**CST-361 CLC-Project Guide**

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# Milestone 4

The focus of Milestone 4 is on applying the DAO and DTO design patterns to design and develop an IoT transactional business application built using Enterprise Java technologies. To complete this milestone refer to the guidelines below:

* Update the project management goals, objectives, and tasks.
* Complete iteration 2 of the IoT embedded (or emulated) application
* Design and implement the IoT REST API to be consumed by the embedded application.
* Complete iteration 2 of the IoT reporting application.
* Update the UML diagrams for use cases, applicable classes, deployment and component.
* Update the wireframe designs.
* Update the ER database design.
* Complete the REST API design.
* Update the test plan.
* Update the design report from Milestone 3.

*Code Requirements:*

* IoT Embedded Application:
  + Finish integration with the REST API.
* Back-End Service REST API:
  + REST-based service that will be consumed by the IoT embedded application
  + REST-based service that uses JSON as a data transport format and demonstrate the use of the data transfer object design pattern. Students should leverage JAX-RS for the REST based service.
  + REST-based service that is not anonymous and leverages at a minimum HTTP Basic Authentication for securing the REST API endpoint.
  + REST-based service should demonstrate the application of the façade design pattern and the DTO design pattern as well as implement any business logic required to process the IoT data as well as interface to data access objects that store the data in a relational database.
  + REST based service should demonstrate the application of the data access design pattern to store the data in a relational database.
  + The JavaDB or MySQL database can be used as a database for the project. Students can write their persistence code using either JDBC or JPA.
* Front-End Web Reporting Application:
  + Re-factor the reporting application to use the DAO design pattern. The JavaDB or MySQL database can be used as a database for the project. Students can write their persistence code using either JDBC or JPA.
  + The reporting application should provide a tabular data report to display the captured IoT data.
  + The reporting application should provide a visual chart report to display the captured IoT data. The students should research available open source charting libraries and JSF components for use in their final solution.

**Deliverables**

Iteration 2 implementation of the IoT Embedded application

Iteration 1 implementation of the IoT REST API

Iteration 2 implementation of the IoT Reporting application

Update Design Report

*Performance Level Ratings*

|  |  |
| --- | --- |
| **Meets Expectations** | Performance consistently met expectations in all essential areas of project construction, at times possibly exceeding expectations, and the quality of work overall was very good. The most critical goals were met. |
| **Near Expectations** | Performance did not consistently meet expectations. Performance failed to meet expectations in one or more essential areas of project construction and/or recording, one or more of the most critical goals were not met. |
| **Below Expectations** | Performance was consistently below expectations in most essential areas of project construction and/or recording, reasonable progress toward critical goals was not made. Significant improvement is needed in one or more important areas. |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Criteria** | **Below Expectations** | **Near Expectations** | **Meets Expectations** | **Earned** |
| IoT Embedded Application | 0 pts – 6 pts | 7 pts – 9 pts | 10 pts |  |
| IoT REST API | 0 pts – 6 pts | 7 pts – 9 pts | 10 pts |  |
| IoT Reporting Application | 0 pts – 13 pts | 14 pts – 19 pts | 20 pts |  |
| The team updates the design report. The documentation is well presented and includes all technical and non-technical elements. | 0 pts – 13 pts | 14 pts – 19 pts | 20 pts |  |
| Writer is clearly in command of standard, written, academic English. Prose is largely free of mechanical errors. | 0 pts – 6 pts | 7 pts – 9 pts | 10 pts |  |
| **TOTAL** |  |  |  | **/70** |
| **Instructor Feedback** | | | | |