Lecture	Topics
1	ECE 568 class introduction, description, and expection. Plateform independent application development; Java Virtual Machine vs. Web Browser; tools for web application development, open source data used in this class, proficiency in analytics, problem modeling; Data visualization. Be courageous and motivated.
2	Review of Software Development, Object Oriented Programming, Structured Programming; Django plateform; tools for creating a webpage; Python Decorators; xml, html, markup language; http protocol
3	open-source JavaScript library for visualizing data; introduce to open source financial data - Explore Data Source and Data Collection. Database design, ER diagrams, 3NFs.
4	financial data exploring, introduce financial terminologies, picking up a most motivated data set to work on and collecting the data from the data source API; project goal - create a web application that promotes Investment Opportunity. Set up Python project workspace for Django project.
5	Problem modeling; Random variable; Conditional probability, Bayes Theorem; use of statistics on a data set to reveal data properties; time series analysis; Identify embedded regularity in a data set.
6	pattern recognition & machine learning; data mining, feature selection; inspecting the data set, contemplate and compose a web application service

	establish midterm project proposal template;
7	Q&A and brainstorming in how to do data analysis and problem modeling.
8	Project proposal presentation
	establish final project report template.
9	recap: analytics tools, skills, and knowledge, web app development.
	Q&A section
	how to do Performance Evaluation.
	Q&A section.
	patent for intelectual property:
10	Introduction to United States Patent Law, 35 U.S.C.
	patentable subject matters;
	machine-or-transformation test;
	Alice/Mayo two-part framework;
	Q&A section.
	37 CFR, USPTO patent rules.
11	participation vs obviousness;
	teaching, suggestion, motivation, and KSR rationales;
	Computer-Implemented inventions
	Q&A section.
	USPTO MPEP;
12	compose claims for Computer-Implemented Inventions.
13	final project presentation

Reading Assignments

familiar with Django, http, html, xml, CSS, JavaScript;
D3.js, SVG.

dive into Django web framework tutorial document;
the model layer, the view layer, the template layer,
Django template language, resolution of URLs

create a simple web application through Django;
ER diagrams, the 3 normal forms.

create a multiple pages web application,
compose a html file, create SVG object,
use D3.js to present data on a html file.

polynomial curve fitting, neural network, SVM,
time series analysis, moving average and low-pass filter.

targeting a data set and services for the indivisual final project

compose indivisual finalize project proposal

review and finalize project proposal

work on final project

work on final project

work on final project

work on final project

prepare final project report