This is the part one of integrated Group Project Report #3. It worth 50 points out of total 100 points of Report #3. Please refer to Dr. Ivan Marsic's [Software Engineering Project Report](http://www.ece.rutgers.edu/~marsic/Teaching/SE/report3.html) to finish this assignment. The project group needs to turn in sections 1 – 7, 9, 10, 13, 14 from the list below (The list is adopted directly from Dr. Ivan Marsic's website)

1. Functional Requirements Specification (as in [Report #1](http://www.ece.rutgers.edu/~marsic/Teaching/SE/report1.html), revised as needed)   
   Elaborate only the *use cases* that will be *implemented* by the time of the [final demo](http://www.ece.rutgers.edu/~marsic/Teaching/SE/demo2.html). For the use cases that will *not* be implemented for the final demo, provide a casual description for each and indicate that these could be considered for future work.   
   *System Sequence Diagrams* should be updated to incorporate the use cases that will be completed for the final demo.  
   This section must include the *Traceability Matrix* that shows how your use cases are related to your system requirements.
2. Effort Estimation using Use Case Points  
   When calculating duration (equation 4.8 in the lecture notes), assume the productivity factor *PF* = 28 hours per use case point.   Show the process, not only the final number.
3. Domain Analysis (as in [Report #1](http://www.ece.rutgers.edu/~marsic/Teaching/SE/report1.html), revised to incorporate the use cases that will be completed for the final demo)   
   This section must include the *Traceability Matrix* that shows how your use cases map to your domain concepts. Include text description, not only a table with checkmarks.
4. Interaction Diagrams (as in [Report #2](http://www.ece.rutgers.edu/~marsic/Teaching/SE/report2.html), revised as needed)
   * IMPORTANT: Your revised interaction diagrams must include some of the ***Design Patterns*** that were covered in the lectures after the Report #2 was submitted.   
     *Explain and justify* the patterns that you use in your new design. State explicitly in what sense the use of the specific design pattern in the particular interaction diagrams improves the design.
5. Class Diagram and Interface Specification (as in [Report #2](http://www.ece.rutgers.edu/~marsic/Teaching/SE/report2.html), revised as needed)   
   This section must include the *Traceability Matrix* that shows how your classes are related to your domain concepts and a *text description* of the concepts-to-classes evolution.   
   In addition, include the following subsections:
   1. Design Patterns  
      As for *Interaction Diagrams* indicate and discuss the use of *design patterns* to improve your design.
   2. [Object Constraint Language (OCL)](http://www.omg.org/spec/OCL/2.0/) Contracts   
      List important contracts (invariants, preconditions, postconditions) for classes and their operations (See *Bruegge & Dutoit*, Chapter 9; and *Miles & Hamilton*, Appendix A)
6. System Architecture and System Design (as in [Report #2](http://www.ece.rutgers.edu/~marsic/Teaching/SE/report2.html), revised as needed)
7. Algorithms and Data Structures (as in [Report #2](http://www.ece.rutgers.edu/~marsic/Teaching/SE/report2.html), revised as needed)
8. User Interface Design and Implementation (as in [Report #1](http://www.ece.rutgers.edu/~marsic/Teaching/SE/report1.html) **and** [Report #2](http://www.ece.rutgers.edu/~marsic/Teaching/SE/report2.html), revised to incorporate the use cases that will be completed for the final demo)
9. Design of Tests (as in [Report #2](http://www.ece.rutgers.edu/~marsic/Teaching/SE/report2.html), revised as needed)
10. History of Work, Current Status, and Future Work   
    Instead of the section *Plan of Work* have the section *History of Work* which documents how the actual milestones and deadlines evolved. Compare these against the milestones as planned in Reports #1 and #2.  
    Also summarize (as a bulleted list) your key accomplishments in this project.  
    Discuss the possible directions for future work on this project.
11. References (books, papers, URL's of the sources of information and tools used in the project)

Also a minimum one page must be e-mailed by each student separately to instructor for Reflective Essays.

The detailed instruction please see the link [Software Engineering Project Report](http://www.ece.rutgers.edu/~marsic/Teaching/SE/report3.html). Please ignore the due date in it. Please do NOT simply combine the old work together. This integrated work shall **show the revise if it is needed**. After finish, please please only submit one copy of proposal. This part is due by 11:59 p.m. 11/13/2017.