What is Computer Science?
What is it that distinguishes it from the separate subjects with which it is related? What is the linking thread which gathers these disparate branches into a single discipline? My answer to these questions is simple --- it is the art of programming a computer. It is the art of designing efficient and elegant methods of getting a computer to solve problems, theoretical or practical, small or large, simple or complex.

C.A.R. (Tony) Hoare

C.A.R. (Tony) Hoare (b. 1934)
- Won Turing Award in 1980
- Knighted in 2000
- Developed mechanism and theory for concurrent processing

Computer Science and Programming
- Computer Science is more than programming
  - The discipline is called informatics in many countries
  - Elements of both science and engineering
  - Elements of mathematics, physics, cognitive science, music, art, and many other fields
- To some programming is an art, to others a science, to others an engineering discipline
What is Computer Science?

- Computer science is no more about computers than astronomy is about telescopes.  
  *Edsger Dijkstra*

- Computer science is not as old as physics; it lags by a couple of hundred years. However, this does not mean that there is significantly less on the computer scientist's plate than on the physicist's: younger it may be, but it has had a far more intense upbringing!  
  *Richard Feynman*

Computer Science is a young discipline

- First computer science department formed in 1962

Young People Can Have a Big Impact

- Who is Shawn Fanning and what did he do (19 years old)?
- Who is Marc Andreessen and what did he do (21 years old)?
- Who is Claude Shannon and what did he do (21 years old)?
- Who is Linus Torvalds and what did he do (21 years old)?
- Who is Dmitry Sklyarov and what did he do (26 years old)?
- Who is Tim Berners-Lee and what did he do (35 years old)?
- Who is Jim Ellis (Duke Alum) and what did he do (23 years old)?

Computer Science is Diverse

- Artificial Intelligence thinking machines
- Scientific Computing weather, cars, heart, modeling
- Theoretical CS analyze algorithms, models
- Computational Geometry theory of animation, 3-D models
- Architecture hardware-software interface
- Software Engineering engineering, science
- Operating Systems the soul of the machine
- Graphics from Windows to Hollywood
- Many other subdisciplines
Why is programming fun?

What delights may its practitioner expect as a reward?

First is the sheer joy of making things

Second is the pleasure of making things that are useful

Third is the fascination of fashioning complex puzzle-like objects of interlocking moving parts

Fourth is the joy of always learning

Finally, there is the delight of working in such a tractable medium. The programmer, like the poet, works only slightly removed from pure thought-stuff.