Careers in Computer Science

The Careers

- Programming Careers
- Security Careers
- Infrastructure Careers
- Non-Technical Careers

Programming Careers

- Programmer / Developer / Software Engineer
- Web Developers
- App Developers

Programmer / Developer / Software Engineer

- Different titles for the same job
- Write Software to solve Problems
- Very general role
- Often have a second specialism
  - Finance
  - Medical
  - Aerospace
  - Commerce (e.g. online shops)
  - Embedded

Web Developers

- Specialise in making websites
- Degree level education not always needed
- Technical, but with design elements
- Fast moving field (at the moment)

App Developers

- Similar to Web Developers in some ways
- Degree level education not always needed
- Technical, but with design elements
- Desirable for startups

Security Careers

- Hackers!
- Penetration Testing
- OpSec / NetSec / InfoSec

Penetration Testing

- White hat hackers
- How easy is it to break into your:
  - Website
  - Application
  - Company network?

OpSec / NetSec / InfoSec

- Responsible for internal security
- Work with people from lots of infrastructure roles
- Keep the company protected

Infrastructure Careers

- IT Support
- Database Administrator / Engineer
- Network Engineer
- System Administrator
- DevOps / Infrastructure Engineer

IT Support

- TAC or NOC
  - Take support requests, and escalate or solve them
  - Goes all the way to to 'Site Reliability Engineer'
- Often don't have a degree
- Level 1 / 2 / 3
- Vocational Career Progression

Database Administrator / Engineer

- Specialised role
- Less Programming
- Keep the database running
- Query Tuning
- Design Advice

Network Engineer

- Network Administrator
- Less Programming
- Very varied role
- Wireless Network Engineer
  - Can be very technical
- Electrical Engineers
- Most likely to work in the Arctic / Desert / Hostile Conditions

System Administrator

- Unix Engineer
- Windows Engineer
- Less Programming
- Keeps everything working

DevOps / Infrastructure Engineer

- Keeps programmes that have been written working
- Often responsible for tools that help other technical people do their job
  - Build Systems
  - Version Control Systems

Analysis Careers

- Data Scientist
- Business Analyst

Data Scientist

- Less about programming
- Degree level education helpful
- Data Analysis
  - Statistics
  - Machine Learning
  - Data Presentation
- Good Maths Skills
- Often work with non-technical people
  - Sales
  - Marketing

Business Analyst

- Know their business area really well
- Write a little bit of code for analysing data and making reports
  - SQL

Non-technical Careers

- Managers (of People)
- Managers (of Projects)
- Any Non-Programming Career
- Non-Programmers who program

Management of People

- People who manage anyone in a role just spoke about
- Good managers know a bit about what their subordinates do

Management of Projects

- Decide what to do next on a project
- To know what to do, you need to know how to do it

Other roles

- Data processing is becoming more common
- Knowing a little bit of programming can be a big help
- Working with Excel
  - Every business uses Excel
- Other examples

Programming when you're not a programmer

- Not necessarily careers
- Every STEM degree involves some programming now
- Typically modelling & data analysis
    - How will a building fall apart in a massive storm?
    - How does this protein fold?
    - How will a spaceship behave as it re-enters the atmosphere?
    - What's the most aerodynamic shape for a car?
    - How will this ecosystem grow from these starting conditions?