SWE30010 Development Project 2: Design, Planning and Management

08 – 15 All Pass Tasks for Sprint #1 [5.1 – 5.2; 6.1; 7.1 – 7.5]

This document describes all pass tasks related to Sprint #1 done by you alone as an individual and your team as a group. It gives you an overview of all pass tasks and how they are related to each other. For the group tasks, you need to register your team in Doubtfire under the "Sprint 1 Group Tasks" and submit it as a group. Please do not call yourself "Sprint #1 Group" as there will be potential conflicts in group names.

How your Sprint works: Start Sprint #1 on Monday in Week 5 (Day 1 of Sprint #1). Day 10 of your Sprint #1 will be Friday the following week.

Suggested Time Frame: Weeks 5 – 7 [2-week sprint, 10 working days]

Start:	Week 5
Feedback:	Ask your tutor in Tutorials in Weeks 5 – 7
Midpoint check:	Show your progress to your tutor in Week 6 Tutorial
Sprint Review:	Demo to the Product Owner (your tutor) in Week 7 Tutorial
Sprint Retrospective:	After the sprint review
Due [5.1 – 5.2]:	Week 6, Mon (Mon, Wed class)/ Wed (Fri class) [1], 9:00am
Due [6.1]:	Week 7, Mon (Mon, Wed class) / Wed (Fri class), 9:00am
Due [7.1 – 7.5]:	Week 8, Mon (Mon, Wed class) / Wed (Fri class), 9:00am

Overview

Assuming you got the contract from your client to develop the system based on your project proposal. You now have a team of 3 – 4 people to develop the software. This is your Sprint #1.

For simplicity, the working time is 8 hours per week per person in your team. In fact, for sustainable development, it is suggested that each individual should spend one – two hours per working day for the entire 2-week sprint. So, a team of 4 people should have a total of 64 hours of work in your 2-week sprint whereas a team of 3 has 48 hours.

In this set of tasks, your team need to perform the actual 2-week sprint **AND** practicing the management practices suggested in Scrum. Detailed in Tasks below.

Purpose:	• To practise the management practices in a sprint • To document and justify your software design so far • To review your team's performance in a sprint
Tasks:	**Sprint Planning Meeting – Group [Pass Task 5.1]** 1. Discuss the factors to be considered in selecting backlog items for development 2. Formulate the criteria for prioritizing the backlog items for development 3. Identify the sprint backlog items to be developed in Sprint #1 4. Break down the tasks required to develop the sprint backlog items selected in 1 above **Setup for Sprint – Group [Pass Task 5.2]** 5. Setup a task board with "Sprint backlog items", "To do (tasks)", "Doing (tasks)", "Testing (tasks)", and "To be confirmed (tasks)". The last column "To be confirmed" collects all completed tasks during the sprint and the team has to demonstrate these being completed in the sprint review 6. Setup a burn-down chart to track the sprint's progress 7. Setup a project repository site **Perform the sprint – Group [Pass Tasks 6.1 and 7.1]** 8. Sign up tasks 9. Perform the tasks 10. Sync files to your repository

[1] The submission due date for Mon and Wed tutorial class is Monday and that for Fri class is Wed.

	11. Record time for completion 12. Update the burn-down chart with an estimate of "remaining effort in hours" 13. Add new product backlog items, if any 14. Perform daily stand-up meetings **End of Sprint meetings – Group [Pass Tasks 7.2 and 7.3]** 15. Book a time for sprint (product) review with the stakeholder (your tutor) 16. Perform sprint review to the stakeholder (your tutor) 17. Perform sprint retrospective **Software Design – Group [Pass Task 7.4]** 18. Document the software design of Sprint #1 19. Justify the design **Peer Review – Individual [Pass Task 7.5]** 20. Review each team member's performance in Sprint #1 including self
Pre-req Task[2]	Pass Task 4.3
Time:	2 weeks for the entire sprint [8 hours per week per person for 10 working days]
Resources:	Lecture 01 Scrum https://en.wikipedia.org/wiki/Scrum_(software_development) Lecture 04 Sprint Backlog Lecture 04 WBS Lecture 04 Estimation Part 1 Lecture 04 Task Scheduling Lecture 04 Burndown chart Peer_Review_Form.docx
Suggested Tools:	[These tools are suggestions only. You can choose your own. It does not matter which one you choose, you still need to figure out how to set it up yourselves.] **Repository**: GitHub – www.github.com **Task Board**: Trello – www.trello.com **Burn-down chart**: Burndown for Trello – www.burndownfortrello.com **Communication Tool**: Slack / Skype / Texting via SMS / WhatsApp [Remember to capture the screen images]
Feedback:	Ask your tutor for feedback
Next:	Pass Task 8.1

Group Pass Tasks 5.1 – 5.2, 6.1, 7.1 – 7.4 Submission Details and Assessment Criteria
Each team needs to create a new group on Doubtfire called it Your Sprint #1 Group. Each team needs to create a document (pdf) in **portrait** mode[3]. You need to organize yourselves so that a person in your team will be responsible for uploading the document to Doubtfire, with the following details:

- Your names and student IDs
- Your tutorial's time (e.g Wed 8.30 or Fri 14.30)
- Your group responses to the following tasks according to the corresponding instructions (see below)

Remember, whoever submits the document the latest will overwrite the previous submissions. Since Doubtfire does not keep the previously submitted documents, the previous submissions will be gone forever.

Submission requirements for each task are in the Tasks and Instructions section below.

[2]You need to complete the pre-req (pre-requsite) task before doing this task.

[3]Landscape mode pdf does not work properly in Doubtfire.

Individual Pass Task 7.5 Submission Details and Assessment Criteria
You must create your own document (pdf) in **portrait** mode[4], which you will upload to Doubtfire, with the following details:

- Your name and student id
- Your tutor's name
- Details (name and ID numbers) of your team members, if any
- Your own responses to the tasks according to the corresponding instructions

Tasks and Instructions

Project Environment / Context
Your proposal of PHP-SRePS has been accepted and agreed by People Health Pharmacy (your client). The entire development team is using the Scrum agile development process with a two-week sprint. Your sub-team consists of 3 – 4 team members. You can choose your own development languages (e.g. Visual Basic, C# or Java). You cannot use or customize any existing project (open or closed) because this is a "development" project not a "customization project.

This is Sprint #1.

Note to students on total amount of hours in a sprint: For professional teams in real life, they use 40 hours per week per person for their effort estimation. However, as a student studying full time (that is, 4 subjects) in a semester, you should use **8 hours per person per week** for your effort estimation.

[**Duration: Next two weeks, 8 hours per week per person]**

Group Pass Task 5.1 Sprint Planning Meeting

1. During the Sprint Planning Meeting, the Scrum team will choose the sprint backlog items from the product backlog items. They will first discuss their own criteria in choosing those backlog items to be developed first. The following is a list of factors that will be considered by the Scrum team in selecting their spring backlog items from the Product Backlog items.
   a. Business Value
   b. Development Effort
   c. Feature Dependency
   d. Date Needed / Timeline
   e. Risk involved (we delay it to the risk management lecture)
   f. Other factors (as you see fit)

   Discuss these factors and explain why they are important for the selection.

   Document the team's discussion with reasoning and submit it to Doubtfire.

2. Formulate your criteria for prioritizing the Product Backlog items and justify your choice

   Document the team's discussion with reasoning (why you think that these are reasonable criteria; and why you think that one has a higher weighing than the others OR all are of equal importance etc.) and submit it to Doubtfire.

3. Use your criteria in Task 2 above to select **the highest priority item** from the Product backlog that could be developed in one sprint [At the moment, a wild guess will be fine. Task 4 below comes the justification.]

[4]Landscape mode pdf does not work properly in Doubtfire.

Note: In case, this item is too big for one sprint (if you feel that it is too big e.g. take 5 weeks to do – a wild guess will do for the moment), you need to break it down further to "smaller" ones so that you can select one that could be done in one sprint. On the other hand, if the feature is too small for one sprint (if you feel that it is too small e.g. it can be done in 1 week), you need to identity additional item(s) in the product backlog that could be done with the chosen one together in the same sprint.

Potential Questions that you may ask

Q.1 Why wild guess? How do we know for sure that the feature is too big or too small?

A. You never know until you perform the Task 3 below, especially in the first sprint or for the time being. In later sprint, there are other ways to do it but depends on your results in previous sprints.

Q.2 Then why are we doing this?

A. I want you to go through the process and reflect. You have to pick one first, then "go through" Task 3 below to determine whether the one that you pick is good enough for the purposes or not. Also the focus here is to identify the highest priority feature based on your criteria.

Q.3 Would it be simpler if we just pick one and lie about the time/effort?

A. That is unprofessional!

Document the entire group's discussion with reasoning and submit it to Doubtfire.

4. Develop a WBS to break down all tasks involved in developing the backlog items selected in Task 3 above, making sure that all tasks can be done in one sprint. Remember to show the hierarchical relationship among the tasks, also their logical sequences in the WBS.

Note: For simplicity, the time for your sprint planning meeting should be counted towards your total work hours. For a 2-week sprint, a scrum team spends 4 hours max to do the sprint planning meeting. Why 4 hours? It is because they have to break down the tasks to a level that they are comfortable to give an accurate effort estimate for each task. This takes time. The team also needs time to discuss – agree or disagree – the task breakdown as well as the effort estimates. For your scrum project in this subject, you should spend 1 hour max to do the planning meeting.

Note: Remember that at the end of a sprint, you must deliver something that is upto the quality standard as specified in your project proposal. Your task breakdown in your WBS must be able to show such intention.

Note: For each bottom task in the WBS, put in the number of (working) hours (i.e. your efforts) required to complete the task. Add them all up. In case, the total is more than 2-week's work (see Note to Students on total amount of hours in Project Context above), it is an indication that the selected feature(s) is/are too big for the sprint. You may then need to revise your work in Task 2 above. Or, it may be that your group over-estimates the time required. So, you may need to revise your timing. The most important point here is that every group member is a responsible individual and is trustworthy, so be honest to yourself and to the group.

Document your WBS and justify why you think that your WBS tasks are able to achieve the original intention (have a quality product in one sprint) and submit it to Doubtfire.

Group Pass Task 5.2 Setup the plan for Sprint

5. Set up a task board (e.g. using "Trello" may be a good idea) for the whole team with the following columns:
   a. "Product backlog items"
   b. "Sprint backlog items"
   c. "To do (tasks)"
   d. "Doing (tasks)"
   e. "Testing (tasks)" and
   f. "To be confirmed (tasks)" – this column collects all completed tasks (at least, your team thinks they are completed) during the sprint and the team has to demonstrate these being completed in the sprint review to the stakeholder (your tutor).

   An example of a task board can be found in https://en.wikipedia.org/wiki/Scrum_(software_development).
   Note the differences in the column headings.

   Note: This task can be performed by one team member. The time spent on setting this up is not counted towards your sprint.

6. Set up an ideal burn-down chart (e.g. how about using "Burndown for Trello") for your sprint as a starting point for your team to indicate the "ideal" progress based on the tasks in the sprint and your estimated efforts (e.g. hours) required to complete the tasks

   An example of a burn-down chart can be found in https://en.wikipedia.org/wiki/Scrum_(software_development).
   Note the differences in the number of hours and the duration of sprint.

   Note: This task can be performed by one team member. The time spent on this is not counted towards your sprint.

7. Set up a project repository (using GitHub may be a good choice)

   By the way, remember to sync your files to the repository after you finish your day's work in the sprint.

Submission: Document your initial task board (Day 0 task board), your ideal burn-down chart (Day 0 burn-down chart), your project repository site on GitHub and submit it to Doubtfire for Pass Task 5.2.

Note: I want the individual images of these items on a daily basis. Links to the captured images are fine. However, I do not want links to the current status on your Trello Board and GitHub because these links can only show the latest update. Hence, when I open the link, it will then show your current status rather than the actual daily progress of your Trello Board and GitHub. That defeats my purposes.

Group Pass Tasks 6.1 and 7.1 – Development during Sprint

For this development project, you can choose your own programming language (e.g. VB, C# or Java). But you must not use / customize any existing project (open or closed) as this is not a customization project.

Suggested time frame of a 2-wk sprint for DP2 purposes

Week	Your selected day	Tutorial day
5	Day 1	Feedback from Tutor
6	Day 6	Feedback from Tutor
7		Sprint review and Sprint retrospective

Group Pass Task 6.1 – Sprint #1, Week 1
As sustainable development suggests, each team member should spend one - two hours per working day for the tasks on the sprint (a total of 8 hours per week). These may involve the following:

8. Sign up tasks (one at a time) that you want to do (remember to put your name on the task sheet on your Task board)

9. Perform the tasks accordingly (remember to move the task to the "Doing" column)

10. Sync your files to the repository at the end of each day's work

11. Record the time to finish a task once you finish a task (meaning that you think that it is finished, remember to move the task from "Doing" to "Testing" – at this stage) so as to update the burn-down chart

    Note: It needs some other team member to check it off before moving the corresponding task to the "Completed" column. There should be a separate "task" in the "To do" column. In case, you do not find it – just add this "testing" task as a new task to the "To do" column first, then some other team member will commit to do this "testing" task.

    Note: Adding new tasks to the Task Board during the sprint is allowed. By doing so, we can refine our sprint planning skills for next sprint.

12. Update the burn-down chart so as to track the sprint progress

13. Add new **Product Backlog Items** (not sprint backlog items), if any

14. Perform daily stand-up meeting

    Note: Your team needs to agree on a time each day to perform a 5 minute daily stand-up meeting. For DP2 purposes, Skype meeting will be fine. Document the meeting minutes for your submissions.

Tasks for Submission of Pass Task 6.1:

a. Select one team member to capture the team's updated Task Board (an image will be fine) at COB of each working day as evidences of your team's progress. **So, I expect 5 such images, one for each day.**

b. Select one team member to capture the team's updated burn-down chart (an image of will be fine) at COB of each working day as evidences of your team's progress. **Again, I expect 5 burndown charts, one per day.**

c. Select one team member to record the daily stand-up meeting. **Again, I expect 5 meeting minutes, one per day.**

d. Select one team member to record the status of your repository (e.g. check-in vs check-out status, an image showing the activity will be fine). **Again, I expect 5 such status reports, one per day**.

Note: These tasks can be performed by just one team member or different team members. The time spent on capturing the required images or taking minutes of daily stand-up is not counted towards your sprint.

Submission: Document your task boards (Days 1 – 5), your burn-down charts (Days 1 – 5), your repository's status (Days 1 – 5) and minutes of your daily stand-up meetings (Days 1 – 5), and then submit it to Doubtfire for Pass Task 6.1 at the end of Day 5

Note: I want the individual images of these items. If you have links to the individual images, that is fine. However, I do not want links to the current status on your Trello Board and GitHub because these links can only show the latest update. Hence, when I open the link, it will then show your current status rather than the previous progress from Day 1 to Day 5 on Trello Board and GitHub. That defeats my purposes.

Group Pass Task 7.1 – Sprint #1, Week 2
Continue to develop the product in the 2nd week of the sprint. Continue to collect evidences of your team progressing through the sprint (e.g. task board, burn-down chart and daily stand-up)

Submission: Document your task boards (Days 6 – 10), your burn-down charts (Days 6 – 10), your repository's status (Days 6 – 10) and minutes of your daily stand-up meetings (Days 6 – 10), and then submit it to Doubtfire for Pass Task 7.1 at the end of Day 10

Note: I want the individual images of these items. If you have links to the individual images, that is fine. However, I do not want links to the current status on your Trello Board and GitHub because these links can only show the latest update. Hence, when I open the link, it will then show your current status rather than the previous progress from Day 6 to Day 10 on Trello Board and GitHub. That defeats my purposes.

Group Pass Task 7.2 Sprint (Product) Review [30 minutes]

15. Send an email to your tutor to book a time in your Week 7 tutorial to perform the sprint review. The time will be approximately 5 - 10 minutes.
16. Perform the sprint review with the stakeholder (your tutor) in Week 7 Tutorial

Your team must at least review the following:

a. the items that were completed

   Need a demo of the completed items to the stakeholder

b. the planned items that were not completed (Why?)

   Questions to consider:

   Q.1 Did your team under-estimate the level of complexity of the item in sprint planning meeting? How can your team get a better estimate on the level of complexity of an item in next sprint?
   Q.2 Did your team under-estimate the time required to complete the task? How can your team get a better estimate on the time required to complete a task in next sprint?
   Q.3 Is the task description of the item too vague for the work? How can your team achieve a better task description next time?
   Q.4 Poor design of the program? How would your team improve on the design of the program in next sprint?

   Other questions? (Please specify)

Note: Remember to book a time (e.g. 10 – 15 minutes) with your tutor for the demo **early**.

Submission: Document your evidence of performing the product review and any comments/suggestions from the stakeholder for improvement

Group Pass Task 7.3 Sprint Retrospective (Process review) [30 minutes]

17. Perform sprint retrospective in Week 7

Your team must at least review the following:

a. Your team's velocity – ideal (from your ideal burn-down chart) vs actual (from your final burn-down chart)

Questions to consider:

Q.1 Did your team over-estimate your ability? Or Did you under-estimate the effort required to complete the tasks?

Q.2 What can you do in order to get a better understanding of the "complexity" of the tasks required? Or What can you do in order to get better time estimations next time?

Other questions? (Please specify)

b. Your team's process

Question(s) to consider: What is working? What is not? Why or Why not?

c. Any suggestions to improve your team's process in next sprint. [Be realistic, you will enact on these suggestions in the next sprint.]

Submission: Document your discussion and suggestions for improvement for next sprint, and submit it to Doubtfire.

Group Pass Task 7.4 Document your Software Design

18. Document the design of the software components for the sprint backlog items completed in Sprint #1

Hint: Remember to use diagram to show the interactions between different software components (e.g. class diagram, sequence diagram, …)

19. Justify your design is following good design principles (followings are some suggestions, you may have others)
    a. Having strong cohesion and weak coupling
    b. Having good OO principles
    c. Using appropriate design patterns (e.g. MVC), algorithms, data structures, and architectural styles

Submission: Document all these and then submit it to Doubtfire.

Individual Pass Task 7.5 Peer Review in Sprint #1

20. Complete the "15_R_Peer_Review_Form.docx" as per the instructions

Submission: Submit your completed peer review form to Doubtfire individually