ECSI/ECII 3103: STATISTICAL AND FINANCIAL ACCOUNTING SOFTWARES

TOPIC 1a: Unit introduction and overview

Introduction:

Computing has evolved over time from developments in Hardware in the first cycle, then developments in Software in the following cycle and in now, Data is the gold of these modern times. This is coupled with artificial intelligence, more specifically deep learning and big data which involved review of massive volumes of data so as to derive insights.

Data analysis/Data analytics/Data science requires a sound understanding of statistical principles and theorem. For this reason, the basics of statistics are fundamental for any data Scientist.

Another potent application of data management is in the business field. The implementation of Information Systems within Business enterprises is now mandatory so as to achieve the goals of efficiency and effectiveness in the business operations. For this reason, it is vital for ICT practitioners to get a firm grounding on the basics of design and implementation of Finance and Accounting software.

Examples of statistical tools include

1. Ms Excel
2. R studio(R)
3. Python (Python libraries)
4. Julia
5. SPSS
6. Strata
7. Matlab

Examples of Finance and Accounting software include

1. QuickBooks
2. Sage
3. Tally
4. Pastel
5. Ms Accounts

Review of ICT experts and their interactions with Data

Software Engineer

A software engineer builds applications and systems. Developers will be involved through all stages of this process from design, to writing code, to testing and review. They are creating the products that create the data. Software engineering is the oldest of these three roles, and has established methodologies and tool sets. Work includes:

- Frontend and backend development
- Web apps
- Mobile apps
- Operating system development
- Software design

Data Engineer

A data engineer builds systems that consolidate, store, and retrieve data from the various applications and systems created by software engineers. Data engineering emerged as a niche skill set within software engineering. 40% of all data engineers were previously working as a software engineer making this the most common career path for data engineers by far. Work includes:

- Advanced data structures
- Distributed computing
- Concurrent programming
- Knowledge of new & emerging tools: Hadoop, Spark, Kafka, Hive, etc.
- Building ETL/data pipelines

Data Scientist   A data scientist builds analysis on top of data. This may come in the form of a one-off analysis for a team trying to better understand customer behavior, or a machine learning algorithm that is then implemented into the code base by software engineers and data engineers. Work includes:

- Data modeling
- Machine learning
- Algorithms
- Business Intelligence dashboards