

DO YOU WANT TO BE A FUTURE
PROGRAMMER ?

An Introduction to Computer Science

ABOUT ME

Learn programming in middle school

Major in CS in college (BS, MS, PhD in CS)

Worked in nearly all areas of software

- ❑ IoT, Chips
- ❑ Mobile phone apps (iOS apps, Android apps)
- ❑ Webpages
- ❑ Cloud servers

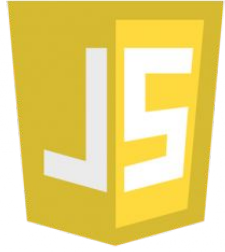
INTRODUCTION TO COMPANIES IN INFORMATION TECHNOLOGY

- ❑ Software tools and service (AWS, Microsoft)
- ❑ Search Engine (Google, Bing)
- ❑ Social Network (FB, Twitter, Snapchat, TikTok, Pinterest)
- ❑ E-Commerce (Amazon, Shopify)
- ❑ Hardware, System and Chips (Apple, Broadcom, Qualcomm)
- ❑ Cyber Security (PA Networks, Cloud Strike, McFee)
- ❑ Streaming (Youtube, Netflix, Disney+, Hulu)
- ❑ Cloud Sourcing Service (Airbnb, Uber, DoorDash)
- ❑ IT Services in Traditional Companies (Banks, government, education)
- ❑ Other

ROLE FOR A SOFTWARE ENGINEER

- ❑ Front end developer (dev)
 - ❑ Web page development, user interaction, GUI
- ❑ Back end developer(dev)
 - ❑ Server development, data management
- ❑ Full stack developer(dev)
 - ❑ Can do both front and back end
- ❑ Manager, Project Manager
 - ❑ Manage the scheduling, planning, resource allocation
- ❑ Product Manager
 - ❑ Product feature definition, marketing etc
- ❑ Research Engineer(dev)
 - ❑ Research in AI, AR, VR, Computer Vision etc ...
- ❑ Operation Engineer (ops)
 - ❑ Cloud management, operation management
- ❑ Security Engineer (dev)
 - ❑ User authentication, spam & fraud detection ...

MOST POPULAR PROGRAMMING LANGUAGE



JavaScript



Kotlin



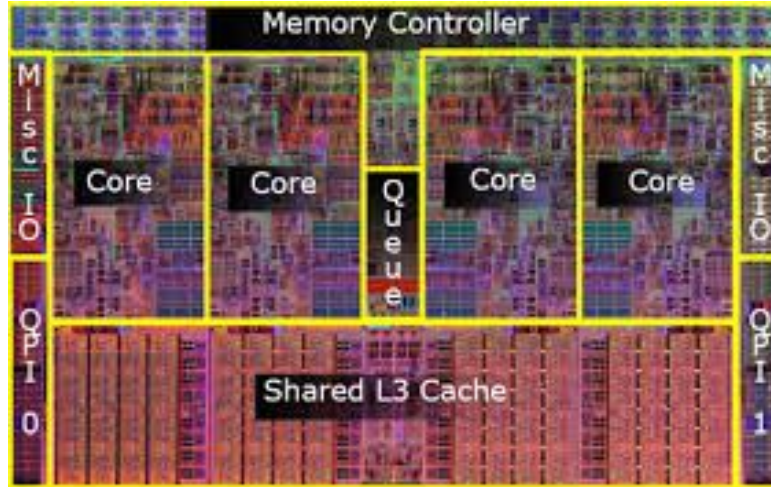
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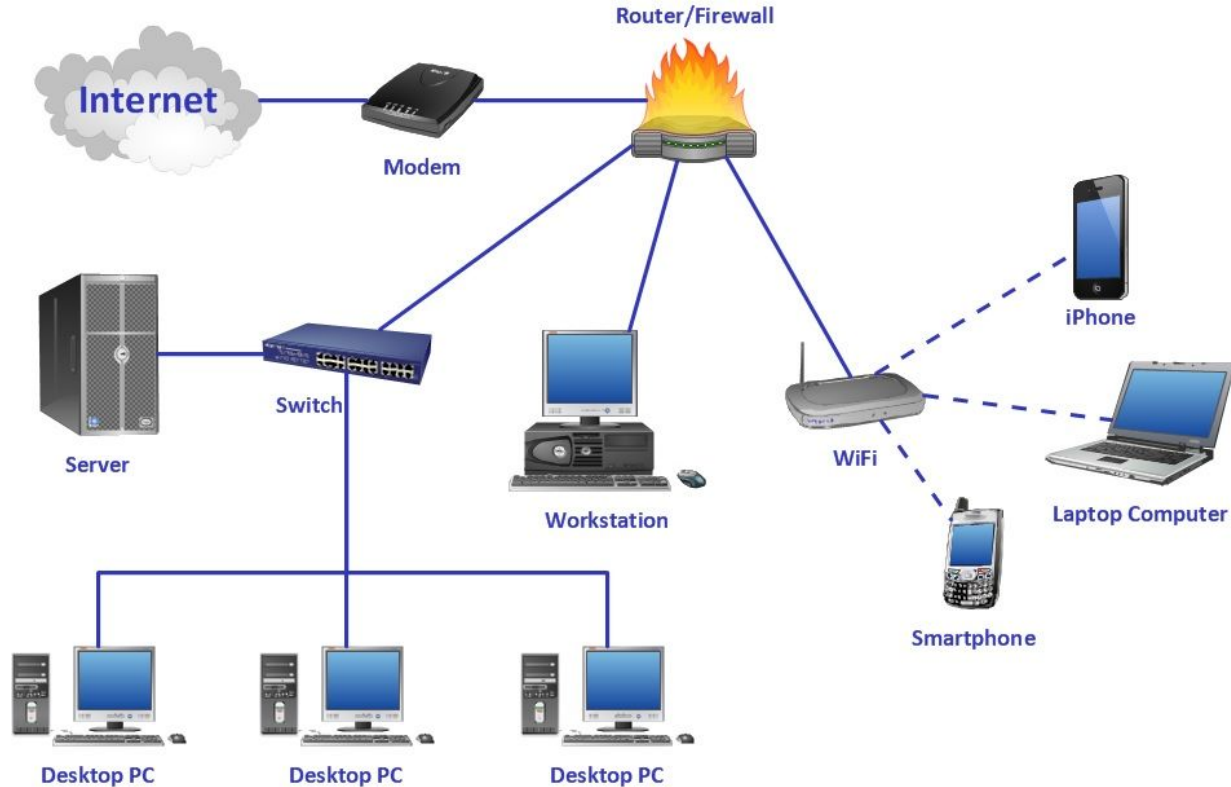
AREAS OF COMPUTER SCIENCE : OPERATING SYSTEM



AREAS OF COMPUTER SCIENCE : COMPUTER ARCHITECTURE



AREAS OF COMPUTER SCIENCE : COMPUTER NETWORKS



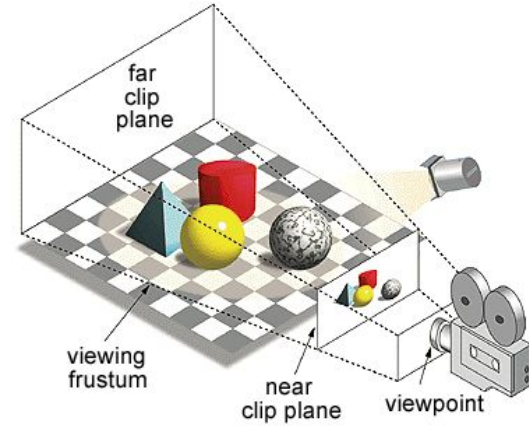
AREAS OF COMPUTER SCIENCE : ARTIFICIAL INTELLIGENCE



AREAS OF COMPUTER SCIENCE : COMPUTER VISION



AREAS OF COMPUTER SCIENCE : COMPUTER GRAPHICS



AREAS OF COMPUTER SCIENCE : DATABASE



CODERS CHANGE THE WORLD! OFFLINE-TO-ONLINE MOVEMENT

- ❑ Entertainment to Netflix
- ❑ Shopping to Amazon
- ❑ Education to Zoom
- ❑ Fitness to Peloton
- ❑ Doctor visit to Teladoc
- ❑ Taxi to Uber
- ❑ Hotel to Airbnb
- ❑ Eating to Doordash
- ❑ And More ...
 - ❑ YOU CAN MAKE THE NEXT

CODERS CHANGE THE WORLD! ARTIFICIAL INTELLIGENCE

- ❑ Deep Learning
 - ❑ Look for imagenet competition and the result vs human
- ❑ Reinforcement Learning
 - ❑ AlphaGo & train AI game playing
- ❑ Natural Language Processing
 - ❑ Look for “GPL-3” and see what it can do ...
- ❑ Autonomous driving
 - ❑ Tesla
- ❑ Augmented Reality
 - ❑ Snapchat
- ❑ Virtual Reality
 - ❑ Facebook Oculus
- ❑ Humanoid Robot
 - ❑ Look for the dog by boston dynamics
- ❑ Industrial Robot
 - ❑ Look for amazon warehouse automation ...

SKILLS FOR A SOFTWARE ENGINEER

- ❑ PATIENCE, PATIENCE, PATIENCE!!!
 - ❑ Can you sit in front of computer for 12 hours just to do ONE problem?
- ❑ Logical reasoning skills
- ❑ Mathematics
 - ❑ High School Algebra, Matrix Operation (AP)
 - ❑ Combinatorial math
 - ❑ Statistics