

IT 315 Final Project Part II Milestone One Guidelines and Rubric

Overview: Throughout the course, you will develop the skills required of a software architect—a role that is in high demand in the software industry. This final project resembles a typical development project of an actual software designer or software architect. You will have the opportunity to apply, practice, and receive feedback on how software systems are designed using object-orientation and Unified Modeling Language (UML) modeling.

For this assessment, you will assume the role of a consultant tasked with designing a Student Information System (SIS) for a small college that offers both online and face-to-face classes. The SIS should keep track of students' information and their course registrations. You will be provided with information about the system, its business context, and its requirements. With this information, you will need to design the software system by applying object-oriented techniques and methods and UML modeling.

Specifically, this final project is divided into three different parts, which will each be submitted separately. Each part focuses on a different stage in the development process, and will be completed in sequence throughout the course. Additionally, at each stage you will validate and verify your design, explain how you arrived at it, and reflect upon your process and lessons learned. Through the milestones, you will have an opportunity to gather feedback first before you submit final versions. The three final project submissions are Part I: Functional Model (first submitted in Module Two then revised and submitted in **Module Four**), Part II: SIS Structural Model (first submitted in Module Four then revised and submitted in **Module Six**), and Part III: Behavioral Model (first submitted in Module Six then revised and submitted in **Module Eight**).

Prompt: You, as a software architect, did a good job on the functional model of the SIS. The small college is happy with your functional model and has approved it. The college wants you to proceed to the next step of the SIS structural model.

Based on your SIS functional model, create an SIS structural model consisting of:

- A class responsibility collaboration (CRC) card for each class in your model (Refer to pages 172–175 in your textbook.)
- A class diagram (Refer to pages 176–194 in your textbook.)

From the SIS functional model, identify the classes of your structural model. You should have between six to nine classes. Using the provided Part II Solution Submission Template (linked in Module Four of your course), document each class showing its responsibilities, collaborations, attributes, and relationships.

Formalize the information from the CRC cards into a class diagram. Your class diagram should use the class relationships of association, generalization, aggregation, and composition to structure the classes and should indicate the multiplicities of these relationships. The class diagram must be generated by a UML drawing tool. After creating your model, make sure to complete the other deliverables listed below.

Specifically, the following **critical elements** must be addressed:

- **Creation:** Analyze your SIS functional model and create a structural model UML class diagram. Classes in the class diagram should include all the classes that are needed to realize the use cases. The class diagram should also include all the relationships among these classes. Provide a CRC card for each class in your class diagram that describes the class purpose, class responsibilities, and class collaboration with other classes.
- **Testing:** Verify and validate your structural model against your functional model of the SIS system. (Refer to pages 194–197 in your textbook.)
- **Approach Explanation:** Explain your approach to creating your structural model and the design decisions you made to create it.
- **Self-Reflection:** Discuss your experience creating your structural model and the lessons you learned from it. Specifically, draw connections between your experience and the object-oriented techniques and methods discussed in this course.

Rubric

Guidelines for Submission: Use the Final Project Part II Solution Submission Template document and follow the formatting directions therein when submitting your work. Your structural model should be complete and professional.

Critical Elements	Proficient (100%)	Needs Improvement (75%)	Not Evident (0%)	Value
Structural Model: Creation	Creates an appropriate structural model UML class diagram that includes all needed classes and their relationships, and provides a CRC card for each class in the structural model	Creates a structural model UML class diagram, but model does not meet the specifications laid out in the prompt, contains inaccuracies, or is inappropriate	Does not create a structural model UML class diagram	35
Structural Model: Testing	Verifies that the structural model is correct, complete, and valid given the functional model of the SIS system	Verification and validation of structural case model contain inaccuracies or omit key details with respect to functional model of the SIS system	Does not verify that the structural model is correct, complete, and valid given the functional model of the SIS system	20
Structural Model: Approach Explanation	Explains the approach taken to creating the structural model and provides specific detail justifying all design decisions	Explains the approach taken to creating the model, but explanation contains inaccuracies or fails to include specific detail justifying all design decisions	Does not explain the approach taken to creating the model	20
Structural Model: Self- Reflection	Reflects upon lessons learned by drawing specific connections between the experience developing the structural model and the techniques and methods discussed in the course	Reflects upon lessons learned, but reflection is cursory or fails to sufficiently draw specific connections between the experience and the techniques and methods discussed in the course	Does not reflect upon lessons learned during the experience	20
Articulation of Response	Submission has no major errors related to citations, grammar, spelling, syntax, or organization	Submission has major errors related to citations, grammar, spelling, syntax, or organization that negatively impact readability and articulation of main ideas	Submission has critical errors related to citations, grammar, spelling, syntax, or organization that prevent understanding of ideas	5
Total				100%