The purpose of this exercise is to give you practice exploring development processes, as well as the risks associated with embarking on a system analysis and its implementation. These two parts will contribute equally to your homework grade this week. Please note the page limitations. You may include as many appendices as you wish but these will be read only on an as-needed basis. As always, keep aware of deadlines, the grading criteria (the evaluation matrix in “Syllabus/Grading Criteria for Homework”), and plagiarism rules.

***Scenario: (for both parts)***

Suppose that your organization, a regional grocery store chain, wants to leverage the large amount of unstructured data that it has stored: specifically, purchases by customers who use self-checkout mobile scanners and their store rewards cards. The system envisioned, *SmartGrocer*, is intended to promote loyalty and to make purchase suggestions based on past purchases. *SmartGrocer* will require customers to use their own Smart Phones.

For example: A customer buys eggs and milk every other week. Based on this trend, the system will offer combined savings to the customer in purchasing the same two products, and an additional bonus in buying another item (e.g., cheese), based on trends of other shoppers who purchased the same items as well as price matching competitive stores. Advertisements will appear on the *SmartGrocer* app depending on the shopper’s location in the store.

The following characteristics apply:

* It is anticipated that, after its release, *SmartGrocer* features will change as often as every month.
	+ For example, UI features will be changed to better fit customer use so that they spend minimum about of time in the application while shopping.
	+ For this reason, its functionality should be as easy as possible to modify by IT
* *SmartGrocer* may be extended in the future to contain dashboard features showing what are popular items purchased by others, or extra stock items going quickly on sale based on the usage of *SmartGrocer* recommendations.
* It has not yet been determined if *SmartGrocer* will be served by several internally managed servers or if it will be cloud-hosted.
* Your team has only four programmers experienced with programming of this type of system: ten are needed.
* A third of the development team will be co-located; a third will reside in a second domestic location; another third in another offshore location.
* Initial delivery is to be in six months.

Part I. Selection of a Suitable Development Process

Evaluate each of the following development processes in terms of how suitable they would be for this particular project.

1. Waterfall Process
2. An Iterative Process with 3-8 iterations
3. Agile Process

Designate one process—or a combination of processes—that you consider most appropriate, and explain why this would work best. Explain in detail how it would work for this particular system. In other words, avoid giving a generic response comparing these processes. Where applicable, explain how it should be augmented or altered for this project. For each of the others, evaluate their strengths and weaknesses relative to this project and explain why they are less preferable. You are free to assume any additional assumptions or constraints that are consistent with the description given here. However, be sure to specify them. If you combine the above processes, be concrete about how this is to be done. Your response to Part 1 should be between about 1 1/2 to 3 single space pages of 12-point type, including figures but excluding appendices.

Notes/Hints:

* The waterfall process is referenced in module 1 in the “The Phases of an IT Process” section.
* Iterative processes are referenced in module 1 in the “Iterative Processes” section, where agile processes are defined. The latter are further described in Module 2.
* Understand and outline the key differences between Waterfall, Iterative and Agile processes and explain these thoroughly and clearly within the context of the scenario.
* Reference the specific characteristics of the project in your justification. Don’t be generic. Explain any trade-offs you made developing your recommendation(s).
* Pages 89 through 100 in the textbook will help. The notes and the textbook are not identical: there are many variants on system analysis concepts, and we encourage broad reading and experimentation, this is where research comes in. When you choose an interpretation, an approach, or a technique, an explanation will contribute well here towards clarity, thoroughness and utilization of resources.
* As always, read over your work with the evaluation criteria in mind to assess how it measures up against them. In particular, the last criterion encourages you to utilize sources, including the notes and the textbook. Explain how you have done this.
* One way to profitably use references (one of the evaluation criteria) is to cite similar real-world implementations that justify or support your approach.
* There is no such thing as a 100% provably “right” answer to this question. For that reason, it is important that you explain how you made your selection.
* Review your solution after completing both part 1 (Development Process) and part 2 (Risk Analysis). You may uncover additional considerations, as well as check for consistency.

Part II. Risk Analysis

1. Enumerate at least five risks in this project, based on the characteristics provided, with the highest potential to affect the process of system analysis and implementation. Again, avoid giving a generic response: focus on this particular system under development and its particular characteristics.
2. Use the methodology described in the notes to rank all of the risks above, and build a comparison table. Explain your choices regarding likelihood, the impact of the risks and the cost of managing them.
3. Select one of these risks and provide the following
4. Describe the risk (be specific);
5. State whether the risk is primarily organizational or technical, and explain;
6. State whether you are proposing risk “conquest” or “avoidance,” and explain;
7. Write an account of how you would deal with the risk.
8. Select a second one of the risks and provide the following
9. Describe the risk (be specific);
10. State whether the risk is primarily organizational or technical, and explain;
11. State whether you are proposing risk “conquest” or “avoidance,” and explain;
12. Write an account of how you would deal with the risk.

Your response to Part 2 should be between about 2 and 5 single space pages of 12-point type, including figures but excluding appendices.

Notes/Hints

* A strong solution has to concentrate on real risks rather than on unlikely situations.
* Rely on the online lecture for this part of the assignment. The textbook neglects risk management.

Use references to support risk identification.

Make sure that when you explain how you would deal with the risk, be explicit about whether your strategy is conquest or avoidance—or perhaps a combination.

* Review your solution after completing both part 1 (Development Process) and part 2 (Risk Analysis). You may uncover additional considerations, as well as check for consistency.

## ****Organizing Your Response****

You will want to organize your response as a paper write-up. The following are suggestions for a clearly organized response.

* Include a title page, and a table of contents.
	+ Although obvious, make sure to include your name in your assignment solution.
* If you want to include some of the elements from the assignment directions and characteristics, organize these in the introduction section, but only include sections which you feel add to the clarity of your response.
* Use proper headings and sub-headings in organizing your response. It is usually better to structure your response close to the structure of the instructions. For example, this particular assignment has two parts, with multiple sub-sections.
* Make sure to use proper referencing in your paper. We suggest is APA format, but other formats are fine as long as it’s clear in distinguishing your work from work of others in your response, be mindful of plagiarism rules.
	+ Make sure to include a reference page, but also show how these references are used within your response.
* Include your last name in the file name of the assignment.
	+ (Example: SmithMichael\_CS682Assignment2.docx)