data requirements list for acquirers and for suppliers • Data organization which indicates how data is managed during project • Access and Sharing data • Data Ethics and Privacy • Data archiving and preservation • Data storage and backup for storing multiple copies of data • Data security • Establishing relationship to existing data source • Scheduling and listing of project data
Stakeholder involvement should	We highly recommend	Priority level 3	The key elements for establishing stakeholders'

be established. In our current process of Scrum and XP, we have not included stakeholders but need to make sure that stakeholder is also selected as product owner and involved in sprint meeting, planning meeting during each iteration.	stakeholders involvement in project because project can be successfully objectives and expectations of the stakeholders are achieved. Also, stakeholder will have overview about the project which will benefit the staff as they constantly get feedback from them.		involvement and project plan for managing project includes: • By establishing project's budget and estimation required to complete the project will avoid any kind of risks. • By establishing the plan where required skillset and knowledge should be needed to implement the project. This can be done by hiring new staff with appropriate skillset and knowledge and provide them required training to perform the activities. • Stakeholder mush be identified upfront which are relevant with authority to assign resources and enforce the decisions regarding the project.
Configuration management or project planning life cycle should be established as in	Configuration management lifecycle establishment is recommended as it	Priority level 4	Configuration management can be established: • By going through the accomplishments and

our current process of Scrum and XP these are not included	ensures that current design and build state of the system is good and trusted. The benefits of using configuration management such as greater agility and faster problem resolution, cost reduction, increases efficiency, stability of the system and decreases risk and greater level of security.		results of the process against the plan for performing process and measuring the performance of the process against the plan for performing process we can monitor and control the process. • Work products can be controlled during project lifecycle. • Placing work products which need to be allocated under appropriate levels of control
Establish a plan for project resource	Plan for project resource is recommended because it helps to find all the resources required to complete the project successfully. Resource plan will give exact resources of staff, tools and materials required to complete the project.	Priority level 5	Resources plan for project should be established and created during start of the project. Comprehensive resource plan should be created which helps to identify all the resources needed to complete the project such as tools, equipment and training. Moreover, it helps to identify the budget and expenditure required for completion of the project. Alternatively, project

			resources can be established based on the • Work breakdown based on work packages • Work can be breakdown based on the task assigned to each staff • Based on the project size and scope staff or resources can be hired

5. Phase 4: The Acting Phase

4.1 Create solution

4.2 Pilot/test solution

4.3 Refine solution

4.4 Implement solution

6. Phase 5: Learning Phase

5.1 Analyze and validate

5.2 Propose future actions

7. Lesson Learnt

7.1 Saranya Arunachalam

In this homework, I learned how to evaluate the process for the BubbleSort application which was created using the Scrum and XP methodologies. I was able to assess a process against CMMI and develop an improvement plan. The homework 2 was a little challenging but highly informative. It gave me full opportunity to understand what is required for an organization to obtain a rating Capability level 2 from a rating of 0. The homework outline, the Q&A on titanium helped to understand the requirement for the project. Learnt the process of rating and the appraisal results. Playing roles like the appraisal lead gave me full to understanding of the roles and responsibilities.

As a team, we supported each other and provided suggestions when required. We assessed our current process which was defined in homework 1 against CMMI. We had organized regular meetings as the homework was challenging. Effective team work helped to complete the report on time.

7.2 Sonal Patil

This homework taught me to assess the process using homework 1. It made me learn the whole assessment process in a step by step procedure. Initially, it was hard for me to understand as I have no experience in this aspect, but then I understood it in a better way when I was able to connect the assessment process to the process I used for my homework 1.

My team was very supportive during the whole course of performing this homework. We spent a lot of time together understanding and helping each other in understanding the details of process assessment and performing. Overall, it was tough but a good learning experience and gained a lot of knowledge from this homework. Also, this homework will surely help me in the future in the actual work environment.

7.3 Charushila Ahwad

The lesson I learned from this homework was to asses a process against CMMI DEV 1.3 and develop a process improvement plan. To complete homework 2, I utilized the SCRUM and XP methods that I learnt in homework1. I learnt what an organization must do to improve their capability to develop software effectively. I learned how the organizations used IDEAL model as organizational improvement model and use of SCAMPI A version 1.3 appraisal in diagnosing phase. We used CMMI to assess the process and to see where the improvements were possible. We also understood and implemented the CMMI model components that

consists of process areas, specific goals, generic goals, specific practices, generic practices etc. Out of 22 process areas We used 4 process areas i.e. PP, PMC, CM and PPQA. I come to know how to write direct artifact, indirect artifact, affirmation and gaps of each process area. I understood how the gap will show the difference between my process and CMMI. Based on this I understood how to give the prosses area rating and appraisal result. We provided the recommendations and action plan from our findings. In this way, this homework helped to understand how we can improve our process from capability level from 0 to 2.

As a team, we constantly communicated with each other, did knowledge sharing to understand and complete full homework. I also understood how to use IDEAL/ SCAMPI/ CMMI/ Agile/ Scrum in a corporate. With each assigned role and responsibility in a group will help me to correlate it with the real working environment.

7.4 Ketaki Shikapur

This home-work to me was really the most useful assignment as this gave a three sixty view about the entire process cycle, we went from building the android application to assessing the process and finding the gaps between each process. In this homework, we mainly focused on the in-depth learning of the CMMI and implementing it for our project and suggesting improvements. For me the best learning so far in this home work was about the appraisal concepts, by preparing the appraisal table I got a thorough knowledge about it and how it works.

This time the learning process took place from various means, firstly it was from doing the homework 2 and the next was from reading the various detailed materials which professor had uploading as the guideline materials. Lastly the team was enthusiastic and coordinated that we tried finishing the homework way ahead of the schedule and review it more than once. Each team member was involved in the brain storming and suggesting various improvements and discussions. In general homework 2 was useful and was extremely informative.

8. REFERENCES

1. *"Digital Library." CMMI for Development, Version 1.3, 20 Nov. 2017, resources.sei.cmu.edu/library/asset-view.cfm?assetID=9661.*
2. *"Digital Library." CMMI or Agile: Why Not Embrace Both!, 20 Nov. 2017, resources.sei.cmu.edu/library/asset-view.cfm?assetid=8533.*
3. *"Digital Library." Standard CMMI Appraisal Method for Process Improvement (SCAMPI) A, Version 1.3: Method Definition Document, 20 Nov. 2017, resources.sei.cmu.edu/library/asset-view.cfm?assetid=9703.*
4. *Published Appraisal Results, seir.sei.cmu.edu/pml*

9. Team Charter

Course Title	CPSC 544- Advanced Software Process	*All team members participated in the creation of this charter and agree with its content.* ***Date*** *08/31/2017*
Instructor	Dr. Chang-Hyun Jo	
Course Dates	08/21/2017 – 12/08/2017	

Team Members

Name	Address (city, state, country)	Phone	Cell	Email
Saranya Arunachalam	Fullerton, CA	628-237-9241	628-237-9241	saranarun@csu.fullerton.edu
Charushila Awhad	LA, CA	919-649-9171	919-649-9171	charushila.awhad@csu.fullerton.edu
Sona Patil	Fullerton,CA	510-300-4962	510-300-4962	sonalpatil@csu.fullerton.edu
Ketaki Shikarpur	Fullerton,CA	657-243-5685	657-243-5685	ketaki_shikarpur@csu.fullerton.edu

Team Member Skill Inventory

Ketaki Shikarpur	▪ Database Design and Development ▪ Systems Architecture ▪ Agile Methodology and Scrum ▪ Project Management

	▪ Software Lifecycles (waterfall, spiral, iterative and Requisite Pro ▪ Database (PL/SQL, Oracle 9i) ▪ MS Office Suite (Word, Excel, PowerPoint, Project) ▪ Automation testing (Selenium) ▪ Operating System (Windows, Linux)
Sonal Patil	▪ No experience in industries ▪ Recently graduated from the Mumbai University in Information Technology ▪ MS office suite ▪ Database(MYSQL) ▪ Operating System (Windows, Linux)
Saranya Arunachalam	▪ MS Word, Excel, PowerPoint ▪ Mainframe Performance and capacity management ▪ SAS programming, TDS(Tivoli decision support), QMF(Query management), SQL, JCL(Job query Language),DB2, CICS ▪ Data analytics ▪ Operating system zOS ▪ C, C++ ▪ Project Lead ▪ Operating System (Windows, Linux)
Charushila Awhad	▪ Distributed System, Big Data/Hadoop ▪ Software lifecycle (Agile methodology, Scrum call) ▪ Microsoft Office (Word, Excel, PowerPoint) ▪ Project Management. ▪ Database design and modelling. ▪ Database(oracle10g)

Team Goals

▪ Understand software design and architecture method and process. ▪ Similarities among them. Their benefits and challenges. ▪ Group discussion, collaboration to submit assignment on time. ▪ Maintaining good relationship between teammates. ▪ Submit quality paper that contains all information as mentioned. ▪ Develop skills to work in corporate environment.

Team Roles

Ketaki Shikarpur (Software Architect)	▪ Documentation of each member's task and their completion deadlines. ▪ Schedules meetings an understands each team member's roles and responsibilities. ▪ Supervise each team member regarding their contribution for the work assigned.
Sonal Patil (System Architect)	▪ Consolidating each member's task. ▪ Ask teammate for their progress and task status. ▪ Make sure that each meeting covers all points and issues resolved.
Saranya Arunachalam (Team Lead)	▪ Responsible for coordinating and maintaining each task of team member. ▪ Ensure that every team member working towards goal. ▪ Consolidating each member's task. ▪ Consolidate the final report for review
Charushila Awhad (System Architect)	▪ Provide plan to each team member to submit assignment on time. ▪ Confirm that every team member is following schedule with task. ▪ Document vital information.

Ground Rules

- All team members must be punctual and prepared for each team meeting.
- Participation and input is expected from all team members.
- All opinions will be considered and equally valued.
- The team will meet at least once each week
- Team members will notify the lead in advance if they are not going to be able to attend a scheduled meeting.
- Team members should check email at least once a day to stay on top of things.
- In case of emergency, the team should be informed about the absence and also follow up on the missed days discussion.
- Homework should be completed at least 5 days prior to deadline.
- Schedule should be prepared and strictly followed.
- All work should be divided equally among all team members.
- All team members should completely avoid plagiarism and use own ideas and creative thinking for homework.

Time Commitments/Availability

Ketaki Shikarpur	▪ M & W from 8:00am to 10pm ▪ T & Th free before 1:00pm and after 7:pm ▪ 8am-5pm Saturday & Sunday, all day
Sonal Patil	▪ M , W,F,S,Su from 8:00am to 10pm ▪ T & Th free before 1:00pm and after 7:pm
Saranya Arunachalam	▪ M , W,F,S,Su from 8:00am to 10pm ▪ T & Th free before 1:00pm and after 7:pm
Charushila Awhad	▪ M , W,F,S,Su from 8:00am to 10pm ▪ T & Th free before 1:00pm and after 7:pm

Conflict Management

- Assign roles and responsibility to each member with deadline.
- In case of any disagreement between team members.
- If team member is having any issue regarding task allotted or any other issue, then all team members must sit together to resolve that conflict.

Risk Management

- Incomplete requirement and changing requirement is major issue in project failure.
- Lack of resources, less team support and skills, deficient planning, impractical expectations major risks involved in project.
- Project risk can be reduced by working with stakeholder, checking risk every week. Mitigation can be done by limiting risk impact.

Team Evaluation Criteria

- Evaluation is based on the work done, team meeting, participation, communication through email.
- Task completion on-time.

10. Team Evaluation

Members / Evaluators	Saranya Arunachalam	Charushila Awhad	Sonal Patil	Ketaki Shikarpur	Total	Comments on Your Evaluation on Team
Saranya Arunachalam	100	100	100	100	**400**	Every member put in effort
Charushila Awhad	100	100	100	100	**400**	All members did well.
Sonal Patil	100	100	100	100	**400**	Great team work and co-ordination
Ketaki Shikarpur	100	100	100	100	**400**	A nice team to work with
Total	400	400	400	400	1600	
Max	400	400	400	400	600	
Average	100.00	100.00	100.00	100.00	400.00	
Percent	100.00%	100.00%	100.00%	100.00%	100.00%	
Signature						
Comments on Your Score Earned from Team	I am happy with score. Hardwork paid off.	I got good score.	I deserve this score.	As per my performance I deserve it.		