**Design Discussion for Topic 5 Week 11**

Design Expectations:

* **Proof of Concepts:**
  + Description of Problem
  + Outcome of POC
  + Decisions made from POC
* **System Design:**
  + UML Component Diagram or Block Diagram for Logical Design
  + UML Component Diagram or Block Diagram for Physical Design
  + UML Deployment Diagram (if applicable)
* **Database Design (if applicable):**
  + Database Dictionary
  + ER Diagram
  + Complete with all proper PK/FK relationships designed
  + Complete with all proper Indexes designed
  + DDL Script
* **Class Design:**
  + UML Classes for all major controllers, services, and models
  + Proper OO design applied
  + Proper accessors applied
  + Proper data types applied
  + Proper OO relationships applied (with proper UML line type)
  + Proper <<uses>> relationships applied
* **API Design (if applicable):**
  + REST API’s (URI’s)
  + Input Data Parameters (names, data types, data rules)
  + Output Data Parameters (names, data types, data rules)
  + Output Error Codes
  + Use of DTO Design Pattern
  + Ideally, use Swagger
* **Application Design:**
  + Sitemap Design
  + UI Wireframe Design
* **Other:**
  + How technically will you meet your Non-Functional Requirements?
  + Security (authentication, authorization, PII data, data in flight, data at rest).
  + Cloud Hosting considerations.

**Activity – Learning how to do Software Architecture**

* **Logical Solution Design:**
  + In groups of 2, pick and application that you are both somewhat familiar with, such as a previous Milestone Assignment, Hackathon Application, etc. Use the Class Discussion Notes from Week 8 located in the Course Padlet as guidance.
  + Together draw a logical software/solution design diagram using Visio, Draw.io, or an agreed upon drawing tool.
  + Be prepared in the next class to present your design to the class where we will do a class wide peer design review.
* **Physical Solution Design:**
  + In groups of 2, pick and application that you are both somewhat familiar with, such as a previous Milestone Assignment, Hackathon Application, etc. Assume that the application will be deployed to either Azure, AWS, Heroku, or the Google Cloud. Use the Class Discussion Notes from Week 8 located in the Course Padlet as guidance.
  + Together draw a physical solution design diagram using Visio, Draw.io, or an agreed upon drawing tool.
  + Be prepared in the next class to present your design to the class where we will do a class wide peer design review.