# Senior Project Interim Self-Assessment

This document is intended as a guide for the senior project team to assess its performance in a number of dimensions. You need not answer each question in detail, rather, use the questions as a guide for the kinds of items to assess. Add items you feel are appropriate.

This self-assessment will be one of multiple elements that your faculty coach uses to arrive at an assessment of the team’s performance for this first term. The other elements that the faculty coach will use include: direct observation of the team, team peer evaluations, reviews by other faculty during the interim project presentation, sponsor evaluation. These self-assessments will also be used as part of the SE program’s accreditation effort.

To complete this self-assessment the team should carefully consider each of the questions and provide an honest evaluation of the team’s performance. Your faculty coach will inform you when this self-assessment is due and how to deliver it.

### Team: The RIsoTopes

### Project: 3D Molecule Visualization Game

### Sponsor: Joseph Lanzafame

### Product

1. Did the team prepare all the documentation artifacts requested by your faculty coach and sponsor? Were these documents carefully inspected prior to delivery? How would you assess the quality of the document artifacts?

Not a lot of documents were requested by the faculty coach and sponsor, but the team did prepare and review the artifacts that were requested appropriately before the delivery. I would assess the quality of these items to be of at least average quality since these are documents that are meant to be expanded upon in the future.

1. How well did the team elicit the requirements? Are the requirements fully specified at this point? What approaches were used to elicit the requirements? Were key requirements missed? What methodology was used to document and validate the project requirements?

The team initially struggled to elicit requirements from the sponsor. However, once the team decided to utilize more of the creative reign that was available to us we were able to create game concepts that were then brought up and discussed with the sponsor. From this, we were then able to determine our project scope for the fall semester and we think that this approach was very effective due to the nature of this project. As of right now there doesn’t appear to be any key requirements that were missed, and we are using Scrum to help us prototype and manage requirements through the use of sprints. Therefore, at the end of each sprint we can validate our implementation with our sponsor without risking a loss of too much time due to feature rework.

1. Did the team explore the entire design space before arriving at a final design? Have there been many errors found in the design? Was it necessary to make major changes to any part of the design? What were the reasons for the change? Do you have a complete design at this point?

The team did not entirely explore the entire design space before arriving at a final design for many aspects of our implementation. However, this is largely due to the fact that Unity covers many aspects about the design for us, such as the use of GameObjects and other assorted classes. Therefore, there were not any errors in the design of our design. With that said though, we still have not arrived at a final design since there are still many concepts that need to be added and implemented in the game.

1. How has the development and implementation progressed? What percentage of the product do you estimate is complete at this point? Is the team providing the documentation within the implementation artifacts?

Development and implementation has progressed at a fair pace this semester. Unfortunately however, there is still a lot that needs to be done within the game, such as more core concept development, level design, artwork, and sound. Therefore, it is hard to estimate the current percentage of the product that is complete, but we would say from an overall sense that it is pretty low. At this point however, all of our documentation has been available to sponsor though the team’s website and Google Drive. As for the implementation, the team has not provided the sponsor with a build of the game, and at the beginning of the Spring Semester will we elicit how we should deliver the game to the sponsor.

1. What is the team’s testing strategy? Has the team developed a test plan? Is the team performing unit testing? Is the team using any test frameworks, such as JUnit? What are the testing results to date? Were any major defects found during system test?

We have been using black box manual testing so far. Unity has a unit testing framework but we have not made use of it. We found several defects with the Moleculog but nothing major. A possibly larger issue is that our data structure representing a single molecule may not be being built correctly.

1. Products need to be designed within guidelines and constraints appropriate for each project. It is also important to consider the impacts of the products that are designed. In the following categories discuss the constraints and impacts that have a bearing on your project. Note that there may be one or two categories that have no bearing on your project but your project is probably affected by almost all of these.

Economic issues

The project needs to consider the cost of hiring graphic designers to help create art assets to be used within the game. The project is also constrained to the available money that can be obtained through the grant that the Sponsor will set up for us so that the team can hire a graphic designer.

Environmental issues

N/A

Social issues

N/A

Political issues

N/A

Ethical issues

N/A

Health and safety

N/A

Manufacturability

N/A

Sustainability

N/A

1. What industry and engineering standards must your project adhere to? Were these new standards that the team had to learn? Did your sponsor provide you support for understanding these standards? Did you have to educate your sponsor about these standards?

There aren’t really any standards that our project must adhere to since it is an in-house project for the Chemistry Department at RIT. However, we still must follow good software engineering and code development standards during the implementation of the project.

### Process

1. What is your process methodology? Has this been clearly outlined to your sponsor and received the sponsor’s approval? How is the process documented?

We are using a Scrum methodology with two week sprints. We discussed it with our sponsor and both the team and sponsor agreed that we would meet with him every two weeks at the end of each sprint. The process is documented in our Trello board in which we have all of our tasks in the backlog with their appropriate story points. As tasks are worked on, they are moved to ‘Current Sprint’ and ‘Completed’ sections.

1. Was there a large requirement to learn the problem domain? What approach was used to gain domain expertise? Did your sponsor provide adequately support? What forms of support did you receive?

Yes, there was a large requirement to learn the domain. We needed to make sure we understood the chemistry concepts being taught within the game and that the information taught was all correct. We researched chemistry topics online and used previous experience from Chemistry courses the team had taken. The sponsor provided support by explaining some of the concepts that we had trouble comprehending.

1. What mechanisms are the team using to track project progress? How well has the team tracked its project progress? How often do these artifacts get updated on the department project website?

We are using Trello to manage and track the user stories that we have completed or have started working on. We also have our four-up charts that we fill out every Monday. We also have our time tracking sheet in which we show how much work we have completed each week. We have these sheets on our Google Drive, and there are links to the updated sheets easily available on the website.

1. Is the team conducting effective meetings? What can be changed to make the team meetings more productive?

Yes, the team is conducting effective meetings. We have two primary meetings a week, one on Monday and one on Thursday. Every other Thursday is when our sponsor would be invited. In our meetings, we discuss our progress and plans and get help with any issues that have come up. We also have impromptu meetings when we need to meet outside those times. However we could have had more standup meetings in the mornings for better progress tracking.

1. Has the team met all project milestones to date? Which milestones, if any, were missed or were met ahead of schedule? What contributed to this schedule changes? What will the team do differently to ensure that future milestones are met?

We did not meet the milestones that we set out for ourselves concerning completion of some features that we wanted to complete for the semester. This was caused by issues merging our different branches together and scheduling conflicts with other classwork. We know the cause and fix for the merge issue, and we are going to have better planning so the conflicts don’t occur.

1. Was the team required to adopt new technologies? What were these technologies? What approach did the team use for selecting the appropriate technology for the project? Did the sponsor provide any support for learning these technologies? How well did the team ramp up on the new technologies and begin to apply them effectively?

The team has adapted well to the new technologies being used. We are using the Unity3D game engine in our project which two team members had no experience with and one had minimal experience with. To learn these technologies we started with running through tutorials on Unity’s website.

1. How well has the team maintained quality control over the project artifacts? Have all artifacts been reviewed for adherence to quality standards? What is the review process used by the team?

The team did not have a formal review process in place to review project artifacts and the implementation. However, specific issues were reviewed by individual team members on an as-needed basis. In general, the team is willing to look into a more formal review process for project artifacts to ensure that a high degree of quality is met within those artifacts.

Also, it is often said that for games the best way to ensure functionality is optimal for the game is to do playtests of the game itself using members of the expected audience for the game as playtesters, however, given that the game’s core was not in a complete state (at least not in the sense that it was able to accomplish the sponsor’s goal of teaching students the chemistry concepts), it was determined that priority should be placed on completion of functionality of the core prior to doing testing of its effectiveness. The alternative would be to create a simple prototype of the game and test that, however, for two reasons this was deemed unnecessary. First, there is no guarantee that a player response to the prototype would be representative of the finished game or of the game with its core complete. Second, the amount of time necessary to sink into a prototype of the scale necessary to perform the functions desired by our project sponsor would be enough to make it unjustifiable as a way we should spend time this semester. Given our relative progress as of now, it seems that this determination of time management needs was in fact accurate as the individual features we have been working on took somewhat longer than expected. As a result, we will be adjusting our sprint lengths to account for these unexpected situations.

1. Has the team had any issues with configuration management? How were these problems solved? What percentage of project artifacts is under configuration control?

We had an annoying issue with Unity where scripts assigned to objects by one person would get unassigned when someone else pulled that work down. We finally figured out that this was because of using different dev environments. Some of us use Windows and some of us used Macs. Unity stores information about script assignments in binary files that differ between the systems. Due to this we will all be using Windows next semester.

1. What is the set of metrics that the team is tracking? Has the team gathered these metrics on a consistent basis? What has the team learned from the review of these metrics?

The metrics we have gathered are velocity and defect density. We also considered recording requirements volatility but ultimately decided there was not enough information for it to be useful. The metrics haven’t been calculated on a frequent basis but all of our artifacts are online and have timestamps on them. This makes it very easy to see when a defect was logged or when a story changed status in our Trello board.

### Communication and Interaction

1. How well has the team been communicating project progress to the sponsor? What regular communication does the team have with the sponsor? Has the team been maintaining this communication to the satisfaction of the sponsor? Were any adjustments needed in the communication over time? Were these changes initiated by the team or the sponsor?

Every two weeks we would meet with the project sponsor and communicate what had been accomplished during the previous sprint and the plans for the upcoming work. Communication remained roughly the same through the semester. On a few occasions it was necessary to communicate via email, however for the most part we communicated in person at the meetings we planned for every other week.

1. Did the team need to provide technical input to the sponsor? How well did the team educate the customer in these areas? What mechanism did the team use?

We used wireframes and flowcharts, collected information into documents via google docs, and also in a few circumstances purely verbal communication to provide technical input to our sponsor. Some points discussed include time of implementation for goals such as online multiplayer and also processing costs of goals such as molecule realism. Over time it proved most effective to use wireframes and flowcharts to explain new mechanics as well as to show how existing components functioned. We also utilized them to do the reverse, in that we gleaned information about topics we were unfamiliar with by using flow-charts and wireframes based on descriptions provided by our sponsor and confirmed their accuracy with the sponsor to determine the exact way our sponsor wanted certain things to be implemented.

1. Is this an effective team? What has been contributing to and detracting from the team’s effectiveness? What are the team’s weak points? What are the team’s strong points? What changes can the team make for next term that will make it more effective?

Relative to last year’s team, our sponsor has stated that we have made significant progress. What has contributed to our effectiveness is our weekly meetings (2-3) and our consistent communication through slack as well as having members on the team who had prior experience with the technologies on co-op and through classwork.

Our team members’ class times created significant time conflicts which limited our meeting time availabilities. This was primarily dealt with by finding several times during the week which were decided to be dedicated to the project. The game design student on the team had less experience with process-related development topics which he was able to learn through his interaction with the other software engineering students. In turn, he was able to assist the SE students in gaining more experience with game design for playability and tools such as Unity. In fact, the SE students helped the Game Design student learn a new topic of interest related to development with Unity on multiple Operating Systems.

1. What mechanism does the team use to communicate with the faculty coach? Has communication with the coach been effective? Are there any trouble spots with the faculty coach communications? What can the team change for next term to make their communication to the faculty coach more effective? What can the faculty coach change to make his or her interaction with the team more effective?

We mostly used email for communicating with our faculty coach. The emails between us and our coach were mostly about project deliverables and questions about them. Our sponsor was great at responding quickly and answering questions well. We could possibly have a quicker way of communication than email, but it doesn’t seem necessary at this point.

1. Has the team needed to interact with department staff personnel, i.e. the office staff or Kurt? Has this been handled in a professional manner? Were there any problems with these interactions?

We needed to have Kurt set up our team account. We also needed him to get a VM up and running for our project website. We handled it in a professional manor. The only problem was that sometimes Kurt would take a while to fulfill our requests.

1. Does the team have a complete website with all project artifacts stored and up-to-date on the software engineering department webserver, i.e. linus.se.rit.edu? How often are entries on the web server updated?

The website has links to our documents in Google Drive. This way the documents listed on the website are always up-to-date. The website itself is not updated very frequently. It has not required as much updating due to the above reasons. It is likely that some documents will need to be added at some point regarding detailed documentation of functionality for the game such that further teams may have a better time learning how our code functions and how it translates to resolving the sponsor’s goals.

1. How well has the team made presentations to the sponsor and faculty coach? Was the interim project presentation done in a professional manner? What can be done to improve the team’s presentations?

The team has not made any internal presentations to the sponsor and faculty coach. That said, the team has provided both the sponsor and faculty coach with demos of our functionality running within the game. The team believes that this was done in a professional manner but we can improve these demos by ensuring that all of the functionality is completed well in advance of the presentation so that a reasonable amount of testing can be done on those features.

1. How well has the team worked with other senior project teams, coordinating access to lab space and equipment, sharing experiences and ideas, etc.?

Coordinating lab access was not an issue. We did have to kick individuals out of team rooms a couple times but they were fine with it.

### Achieving Customer Satisfaction

1. In the team’s opinion has the work accomplished to date satisfied the project sponsor? Were there any weak spots in this regard?

The sponsor seems happy with our progress so far. His expectations were set by last years team and he commented a couple times that we’ve gotten further than last year’s team at this point.