UNIVERSITY OF ALBERTA
FACULTY OF SCIENCE
Department of Computing Science

SOFTWARE PRODUCT MANAGEMENT CAPSTONE

OPEN STUDY GUIDE

CONTENTS

INTRODUCTION

Welcome to the Software Product Management (SPM) Capstone! This course comprises the capstone project for the SPM Specialization.

The SPM Specialization features six courses:

Introduction to Software Product Management
Software Processes and Agile Practices
Client Needs and Software Requirements
Agile Planning for Software Products
Reviews and Metrics for Software Improvements
Software Product Management Capstone

While the first five courses—the "Core" courses—offer the knowledge and theory that supports SPM, the last course—the SPM Capstone—is a simulation where you can try your skill at managing a software development team.

Previously, the SPM Capstone has been closed and available only to those who that have successfully completed the Core courses. For Fall 2017, the SPM Capstone will be open to all learners. This means that, for the first time, learners may now take this unique capstone experience without having taken any of the Core courses. However, because the SPM Capstone is designed as an opportunity to apply the concepts presented in the Core courses, all learners will still be expected to know that material.

To help those of you who are taking the SPM Capstone and have not taken the Core courses—along with those who have been through the Core courses but would like to review them—this SPM Capstone Open Study Guide will serve to direct you to lessons and assessments in the Core courses that will aid you in understanding and completing the tasks you will be presented with in the capstone.

We recommend that you enroll in all five of the Core courses at once, so you can review the recommended lessons highlighted throughout this guide.

The SPM Capstone is designed as a six-week experience, but the amount of the Core material you need to cover will affect how long you take to complete your weekly tasks. In order not to feel rushed, SPM Capstone sessions will start every four weeks. If you need more than six weeks, you can join the next available session and all of your progress will be saved.

For each week, there will be a brief introduction to the tasks you will be dealing with that week along with a list of suggested lessons from the Core courses that will provide context and help you prepare for your meetings and readings.

Following that, there is a brief description of each assignment due that week and lists of lessons from the Core courses that cover the concepts you will need to understand and complete the assignment.

Before you get started on Week 1 of the SPM Capstone, it is important to note that the simulation will involve the use of Agile practices and Scrum. It is recommend that you review the following lessons. They cover the specific practices that you will use in the capstone.

Course: Introduction to Software Product Management
  Module 2: Foundations of Software Product Management
    Lesson 2: Agile Manifesto
Course: Software Processes and Agile Practices
  Module 2: Process Models
    Lesson 5: Continuous Delivery
  Module 3: Agile Practices
    Lesson 1: Using Agile with Process Models
    Lesson 2: Extreme Programming
    Lesson 3: Scrum

If you are unfamiliar with the role of software product management, review the entirety of Introduction to Software Product Management.

Good luck!

Dr. Kenny Wong
Instructor of Record

Christopher Djuric
SPM Facilitator

WEEK 1

There are a number of readings, videos, and a quiz included at the beginning of Week 1 to be completed before you begin the SPM Capstone project, including a required quiz on plagiarism. 0.3 Software Product Management Capstone Community Guidelines details a set of guidelines for the community that will hopefully lead to an enriching learning experience for all learners. Be sure to complete these.

The SPM Capstone begins with you being hired as a software product manager.

In Week 1 you will be focusing on eliciting requirements for the software product that you will be developing. This will be accomplished through meeting with your client and an expert advisor to learn about their vision for the software they wish to produce and then discussing further with your development team.

Before starting this week's work, review the following lessons.

Course: Client Needs and Software Requirements
       Module 1: Introduction to Requirements
              Lesson 1: What is a Requirement/Requirement Activities
              Lesson 2: Types of Requirements
              Lesson 3: Controlling Scope
              Lesson 4: Requirements and Design
       Module 2: User Interaction
              Lesson 2: User Considerations
              Lesson 3: Involving Clients
       Module 3: Writing Requirements
              Lesson 1: Agile Requirements

Try the Module 1 Practice Quiz and Module 1 Assessment Quiz to see how you're doing with this material.

Being familiar with the material in those lessons will prepare you to navigate your conversations with your client effectively and provide context for the remaining tasks in the week.

1.10 Assignment: Requirements Document

Writing clear and correct requirements is essential in order to build the right product for your client. After meeting with your client and the expert advisor, and discussing with your team, you should have enough information to prepare the requirements document.

It could be worthwhile to re-do the Decision Tree: Meeting the Client and Decision Tree: Expert Advisor Meeting tasks and take notes. Try to choose responses that you did not previously choose, because they could reveal requirements that you may have missed your first time through. Re-watching your Development Team Meeting could also be useful.

You will be writing your requirements in the format of user stories, which can be reviewed in the following lesson.

Course: Client Needs and Software Requirements
       Module 3: Writing Requirements
              Lesson 2: User Stories

Try Module 3: User Stories Assignment to practice writing user stories.

WEEK 2

In Week 1 you met your client and elicited the requirements for the software product they envisioned. You wrote a requirements document in which you expressed these requirements as user stories.

Now in Week 2 you will be refining your user stories through a technical review and generating a risk plan based on discussion with your development team.

Before you meet with your team to discuss the risks you may face in your project, review the following lessons. They will prepare you to identify and assess risks that may arise.

Course: Agile Planning for Software Products
           Module 4: Risk Planning
                      Lesson 2: Common Causes of Failure
                      Lesson 3: Risk Assessment, Likelihood, and Impact

2.1 Assignment: Requirements Technical Review

For this assignment you will be conducting Requirements Technical Reviews by reviewing the Requirements Documents submitted by your peers in last week's assignment. The following lessons will help you understand what makes a good user story and strategies for dealing with ambiguous requirements.

Course: Client Needs and Software Requirements
      Module 4: Quality Requirements
            Lesson 1: Criteria for User Stories
            Lesson 2: Ambiguous Requirements

Try the Ambiguous Requirements Quiz and Module 4 Assessment Quiz to test your knowledge in creating clear, actionable requirements.

2.4 Assignment: Risk Plan

For this assignment you will write a risk plan that highlights the risks you may encounter in the project. The following lessons will aid you in detecting potential risks, assessing their severity and likelihood, and developing contingencies to deal with them.

After reviewing the suggested lessons on risk planning above, and meeting with your team, you should now have identified some of the risks associated with developing your software product. Reviewing the following lesson will help you develop your contingency plans for each risk.

Course: Agile Planning for Software Products
      Module 4: Risk Planning
            Lesson 4: Risk Strategies, Contingency, Mitigation

You are now ready to write your Risk Plan. You may find it helpful to re-watch your Risk Discussion and take notes, as you will need to include each of the risks you discussed with your development team in your Risk Plan.

WEEK 3

Week 3 will see you prepare to start Sprint 1 next week. There is a lot of work to be done, so start early and manage your time wisely.

To ensure that all learners are in the same place, you have been provided with a [suggested list](#) of user stories that you will use to complete further assignments.

At the beginning of the week, you will receive an [email](#) with an attachment in which your development team has annotated the requirements documents with estimated sizes—measured in story points—and task dependencies for each user story. Review the following lessons to familiarize yourself with those concepts.

> Course: [Agile Planning for Software Products](#)
>   [Module 2: Project Planning](#)
>   Lesson 1: Story Points
>   [Module 3: Iteration Planning](#)
>   Lesson 2: Task Dependencies

3.6 Prioritization Quiz

The Prioritization Video Tracker template you are provided with is a very helpful tool for you to keep track of the user story priorities you discuss in the Decision Tree: Prioritization Meeting. It will help you check that you have followed the conversation branches necessary to cover all of the user stories you need to discuss.

You may need to play through the conversation more than once to cover everything. Following this, you should be ready to write the Prioritization Quiz.

3.8 Assignment: Week 3 Release Plan

Now that you have determined the priorities, risk assessments, task dependencies, and size estimates for each of your user stories, you will be creating a Release Plan that takes all of this into account. This involves deciding which user stories will be implemented in each of the three sprints you will be completing.

The following lesson explains the necessity of release plans and how to best approach creating them.

Course: Agile Planning for Software Products
   Module 2: Project Planning
              Lesson 5: Release Plans

Review the Release Planning Tips reading for helpful advice on creating your release plan.

Try Peer Review Assignment: Release Planning to practice creating a release plan.

3.12 Assignment: Iteration Plan for Sprint 1

After meeting with your development team to divide the user stories you have planned for Sprint 1 into tasks, they have sent you an iteration plan in which they estimated the time it will take to complete each of those tasks and assigned a developer to each task.
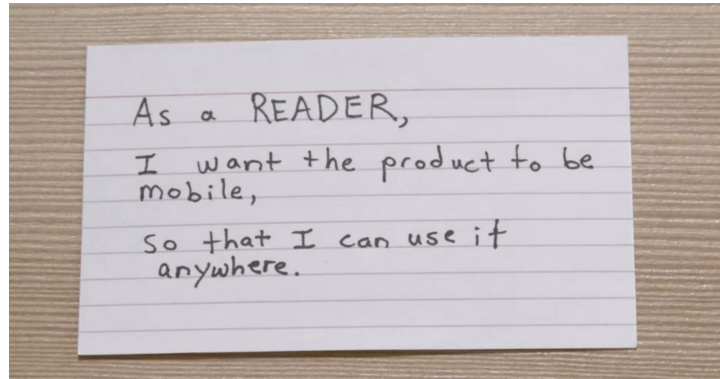
You will need to give feedback on how they have estimated and self-assigned the tasks to be completed in Sprint 1.

Review the following lessons. They cover the relevant concepts you will need to assess your team's iteration plan effectively.

Course: Agile Planning for Software Products
       Module 3: Iteration Planning
              Lesson 1: Estimating Task Time
              Lesson 2: Task Dependencies
              Lesson 5: Iteration Plan

3.13 Assignment: Product Wireframe

With the first sprint starting next week, your client has asked for a rough idea of the product. You will construct a wireframe of any page of the application to show them roughly what your software product will look like. The following lesson demonstrates how to construct useful wireframes.

Course: Client Needs and Software Requirements
       Module 2: User Interaction
              Lesson 5: Wireframes

Try Peer-Graded Assignment: Module 2: Wireframes to practice constructing wireframes.

WEEK 4

Now that you have completed your initial planning, it is time to begin your implementation! This is another busy week, so time management is extremely important.

In Week 4 you will work through your first sprint. This will involve having standup meetings with your development team throughout the week. To understand the purpose and format of these meetings, review these lessons.

Course: Software Processes and Agile Practices
     Module 3: Agile Practices
         Lesson 3: Scrum
Course: Reviews and Metrics for Software Improvements
     Module 3: Managed Right
         Lesson 1: Daily Scrum

At the end of the week you will meet with your client and the expert advisor to demo the working software product and refine the backlog. Reviewing the following lessons will help you effectively navigate this meeting.

Course: Client Needs and Software Requirements
     Module 2: User Interaction
         Lesson 3: Involving Clients
     Module 3: Writing Requirements
         Lesson 4: Product Backlog
Course: Reviews and Metrics for Software Improvements
     Module 1: Right Product
         Lesson 2: Sprint Review Meeting

After that, you will have a sprint retrospective meeting and complete your planning for the next sprint. Reviewing the following lessons will help you get more out your retrospective meeting.

Course: Reviews and Metrics for Software Improvements
        Module 4: Project Retrospectives
                Lesson 1: Retrospectives
                Lesson 2: Retrospectives Issues
                Lesson 3: Sprint Retrospectives

4.3 Assignment: Writing Acceptance Criteria and Tests

To help your development team, you are going to write acceptance criteria and acceptance tests for a number of user stories. Acceptance tests are necessary to ensure that a user story has been implemented correctly. Review the lesson below to prepare for this assignment.

Course: Client Needs and Software Requirements
        Module 3: Writing Requirements
                Lesson 3: Acceptance Tests

4.7 Assignment: Iteration Burndown Sprint 1

Now that you have completed your first sprint, you want to track your development so that you can improve your planning for future sprints. Burndown charts are a commonly used visual monitoring tool that show what work has a been completed and what is left to complete. Release burndowns are used to visualize effort over the whole project and measure time in sprints and effort in story points, whereas iteration burndowns are used to visualize effort over a duration, such as a sprint, and measure time in days and effort in hours.

Since you only have the data for one sprint, an iteration burndown will show more information than a release burndown. Review the following lesson to learn about iteration burndowns.

Course: Reviews and Metrics for Software Improvements
        Module 3: Managed Right
                Lesson 4: Iteration Burndown

4.11 Assignment: Week 4 Release Plan

With Sprint 1 completed, you must now plan for Sprint 2. For this assignment you will generate an updated Release Plan for the project.

Now that you have completed an actual sprint, you have some idea of how your team works. In addition to reviewing the material suggested last week for 3.8 Assignment: Week 3 Release Plan, review the following lesson to see how you can use your knowledge of your team's performance in previous sprints to inform your new plan.

Course: Reviews and Metrics for Software Improvements
        Module 3: Managed Right
                Lesson 1: Velocity

4.13 Assignment: Iteration Plan for Sprint 2

Like they did last week, your team has broken down the user stories for Sprint 2 into tasks, estimated the time for each task, and self-assigned the tasks. You will evaluate the iteration plan for Sprint 2 that your team has provided to you. If you need to, review the lessons suggested last week for 3.12 Assignment: Iteration Plan for Sprint 1.

WEEK 5

Welcome to Week 5 of the SPM Capstone! Manage your time and plan ahead, as there is a lot of work to complete this week!

This week you are working on Sprint 2. Like last week, you will have standup meetings with your team, demo the product to your client, refine the backlog, and plan for the next sprint.

5.2 Assignment: Risk Plan Update

At your Monday standup meeting you discussed a feature that many other features are dependent on. Now you need to assess the risk this poses and update your Risk Plan. You may have already reviewed the following lessons, but they are good resources to help you assess the risks you may face.

Course: Agile Planning for Software Products
   Module 3: Iteration Planning
      Lesson 2: Task Dependencies
   Module 4: Risk Planning
      Lesson 2: Common Causes of Failure
      Lesson 3: Risk Assessment, Likelihood, and Impact
      Lesson 4: Risk Strategies, Contingency, Mitigation

5.8 Assignment: Week 5 Release Plan

After you demoed the product to your clients, you were told the product will now be shown at a trade show the week after next. During your backlog refinement, you decided which feature would be necessary to implement to have an interesting and functional product ready for the trade show. With this in mind you will need to update your Release Plan. If you need to, review the materials suggested in the last two weeks for 3.8 Assignment: Week 3 Release Plan and 4.11 Assignment: Week 4 Release Plan.

5.10 Assignment: Release Burndown

Now that you have data from more than one sprint, a release burndown will show enough information to be useful in tracking your product's development. Review the following lesson to learn about release burndowns.

> Course: Reviews and Metrics for Software Improvements
>   Module 3: Managed Right
>   Lesson 5: Release Burndown

5.13 Assignment: Iteration Plan for Sprint 3

Again, your team has provided you with their iteration plan for the next sprint, which you need to evaluate. If needed, review the lessons suggested for 3.12 Assignment: Iteration Plan for Sprint 1.

WEEK 6

Welcome to the final week of the SPM Capstone!

This week you will be completing Sprint 3 and wrapping up the project. With the trade show that you learned about last week approaching, you need to have an impressive working demo done by the end of the sprint.

As with every sprint, you will have standup meetings with your team and demo the product for your client at the end of the week.

With the pressure to get the demo ready for the trade show, you may encounter some issues. Review the following lesson to prepare for such issues.

Course: Agile Planning for Software Products
   Module 4: Risk Planning
      Lesson 1: Anti-Patterns

Following the end of the sprint, you have a Project Retrospective to mark the end of the project. The following lessons will give you the context you need to get the most out of your project retrospective meeting.

Course: Reviews and Metrics for Software Improvements
   Module 4: Project Retrospectives
      Lesson 1: Retrospectives
      Lesson 2: Retrospectives Issues
      Lesson 4: Project Retrospective Exercises

6.5 Assignment: Release Burndown

After finishing Sprint 3, you will prepare your last release burndown. Since this is the end of the project, this release burndown will show an estimate of how many more sprints it would have taken to complete the user stories that you decided not to implement.

If needed, review last week's suggested lessons for 5.10 Assignment: Release Burndown.

6.9 Assignment: Personal Project Retrospective

Congratulations, this is the last assignment of the SPM Capstone!

This assignment is simply an opportunity for you to reflect on your experience with the SPM Capstone and the rest of the SPM Specialization. Discuss what you have learned, how the experience was for you, what you enjoyed, and any suggestions for what can be improved.

AFTERWORD

Congratulations on completing the SPM Capstone!

Completing this capstone project requires a great deal of effort and discipline, and we appreciate the work that you have put in—from your assignments and peer reviews to your forum posts and emails. We are proud of the work that you have put in to accomplish this, and you should be proud of yourself.

We hope that you will take the knowledge and skills that you have gained here with you wherever your career takes you. We encourage you to come back and update us on how the SPM Capstone and/or the SPM Specialization has affected your career.

Please take a moment to rate and review the courses on Coursera and Class Central. This will help learners across the world find out about our courses and their quality. The following are links to each of the SPM Specialization courses on Class Central:

[Introduction to Software Product Management](#)
[Software Processes and Agile Practices](#)
[Client Needs and Software Requirements](#)
[Agile Planning for Software Products](#)
[Reviews and Metrics for Software Improvements](#)
[Software Product Management Capstone](#)

We appreciate any feedback you can give, as we are always interested in improving the courses that we provide.

Best of luck!

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