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Fall 2019

IT 490-001: Systems Integration

D. J. Kehoe

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Systems Integration

Fall 2019 Syllabus

Instructor : DJ Kehoe
Course : IT-490-001
Email: kehoed@njit.edu
Office: MIXR Labs, GITC 3rd Floor
Office Hours: W: 12:00 - 2:00, R 1:00 - 2:00

Academic Integrity

The NJIT Honor Code will be upheld at all times. The work you do and submit is expected to be the result of your effort only. You may discuss the high level (general) solution of a design problem, however, cooperation should not result in one or more student having possession of copied graphics, code, or any other project element created by another student. Any violations of the NJIT Honor code will be brought to the immediate attention of the Dean of Students.

Objective

This course will be an intensive project based course designed to leverage the breadth of your background in Information Technologies. You will work in a group, on an extensive project throughout the semester. This class will give you ample opportunity to refresh your understanding of the core information technology skills of system administration, network administration, database administration, software engineering, graphic design, and full stack web development. Furthermore, this class will give you the opportunity to become a domain expert in one or more of these areas for your team.

Grading

- Milestones (~5): 10%
- Project Proposals: 5%
- Change Log: 10%
- Mid-Term Exam : 15%
- Mid-Term Milestone : 25%
- Final Project : 25%
- Final Exam : 10%

Course Materials

- VirtualBox
- Ubuntu 18.04 LTS image
- A Github Account
- Trello Account
- A network router

Additional Resources

The following web pages will be very helpful while working on projects:

- Canvas - Be sure your credentials are up to date
- Stack Overflow - Your new home
- Google - First stop on debugging

Submission Criteria

Project Proposal: The proposal functions as our contract for your project. You put forth the vision for your project and we will discuss together what will be expected at grading time. You are to post a PDF of your design document to moodle. During the project proposal meeting you will bring one paper copy that we will markup with notes. Specific deliverables will be agreed upon and posted to your moodle project thread. This is how your project will be graded. Without an approved proposal your project cannot be graded (and will default to a 0).

You are required to present your projects in class as part of the project deliverables.

Change Log: Your team is expected to submit a complete log of the activities of your group. This includes your Trello Board (Exported to JSON), All git repos and branch names, All Server Documentation, and Team Chat / Email Logs.

Professional Conduct

This course is about learning to work in a professional team environment as well as the technical aspects. You are all expected to behave in such a manner both in and out of the classroom. You are expected to treat each other with respect and to refrain from any sort of personal misconduct. If there is conflict within a team, troubleshooting the issue is as much a responsibility of the team as any other deliverable. Any amount of disrespect or harassment will not be tolerated. See the NJIT Code of Student Conduct for further guidelines.

Late Policy

Any projects that are submitted late will have a penalty of 1 point (of its percent value towards your final grade) per day late. No exceptions.

Project Guidelines

Option A - Software as Service

You and your group are to identify a third party data source and build a service based upon that data. An example may include sports statistics, server status, market data, etc. It can be any source as long as it is legal to use and not generated by the team.

Option B - Mobile / Web Game

You and your group are to design a server backed game. You will be responsible for building the user tracking system, game state arbiters and databases. You will design the front end to work with web or mobile.

Both projects will be simulating a multiple server cluster and setting up basic networking, communication, and security for your cluster.

Course Topics

Software as a service
Project Management
ETL
Messaging Layers
Server Side Development
Change Management
Disaster Recovery

Course Milestones

Week 1: Introduction
Week 2: Milestone - Communication Layer Demonstration
Week 3: Project Proposals Due / Meetings Begin
Week 4: Milestone - Centralized Logging Functional
Week 5: Milestone - User Authentication Functional
Week 7: Midterm Milestone Due / Midterm Exams
Week 9: Milestone - 3 Tiered Cluster Due
Week 12: Milestone - Deployment System Functional
Week 15: Final Exam / Final Project Presentations / Change Logs Due

Syllabus subject to change, attend class to keep up to date.