

# Validation/Customer Review

## I. Correctness

In general, the physical health team's requirement specification document was a great success to contributing to the goal of the system that it supports. In some areas of the specification, they provided in-depth information of the system which helped predict how effectively and correctly the system will function as expected. For example, in 3.1.2.1 (Non-functional Requirements - Reliability), the team mentioned, "The AntPhysHealth software targets the entire UCI population, so it is expected to withstand the data traffic caused by all the people at UCI potentially using it all at once. This requirement, however, can be hard to achieve, which is why the most optimal way would be to limit the max traffic allowed to 50% of the UCI population under normal circumstances." To have a better reliability on the system, the team allowed 50% max-traffic which is a very legit way to avoid any data traffic that might be triggered by an extensive amount of UCI users.

While all the information present in the document is accurate, there are some features discussed during elicitation were not present in the final SRS. For example, our team had gone slightly into depth about the specifics of features such as the calorie tracking/journal aspect of AntPhysHealth, but some details were lost somewhere during the planning process of their system. While some specifics were missing, they still found a way to implement such features in a way that ultimately fulfills the end goal: having a space where users can track specific aspects of their physical health.

## II. Unambiguity

From the start, this paper puts out its main point, that is to how "the University of California, Irvine has prompted us to create AntPhysHealth, a mobile and web application designed to promote and provide physical health resources and help for UCI students, staff, and faculty. Its purpose is to help users manage and maintain their physical health as well as to pave way for other UC schools to implement a similar technology-based health application resource to help all university communities and populations. This system's goal is to provide enhance academic and/or work success through monitoring their health and providing relative

Information.” Overall this paper does a good job of getting its point across to the reader, along with their goals and messages they try to carry across.

There are some parts of the paper in which the details regarding their points are not well described such as “# 4 Name:Keep User Informed

Description: AntPhysHealth is a system to inform the UCI community to better their health life which leads to focus and achievement in academic and work life. It should share useful information with UCI,” where the type of information, and how the UCI community will be informed are described, but generally, from reading the context such as the “Event/Use case: Keeping users with up to date information regarding health.

Source: Questions 2, 3, 13 from Elicitation Documentation,” can give the information that this part of the paper is talking about in regards to information to promote health such as diets, contact information of physicians, etc.

Still most of the paper is very clear and I applaud the parts that are concise such as “ #11 Name: Filter Posts Description: UCI members can see posts according to their preference to filter setup. They will view posts only of their interest. These posts are delayed in the order of time from the recent to the oldest,” where it is openly laid out that this function requirement will allow users to filter their posts. It is clear both in name and description to elucidate the particulars how users are able to filter the information they gather, in addition to why when it mentions “They will view posts only of their interest.” The parts that were clear in explanation were often the more concise ones such as in page 11 in their 3.1.3 External Interface Requirements. Here is a list of different figures and short explanations regarding the requirements showcased in an example, and it well don't to encapsulate the overall usage and reasons for such requirements. “Figure 4: Messaging Screen(in chat) On this screen, users will be able to see their messages with a specific health professional they have spoken to. Here, users can type messages and send any questions or concerns they have to a health professional. Users can also send pictures if applicable to the question or conversation they are having with the health professional. It is clear that there is one interpretation of the following description, and that is this function is to allow a messaging feature for users to connect with health professionals. Overall even though some parts did not specify the details surrounding the requirements completely, which could lead to some confusion, the paper is overall clear and unambiguous, keeping allowing readers to interpret and understand the writer's main and intended purposes.

### **III. Completeness**

The requirement document of physical health team contains all necessary information as required. However, a little more description in some areas would have

given a better understanding of the system. For example, in Rich Picture Stakeholder Model, all the stakeholders and their goals and interests associated with the system were identified agreeably except that the AntPhysHealth by itself was not present. Though it is not required, how the app is connected to each of the stakeholders, if that were depicted or visualized in the model that would make the interaction between stakeholders and the system even richer.

In addition, in Introduction (1.1.1 Definition, Acronyms, and Abbreviations), Acronyms of UCI Student Health Center (UCI SHC) is absent, whereas mentioning or referring to Student Health Center had been done 21 times throughout the entire document. Therefore, applying the acronym SHC instead of UCI Health Center would make the document more readable and valid.

#### **IV. Verifiability**

In many of the Physical Health Team's requirements, the verifiability of them is generally easy enough to accomplish. Function requirements are well put out and are achievable, like the login requirement in which "Users shall log in through the UCI WebAuth system, either it being students, faculties, health specialists, or even administrators. Their unique UCI ID shall be checked by UCI WebAuth and they shall be transferred to their respective user, specialist, or admin page," which can be both tested and verified by having access to UCI web AUth system.

Even the requirements that may not seem to at first be feasible in their testability or measure ability are as in "#6 Name: Accurate Specialist Info Description: The health specialist and software shall maintain accurate information. If a specialist has just earned a certain award or gained some specialty then the software should be able to reflect this." A requirement like accurate specialist info would seem hard to measure, but the idea of maintaining accurate information between the health specialist and the software can simply be measured by being open to complaints from the health specialist, or by measuring the amount of times misinformation was discovered.

The non-functional requirements which should in general be harder to be noted as verifiable due to their nature, were wisely chosen by the Physical Health team. In 3.1.2.1 Reliability, the premise is that a max traffic of 50% of the UCI population would be allowed under normal circumstances, which is a completely measurable and testable number by all means. By adding these kinds of numbers and limiters, the team was able to ensure that even the non-functional requirements would be verifiable.

In such cases, this paper holds in general requirements that are able to be properly measured and or tested in order to ensure an up to standard software.

## **V. Consistency**

Overall the Physical Health Team did a wonderful job of making the requirements specification consistent with no conflicts in requirements. For example, throughout the entire document, the Physical Health Team mentioned the importance of privacy and security several times. In all of the times they have brought up privacy and security, their idea of it did not differentiate or conflict. The Physical Health Team's idea on privacy and security were consistent no matter whether the idea was brought up in the general constraints section, the non-functional requirement section, or in sections of the appendix. This is not just regarding privacy and security, but also regarding all non-functional requirements, stakeholders, and many more. The Physical Health Team was able to keep almost all information in the document consistent.

However, for their functional requirements #3, there was some inconsistency with the Class Diagram model on page 57. Functional requirements #3 mentions the function of searching by keywords which can only be done by administrators and health specialists. Both the Use Case Diagram in A1.3 and the Goal Models in A1.2 supports this functionality, but there is no search method that can be found within the Class Diagram model. With so much support, it is evident that this functionality is very important. In spite of that, a search method cannot be found under any of the user classes.

## **VI. Modifiability**

Physical Health Team's requirement has a flexible while refined structure that makes further modification possible.

The document has great modifiability for multiple reasons. First off, the paper is coherent because of the table of contents and indices at the very beginning. As trivial as it may seem, a clear table of contents is very important for future referencing. The requirement is well-organized as it is broken down into six sections (e.g. "Introduction", "General Description", "Appendix") and each section has its sub-categories. For example, in "Specific Requirement", different requirements have independent formats and unique numbers (#, Name, Description, Event/Use case, Source, Rationale, Dependencies, and History). The same applies to other sections, such as use cases that hold independence and detailed structure. This approach makes modification

easier to be made since editors can only alter a small portion of the document without affecting other parts of the document.

However, the text description in “External Interface Requirements” is in image format, it is not friendly for future modification since there is no way to directly edit on images, editors can only type the text all over again to make changes.

## **VII. Traceability**

Physical Health Team’s requirement serves satisfactory traceability as it shows the origin of each requirement and reference for future development.

The traceability items in page 60 to 63 explicitly demonstrate the source of requirements and how it will be used. All requirements are categorized into different items with associated use case, source, supporting material, and history. I can easily find where the requirement is from, in which use case it is implemented in.

Nonetheless, there is some flaw in the traceability section. The titles are too long and specific, making it look more like a description instead of a brief title. And there is observable redundancy in the section as well. In most traceability items, for example, FR2, FR3, FR4, and FR5, the source and history are exactly the same that it can be traced back to some elicitation question (e.g. “ID: FR2; SOURCES: Question 31 in Elicitation Documentation under the usability of the system; HISTORY: Question 31 in Elicitation Documentation under the usability of the system”). The history should be when and where the requirements are raised. Even if there is no exact history about the requirement, it is unnecessary to put duplicate source as it reduces readability. Besides, referencing the indicated use cases is difficult as there are so many use cases in the document (e.g. “EVENT/USE CASE: Keeping users with up to date information regarding health.”). It’d be better if an index or unique ID can be introduced to each individual use case.

## **VIII. Understandability**

Looking at understandability, the Physical Health Team did an average at including annotations and providing rankings of importance. One aspect the Physical Health Team did good on was clearing state was qualities are more important and should be prioritized. For example, in the Non-functional requirements section, under reliability, they stated: “The system shall prioritize accuracy over speed since we do not want our users’ information to fall into the wrong hands”. Not only did they mention what

qualities to consider first, but the Physical Health Team also explained the reason behind this choice. Other important qualities such as security and scalability are also mentioned several times within the document to express their importance to the application.

Overall, the document barely had any annotations and sometimes even had a lack of explanations. Take the External Interface Requirements for example. Although descriptions of each figure are present, people may still have questions or be confused after reading them. None of the descriptions mentions how the user would get to this page or how they can tell what page they are on. Additionally, no interface design explanations are presented such as why did use a specific icon for “save” and the reason behind where it is placed. These are all things that can help people better understand the application.

## **IX. Overall Process Description + Challenges**

For our overall process, we each began by going through the other team's SRS individually, making sure we each had a general grasp of their final system description and final set of requirements. After becoming somewhat familiarized with the SRS, we decided to split up the list of our main concerns, giving each member one or two aspects with which to analyze the other team's SRS. Since we'd all read through the document, having a concentrated focus for picking out certain parts helped narrow the scope of our individual analyses. To ensure that all members were still up to date on our analysis of the document as a whole, we made use of our channels of communication to update each other whenever we had the chance. We worked together to complete a detailed analysis of a document that would have proved far too long to individually comb through, splitting up tasks to lighten the load on each member.

One of the first challenges we faced was the sheer length of the SRS. The document was long, filled with plenty of information, so it's very possible that we may have missed some smaller details while reading. Additionally, it was sometimes difficult to understand what the other team was trying to say, as their wording was sometimes confusing or hard to parse due to wordiness or small grammatical errors. Out of our main concerns, it proved the most difficult to verify consistency due to the organization of the SRS, which made it difficult to find the elicitation questions or diagrams that certain requirements referred to. Another challenge came in the verification of correctness and completeness. In the time between our elicitation interviews, both of our teams didn't maintain constant communication, which sometimes led to us losing sight of some specific details that we had kept in mind for their system (which we imagine also impacted the other team, vice versa). Sometimes, details were found to be

missing, added, or changed from what we remembered discussing during our interviews, which required us to make small concessions in our overall view of their end system in order to more effectively analyze it.

Overall, while the document was long and a bit arduous to read through and break apart, splitting up our workload and keeping each other updated allowed us to finish our analysis to the best of our abilities.