University of California, Berkeley
Master of Information and Data Science (MIDS)
W205 – Fundamentals of Data Engineering

Week 1 – Introduction to Data Engineering

Agenda for Today's Class

- Welcome
- Introductions
- Overview of the Course
- Attendance and Participation
- Asynch High Level Review in a Nutshell
- Breakouts
- Summary

Welcome !

- For students new to UC Berkeley:
  - Welcome to UC Berkeley !
  - Welcome to the iSchool !
- For all students:
  - Welcome to w205 !

Our goal is for everyone to be extremely successful in w205 !

Introductions

- Instructors introduce themselves
- Students introduce themselves

Overview of w205

GitHub => ucb_mids_w205_repo => README.md

- Spend about 5 minutes briefly scrolling through and pointing out the major sections
  - Slack
  - Schedule and Due Dates
  - Office Hours
  - Grading
  - Grading Scale
  - Attendance and Participation
  - Asynch Assessments
  - Projects
  - Readings
  - Cloud

Attendance and Participation

Please record your attendance and participation for today's class:

GitHub => ucb_mids_w205_repo => README.md => Attendance and Participation

Asynch High Level Review in a Nutshell

Each week we will spend about 15 minutes reviewing the most important high level concepts from the asynch

Prerequisite Knowledge for w205

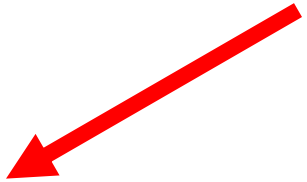
- Python programming
  - Taken or gone through the Python course
  - Week 2 asynch has optional review of data visualization
- SQL
  - Week 2 asynch has a SQL refresher
- Linux CLI
  - Week 3 asynch has a Linux CLI refresher
- GitHub Git CLI
  - Week 3 asynch has a GitHub Git CLI refresher

Data Engineers

Design, create, and deploy data pipelines

Data Scientists

Process the data using sophisticated mathematical/statistical models, artificial intelligence, machine learning, deep learning, etc.



Data engineers design, create, and deploy data serving layers

Full Stack Data Scientists

Data scientists who can do their own data engineering

Degree of Separation of Roles

- Data engineers separate from data scientists
  - Data scientists need to work effectively with data engineers
  - Breakout exercise later today

- Full stack data scientists
  - Typically smaller companies and startups
  - Although becoming popular at larger companies

Learning How to Learn is the Best IT Skill to Have

- Technology and products come and go at fast pace
- Must constantly learn new skills
  - Videos, tutorials, books, etc.
- Bleeding edge technologies are more challenging to learn than established technologies
- Data science often requires bleeding edge
- Frustration and confusion in learning are not always a bad thing
- Breakout exercise later today

Debugging Skills

- Work through problems
  - Calmly, systematically, logically, orderly
- Optimized debugging
  - Each step cuts down on search space as much as possible
  - Reach successful resolution as soon as possible
- Working Independently
  - Learn to do as much as we can before involving others
  - Solve most issues without involving others

Cloud

Brief overview (we will spend more time in coming weeks)

- VM: emulation of physical hardware computer
- Containers: emulation of OS
- Object store: scale up storage, AWS S3, GCP Store, Swift, etc.
- Edge servers: servers all over the world
- Elastic computing: increase / decrease computing resources on an as needed basis
- Managed services: ready to use software, everything handled for us, pay as you go

Breakouts

GitHub => ucb_mids_w205_repo => breakouts

(time permitting, we may not get to all of them)

Summary

Instructor will give a brief (about 2 minute) summary of today’s class.