Cloud Computing

Welcome
(Module Administrivia)

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Who is this module for?

- Software Developers (Programmers)
- Hardware Engineers
- System Administrators
- IT Managers
- IT Salesmen
- General Users
What is this module about?

• Software Applications in the Cloud
  – Frontend: Programming for one machine
    • Web/mobile apps
    • Not very different from traditional programming
    • You should have learned the techniques before or will learn from other modules such as IWT and MCIT
  – Backend: Programming for many machines
    • Data-intensive information processing
    • Big-data (“Web-scale”) problems
    • MapReduce... and beyond
How is it related to Big Data?

• Big Data Analytics is the killer application of Cloud Computing
• Cloud Computing is the infrastructure for Big Data Analytics
What is MapReduce?

• Programming model for expressing distributed computations at a massive scale
• Execution framework for organizing and performing such computations
• Open-source implementation called **Hadoop**
On the job market

- Hadoop Jobs in London
On the job market

- **Hadoop Jobs in London**
Powering London’s digital economy

Pre-requisites

• Good knowledge of objected-oriented programming (Java/Python)
  – BSc: SP2; MSc: ISD or PiJ
  – Experience with the Unix environment is helpful
  – But this module is *not just* about programming: we’ll expect you to pick up Hadoop (quickly) along the way
  – Focus on “thinking at scale” and algorithm design
Pre-requisites

• No prior knowledge required in
  – Parallel/Distributed systems
This module is not for you ...

• If you’re not genuinely interested in the topic
• If you can’t put in the time
• If you’re not ready to do a lot of work
• If you’re not open to thinking about computing in new ways
• If you can’t cope with the uncertainty and unpredictability etc. that comes with bleeding edge software
Attendance

• Date and Time: Friday Evenings
  – Session I  6:00pm – 7:15pm
  – Session II  7:30pm – 8:45pm

• Birkbeck eRegisters
  – [http://www.bbk.ac.uk/eregisters/eregisters](http://www.bbk.ac.uk/eregisters/eregisters)
Assessment

• Coursework (20%)
  – BSc: One essay of 2,000–3,000 words
  – MSc: Two programming assignments

• Examination (80%)

NB:
There is no resit coursework/examination in the summer. If you fail, you will have to retake or resit in the next year.
Resources

• Hadoop on your local machine
  — Linux: native installation
  — Windows/Mac: in a virtual machine (e.g., VirtualBox)
    • Hortonworks Sandbox

• Hadoop in the cloud
  — AWS Educate: Birkbeck is a member institution
**Students**

**AWS Credits (annually renewable)**
- AWS Account: $100 in credits at member institutions; $40 in credits at non-member institutions
- AWS Educate Starter Account: $75 in credits at member institutions; $30 in credits at non-member institutions

**AWS Training**
- Access to AWS Technical Essentials Training Course (a $600 value)
- Free access to labs

**Curated Content**
- Free access to AWS content for homework, labs, or self-study

**Collaboration Tools**
- Student Portal access
- Virtual and in-person event to gather information, share best practices, and network
- Provide feedback on AWS Educate
AWS Account

• Should I apply for a standard AWS account or an AWS Educate Starter Account?
  – Selecting an AWS account allows for the greatest amount of flexibility, access to AWS services, eligibility for AWS Free Tier in year one, post-graduation portability, and a larger AWS credit amount through the AWS Educate program.
  – The AWS Educate Starter Account is a great alternative only if you do not have access to a credit card.
Stay Tuned

• For more details from the module page (and also in Moodle) ...
Teaching Assistant

Cosmin Stamate