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IT 490-004: Systems Integration

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Recommended Citation

IT 490-003 Syllabus

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Objective:
This course will utilize your collective knowledge studied thus far. It'll be heavily project oriented simulating real-world work scenarios. You will work in a group on a complex project throughout the semester. It'll cover such skills related to System, Network, Database Administration, Software design/engineering, and full stack development.

Grading:

Exams / Tests will be graded out of 100 points.
Projects / Assignments will be graded on a scale of 0.0 - 5.0. This scale can also be decimals between the whole numbers, but in general the grading schema is as follows:
0 Didn't do anything / No understanding / Comprehension
1 Submitted something relevant / Less than Minimal Understanding / Comprehension
2 Submitted partial requirements / Minimal Understanding / Comprehension
3 Submitted partial requirements (more so than a 2) / Basic Understanding / Comprehension
4 Serious attempt was made but missed criteria / Moderate Understanding / Comprehension
5 All requirements met without issues / Good Understanding / Comprehension
All points will be converted to a final percentage at the end of the semester.

Grading Breakdown:
Milestones: 20%
Proposal: 5%
Change Log: 5%
Midterm: 15%
Midterm Milestone: 20%
Final Project / Demo: 25%
Final Exam: 10%

Grading Scale:

A   100 % to 89.5%
B+   < 89.5 % to 84.5%
B   < 84.5 % to 79.5%
C+   < 79.5 % to 74.5%
C   < 74.5 % to 69.5%
D+   < 69.5 % to 64.5%
D   < 64.5 % to 59.5%
F   < 59.5 % to 0.0%

Materials/Technologies:
VirtualBox
Ubuntu (18.04 - given in class)
Github
Trello
A network router (one per group minimum)
No required textbooks; resources will be online
Laptop capable of running multiple VMs

Submission Criteria:
Project Proposal: The proposal will be the feature commitments of your project. You mention the goals/features and we'll discuss the grading targets. You must upload the design document to Canvas, but you will be expected to bring one paper copy that we'll annotate during our meeting. Any specific deliverables will be posted/shared to your Canvas thread. Without an approved proposal your project can't be graded and will result in a zero (0).
You will be required to present your project along with the role(s) and tasks for which you were responsible.
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% 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

Illustrative Schedule:
Week 1: Introduction / GIT & Trello Links Due
Week 2: Communication Layer Demonstration
Week 3: Project Proposals Due / Meetings Begin
Week 4: Milestone - Centralized Logging Functional
Week 5: Milestone - User Authentication Functional
Week 7/8: Midterm Exam / Midterm Project Deliverable Due
Week 9: Milestone - 3 Tiered Cluster Due
Week 12: Milestone - Deployment System Functional
Week 14/15: Final Exam / Final Project Presentations / Change Logs Due

Syllabus is subject to change, attend class to stay current.