SE 329 Software Project Management

Final Exam – Summer I 2019

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Directions

- This is a take home exam. Each student must work independently—this is not a group work.
- This exam is open-book, open-note and open-laptop.
- Your answers need to be precise and clear.
- Type your answers in the word document and submit your document as pdf file.
- Total points 100

Read the draft of the project management plan for the "Point of sale" project developed by the New Mexico Department of Information Technology and answer the following questions.

Question 1.1 (10 pts): Summarize the project in one paragraph (up to 7 lines). The questions that the summary should answer include: What problem does the project address? What solution does it propose? What is the project budget? What is the project timeline?

The problem that this project proposes is that taxpayers in New Mexico are only able to pay their outstanding tax debts with cash and checks, which places a limit on the amount of revenue the New Mexico Taxation and Revenue Department (TRD) is able to create. The proposed solution is to introduce Point of Sale (POS) into the system, which will allow citizens to make payments with debit and credit cards, which in turn would generate increased annual revenues from taxpayers for the state. The project plan estimates that among all the work packages provided, the project will cost $2,452,500. The photo of the Gantt chart provided in the proposal appendix is not formatted correctly, which makes it hard to identify the estimated duration of the project. An email to could help to answer this question.

Question 1.2 (10 pts): What development lifecycle model does the PM propose to use in the plan?

The PM proposes the use of an iterative development approach for this project, which involves initializing, planning, and executing.

Question 1.3 (10 pts): Section 2.1 of the project plan lists the identified stakeholders of the project. List one weakness and one strength of the stakeholders list. Then, complement it with other stakeholders—the updated list should include two or more new stakeholders.

One strength of this stakeholder list is that it uses a well-organized structure and readable format to present its information to the reader of the proposal document. On the contrary, a weakness is that it could go into more detail on each stakeholder such as establishing some sort of credibility or listing previous experience for each person. More types of stakeholders can exist for this project, including, but not limited to, various contractors, subcontractors, unions, or other professional organizations that are involved.

Question 1.4 (10 pts): Map the selected project critical success factors (CSFs) [Section 3.3] to the four elements of the project management triangle: scope, budget, schedule, and quality.

CSF 1 → Quality
CSF 2 → Scope

CSF 3 → Budget
CSF 4 → Quality
CSF 5 → Quality
CSF 6 → Budget & Schedule
CSF 7 → Quality

Question 1.5 (10 pts): Section 1.6 and section 1.5 of the project plan list, respectively, a set of initial project risks and a set of assumptions. Associate each of the eight *(I assume this meant to say nine?)* assumptions to either a related risk from the provided initial risks list or a new related risk that you may identify. Then, specify to each of the new risks, the likelihood level, the impact level, and the proposed mitigation strategy.

Assumption 1 → Risk 2 (Infrastructure)
Assumption 2 → Technical Risk — POS fails to integrate with MVD2.0 — Medium Probability — High Impact — To mitigate risk, review the requirements for both platforms and ensure that they are met in order for them to successfully integrate with each other.
Assumption 3 → Risk 4 (POS hardware not supported by COTS solution)
Assumption 4 → Technical Risk — POS fails to integrate with SHARE — Medium Probability — High Impact — To mitigate risk, review requirements for POS COTS and SHARE to ensure compatibility.
Assumption 5 → Cost Risk — There is not enough funding provided from stakeholders — Medium Probability — High Impact — To mitigate risk, find backup stakeholders in case more funding is needed or stakeholders abandon the project
Assumption 6 → Risk 1 (IT Resources)
Assumption 7 → Contractual Risk — Staff is insufficiently trained — Medium Probability — High Risk — Have a backup option for staffing in case of insufficient training so you do not have to pay for training the current staff.
Assumption 8 → Risk 6 (Key project member departs)
Assumption 9 → Risk 5 (User acceptance of POS hardware)

Question 1.6 (10 pts): Section 6.5 provides a communication plan (communication matrix). Identify two weaknesses of the plan. Then, complement the plan with five (5) important communication items—you may provide the complementary communication plan in a table.

Weaknesses:
1. Does not account for meetings regarding missing deadlines or individual conflicts among team members.
2. Fails to address the use of online forms of conferencing to accommodate for the availability of employees.

Deliverable/Description	Target Audience	Delivery Method	Frequency	Responsible Party

Missed Deadlines	TRD Team	Face-to-face	As needed	PM
Team Conflicts	TRD CIO	Face-to-face	As needed	PM
Sprint Review Info	POS ESC	Face-to-face	Monthly	PD/PM
Burndown/up charts	All teams	Email	Weekly	PM
Misunderstandings about goals and objectives	All teams	Face-to-face/Email	As needed	PM/PD

Question 1.7 (10 pts): Appendix A and Appendix B provide, respectively, the WBS and the schedule of the project. Map the tasks of the schedule to the 7 elements of the WBS. (You may need to define implementation and application deployment to answer the question.) Can you map all the tasks?

Task 1 → Requirements.
Task 2 → Implementation.
Task 3 → Acquisition
Task 4 → Training
Task 5 → Inventory.
Task 6 → Inventory.
Task 7 → Acquisition.
Task 8 → Implementation.
Task 9 → Implementation.
Task 10 → Application Deployment.
Task 11 → Implementation Testing.
Task 12 → Implementation.
Task 13 → Implementation.
Task 14 → Implementation Testing.
Task 15 → Implementation Testing.
Task 16 → Implementation Testing.
Task 17 → Implementation.
Task 18 → Inventory.
Task 19 → Inventory.
Task 20 → Inventory.
Task 21 → Inventory.
Task 22 → Requirements.
Task 23 → Requirements.
Task 24 → Training.
Task 25 → Training.

Question 1.8 (10 points): The schedule provided in Appendix B does not specify the dependencies between the project tasks. Add the finish to start (FS), and finish to finish (FF) dependencies between the tasks (based on your understanding of the project) to the schedule.

FS Ordering of Tasks (In accordance to my task mapping above): 1, 22, 23, 3, 7, 2, 8, 9, 12, 13, 17, 5, 6, 18, 19, 20, 21, 10, 11, 14, 15, 16, 4, 24, 25

FF Ordering of Tasks: 24, 25, 4, 16, 15, 14, 11, 10, 21, 20, 19, 18, 6, 5, 17, 13, 12, 9, 8, 2, 7, 3, 23, 22, 1

Question 1.9 (20 points): Assume that the project team is composed of five developers, one DBA, and one PM (see section 2.2.1). Assume that the budget supports each of the five developers and the PM for 2000 hours *(each?)* (see section 5.5.1). Estimate the time needed to complete each of the tasks specified in Appendix B and assign the project human resources (five developers and one PM) to the project. (You should use all the available human resources budget.)

What is the critical path of the project?

Assuming (since the question is worded strangely and the Gantt chart is not fully displayed) that 2000 hours is available to distribute among the 5 developers AND the project manager…

Task 1 → 100 hours (100)
Task 2 → 120 hours (220)
Task 3 → 50 hours (270)
Task 4 → 30 hours (300)
Task 5 → 40 hours (340)
Task 6 → 80 hours (420)
Task 7 → 80 hours (500)
Task 8 → 80 hours (580)
Task 9 → 100 hours (680)
Task 10 → 200 hours (880)
Task 11 → 120 hours (1000)
Task 12 → 150 hours (1150)
Task 13 → 200 hours (1350)
Task 14 → 20 hours (1370)
Task 15 → 20 hours (1390)
Task 16 → 20 hours (1410)
Task 17 → 90 hours (1500)
Task 18 → 80 hours (1580)
Task 19 → 100 hours (1680)
Task 20 → 90 hours (1770)
Task 21 → 80 hours (1850)
Task 22 → 150 hours (2000)
Task 23 → 80 hours (2080)
Task 24 → 60 hours (2140)
Task 25 → 20 hours (2160)

Critical Path: 1, 22, 23, 3, 7, 2, 8, 9, 12, 13, 17, 5, 6, 18, 19, 20, 21, 10, 11, 14, 15, 16, 4, 24, 25

Take out task 17, 4, 5 (160)

Critical (Compressed) Path: 1, 22, 23, 3, 7, 2, 8, 9, 12, 13, 6, 18, 19, 20, 21, 10, 11, 14, 15, 16, 4, 24, 25