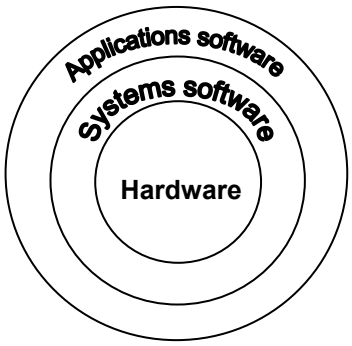
1. To go from a complex application to the simple low-level instructions involves several layers of software that are organized primarily in a hierarchical fashion as shown in the following figure.

a) Can you name a few examples of applications software?

b) Can you name a few examples of operating system?

c) Do you know why most of applications are platform dependent? E.g., an iPhone Apps can only work on iPhones while Android Apps can only work on Android devices.



2. What are the interfaces available for users to interact with operating systems? What is the difference between user interface and programming interface to interact with the operating system?

3. Why do you (a CS/EE student) need to learn OS?

There is no definite answer but

- Do you think the end users (users of computer applications) would like to concern with the details of computer hardware before they could use the software?
- Do you think the application programmers (who develop computer applications with programming languages) would like to write programs as a set of machine instructions that is completely responsible for controlling the computer hardware?
- Do you think you will be a system programmer?
- Do you think you will be an OS designer?

Self-test

Choose the best answer.

1) The four main structural elements of a computer system are:
   A. Processor, Registers, I/O Modules & Main Memory
   B. Processor, Registers, Main Memory & System Bus
   C. Processor, Main Memory, I/O Modules & System Bus
   D. None of the above

2) The two basic steps used by the processor in instruction processing are:
   A. Fetch and Instruction cycles
   B. Instruction and Execute cycles
   C. Fetch and Execute cycles
   D. None of the above

3) A fetched instruction is normally loaded into the:
   A. Instruction Register (IR)
   B. Program Counter (PC)
   C. Accumulator (AC)
   D. None of the above

4) The control/status register that contains the address of the next instruction to be fetched is called the:
   A. Instruction Register (IR)
   B. Program Counter (PC)
   C. Program Status Word (PSW)
   D. All of the above

5) Small, fast memory located between the processor and main memory is called:
   A. WORM memory
   B. Cache memory
   C. CD-RW memory
   D. None of the above

6) Which of the following description is correct when comparing cache, main memory and hard disk in order?
   A. Increasing cost per bit
   B. Decreasing capacity
   C. Increasing access time
   D. All of the above