

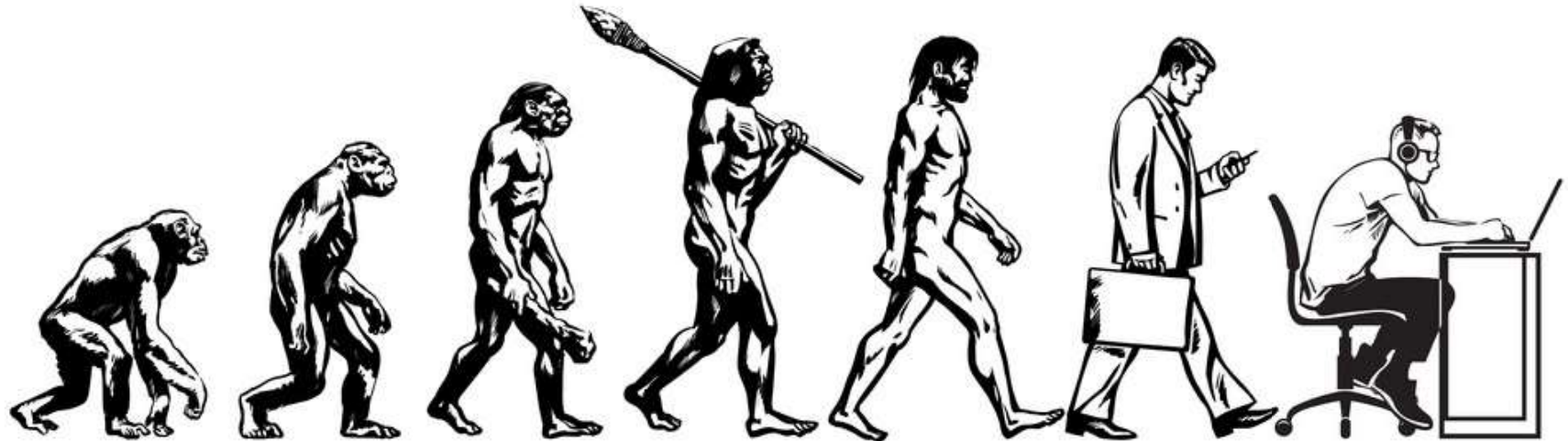
# Whole Program Overview

# Graduate Certificate in Computing Foundations

- IT5001 Software Development Fundamentals
- And choose two modules below:
  - IT5002 Computer Systems and Applications
  - IT5003 Data Structures and Algorithms
  - IT5004 Enterprise Systems Architecture Fundamentals

# IT5001 Course Objective

- The computing foundation graduate certificate is an essential certification programme that is pivotal in meeting the needs of the working professionals who wish to embark on conversion to the computing field.



# IT5001 Course Descriptions

- This module aims to introduce non-computing students to the principles and concepts of software development at an **accelerated** pace.
- Contents:
  - Control flow, code and data abstraction, recursion, types, OO, testing, debugging, simple data structures and algorithms (lists, maps, sorting), and software engineering principles.
- This module is targeted at degree holders who wish to convert into IT professionals. It is one of the four modules designed as part of the Graduate Certificate in Computing Foundations.

# IT5001 vs COS2000

IT5001 Software Development  
Fundamentals

- ✓ Bio
- ✓ Data Science Analytics
- ✓ Math, App Math, QF
- ✓ Stats
- ✓ Business

Belongs to a family of  
CS1101S, CS1010, CS1010E, etc.

Computational Thinking for  
Scientists

- ✓ Life Science
- ✓ Physics
- ✓ Pharmacy
- ✓ Chemistry
- ✓ Food Science

IT5001 vs COS2000



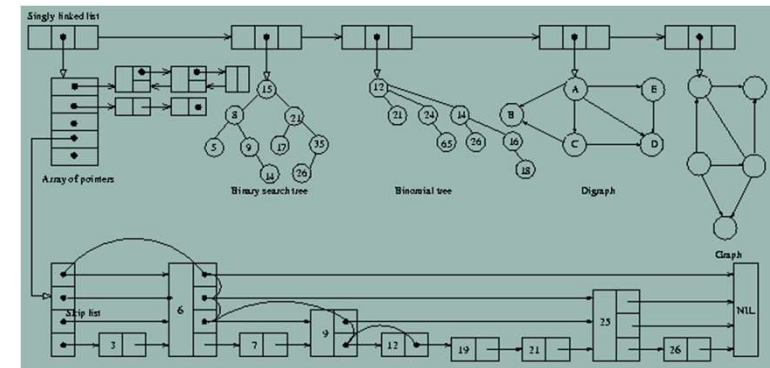
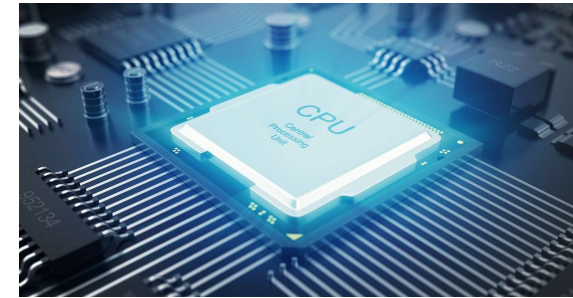
Culinary Degree vs Cooking Class

What's Next?



# What's Next

- IT5002 Computer Systems and Applications
  - Hardware
- IT5003 Data Structures and Algorithms
  - Sorting, Linked List, Graphs, Trees, Hash Tables
- IT5004 Enterprise Systems Architecture Fundamentals
  - Software Engineering
    - OOPS
    - LARGE software designs, testing



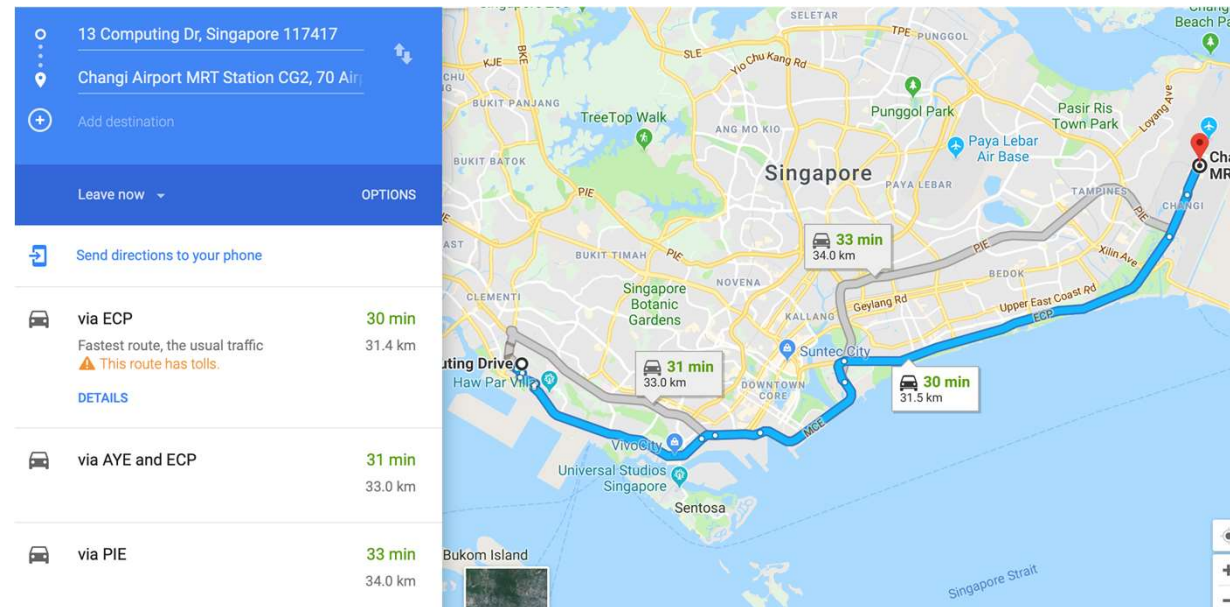
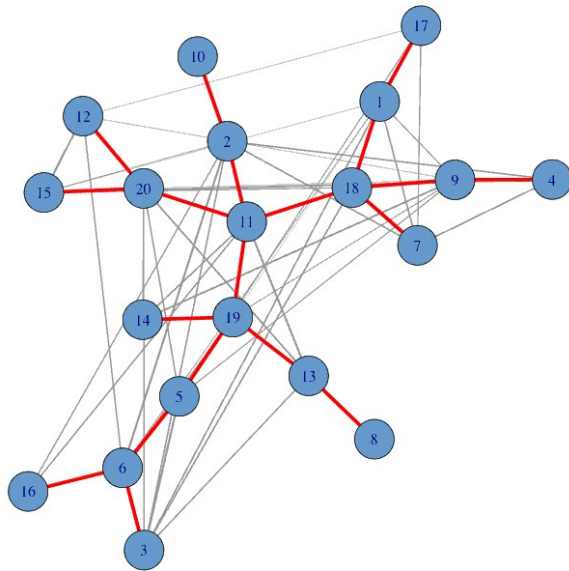


# IT5003 Data Structures and Algorithms

- List
- Trees
- Graphs
- Hash Tables (dictionary)

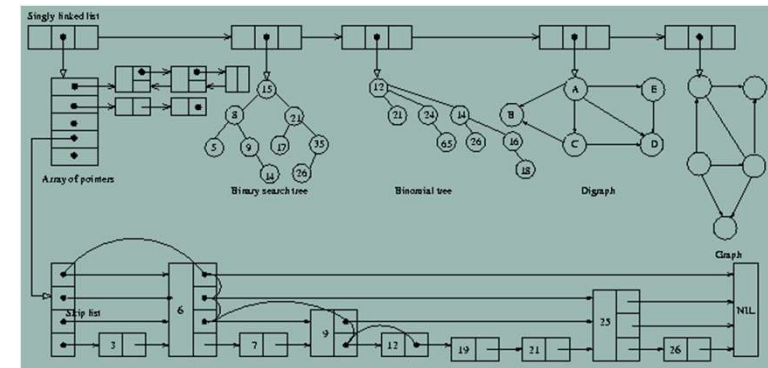
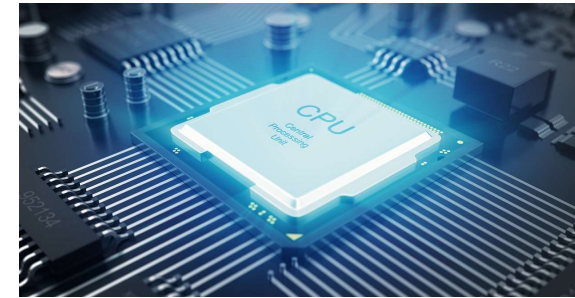
# IT5003 Data Structures and Algorithms

- Sorting
- Shortest Path
- Minimal Spanning Tree
- Etc.



# What's Next

- IT5002 Computer Systems and Applications
  - Hardware
- IT5003 Data Structures and Algorithms
  - Sorting, Linked List, Graphs, Trees, Hash Tables
- IT5004 Enterprise Systems Architecture Fundamentals
  - Software Engineering
    - OOPS
    - LARGE software designs, testing



What you can do by now



“You wouldn't believe what I have to do for my first task (at work)...  
Write some Python programme to automate some data processing.  
Hahahaha.  
Who would have thought!”

Mill Jianprasert  
NUS B.B.A  
Management Associate, Garena



Michael Yong

Year 2

Google Intern

~~USD7k a month~~

USD9k a month by now

# How to be a good programmer

- What is the different between old and new video games



# How to be a good programmer

- What is the different between old and new fighting movies?



[Bicycle fall](#)