

DBMS

1st hour

Thursday 16 December 2010

*Some of the usual questions that are being asked in placement interviews were discussed in today's class.

SOFTWARE DESIGNING:

1. Garbage collection
2. N Queen problem.
3. Project management
4. Software configuration
5. Software testing

NETWORKING:

1. TCP (Transmission Control Protocol)
2. IP (Internet Protocol)
3. Layers of networking
4. ICMP (Internet Control Message Protocol)
5. DNS (Domain Name System)
6. Encryption and Decryption

*My collections of information of the above topics

SOFTWARE DESIGNING

Garbage collection (GC): In computer science, GC is a form of automatic memory management. It is a special case of resource management, in which the limited resource being managed is memory. The garbage collector, or just collector, attempts to reclaim garbage, or memory occupied by objects that are no longer in use by the program. Garbage collection was invented by John McCarthy around 1959 to solve problems in Lisp.

(Read more at : [http://en.wikipedia.org/wiki/Garbage_collection_\(computer_science\)](http://en.wikipedia.org/wiki/Garbage_collection_(computer_science)))

N Queens problem: The eight queens puzzle is the problem of placing eight chess queens on an 8x8 chessboard so that none of them can capture any other using the standard chess queen's moves. The queens must be placed in such a way that no two queens attack each other. Thus, a solution requires that no two queens share the same row, column, or diagonal. The eight queens puzzle is an example of the more general n-queens problem of placing n queens on an n×n chessboard, where solutions exist only for n = 1 or n ≥ 4.

(Read more at: http://en.wikipedia.org/wiki/Eight_queens_puzzle)

Project management: Project management is the discipline of planning, organizing, securing and managing resources to bring about the successful completion of specific project goals and objectives. It is sometimes conflated with program management, however technically that is actually a higher level construction: a group of related and somehow interdependent engineering projects.

(Read more at: http://en.wikipedia.org/wiki/Project_management)

Software configuration: In software engineering, software configuration management (SCM) is the task of tracking and controlling changes in the software. Configuration management practices include revision control and the establishment of baselines. SCM concerns itself with answering the question "Somebody did something, how can one reproduce it?" Often the problem involves not reproducing "it" identically, but with controlled, incremental changes. Answering the question thus becomes a matter of comparing different results and of analyzing their differences. Traditional configuration management typically focused on controlled creation of relatively simple products. Now, implementers of SCM face the challenge of dealing with relatively minor increments under their own control, in the context of the complex system being developed.

(Read more at: http://en.wikipedia.org/wiki/Software_configuration_management)

Software testing: Software testing is an investigation conducted to provide stakeholders with information about the quality of the product or service under test.[1] Software testing also provides an objective, independent view of the software to allow the business to appreciate and understand the risks of software implementation. Test techniques include, but are not limited to, the process of executing a program or application with the intent of finding software bugs.

(Read more at: http://en.wikipedia.org/wiki/Software_testing)

NETWORKING

TCP: The Transmission Control Protocol (TCP) is one of the core protocols of the Internet Protocol Suite. TCP is one of the two original components of the suite, complementing the Internet Protocol (IP), and therefore the entire suite is commonly referred to as TCP/IP. TCP provides the service of exchanging data directly between two network hosts, whereas IP handles addressing and routing message across one or more networks. In particular, TCP provides reliable, ordered delivery of a stream of bytes from a program on one computer to another program on another computer. TCP is the protocol that major Internet applications rely on, applications such as the World Wide Web, e-mail, and file transfer. Other applications, which do not require reliable data stream service, may use the User Datagram Protocol (UDP) which provides a datagram service that emphasizes reduced latency over reliability.

(Read more at: http://en.wikipedia.org/wiki/Transmission_Control_Protocol)

IP: The Internet Protocol (IP) is the principal communications protocol used for relaying datagrams (packets) across an internetwork using the Internet Protocol Suite. Responsible for routing packets across network boundaries, it is the primary protocol that establishes the Internet. IP is the primary protocol in the Internet Layer of the Internet Protocol Suite and has the task of delivering datagrams from the source host to the destination host solely based on their addresses. For this purpose, IP defines addressing methods and structures for datagram encapsulation.

(Read more at: http://en.wikipedia.org/wiki/Internet_Protocol)

The seven layers (OSI model): The Open Systems Interconnection model (OSI model) is a product of the Open Systems Interconnection effort at the International Organization for Standardization. It is a way of sub-dividing a communications system into smaller parts called layers. A layer is a collection of conceptually similar functions that provide services to the layer above it and receives services from the layer below it. On each layer an instance provides services to the instances at the layer above and requests service from the layer below.

For example, a layer that provides error-free communications across a network provides the path needed by applications above it, while it calls the next lower layer to send and receive packets that make up the contents of the path. Conceptually two instances at one layer are connected by a horizontal protocol connection on that layer.

OSI Model			
	Data unit	Layer	Function
Host layers	Data	7. Application	Network process to application
		6. Presentation	Data representation, encryption and decryption, convert machine dependent data to machine independent data
		5. Session	Interhost communication
	Segments	4. Transport	End-to-end connections and reliability, flow control
Media layers	Packet	3. Network	Path determination and logical addressing
	Frame	2. Data Link	Physical addressing
	Bit	1. Physical	Media, signal and binary transmission

(Read more at: http://en.wikipedia.org/wiki/OSI_model)

ICMP: The Internet Control Message Protocol (ICMP) is one of the core protocols of the Internet Protocol Suite. It is chiefly used by the operating systems of networked computers to send error messages—indicating, for instance, that a requested service is not available or that a host or router could not be reached. ICMP can also be used to relay query messages.

ICMP relies on IP to perform its tasks, and it is an integral part of IP. It differs in purpose from transport protocols such as TCP and UDP in that it is typically not used to send and receive data between end systems. It is usually not used directly by user network applications, with some notable exceptions being the ping tool and trace route.

(Read more at: http://en.wikipedia.org/wiki/Internet_Control_Message_Protocol)

DNS: The Domain Name System (DNS) is a hierarchical naming system built on a distributed database for computers, services, or any resource connected to the Internet or a private network. It associates various information with domain names assigned to each of the participating entities. Most importantly, it translates domain names meaningful to humans into the numerical identifiers associated with networking equipment for the purpose of locating and addressing these devices worldwide.

(Read more at: http://en.wikipedia.org/wiki/Domain_Name_System)

ENCRYPTION AND DECRYPTION: In cryptography, encryption is the process of transforming information (referred to as plaintext) using an algorithm (called cipher) to make it unreadable to anyone except those possessing special knowledge, usually referred to as a key. The result of the process is encrypted information (in cryptography, referred to as cipher text). In many contexts, the word encryption also implicitly refers to the reverse process, decryption (e.g. “software for encryption” can typically also perform decryption), to make the encrypted information readable again (i.e. to make it unencrypted).

(Read more at: (Read more at: <http://en.wikipedia.org/wiki/Encryption>)