The History and futrue of Computers

Bus	**Register**	**Map**	**Hexadecimal**
总线	寄存器	映射	十六进制
Octal	**explicit**	**indicate**	**Cryptography**
八进制	明确的	指明	密码学
Steganography	**Complement**	**intersection**	**computerlike**
隐写术	补集	交集	类计算机的
vacuum tubes	**comlatible**	**transistor**	**time-sharing**
真空管	兼容的	晶体管	分时技术
bandwidth	**latency**	**batch**	**availability**
带宽	延迟	批处理	可用性

常见缩写	**意思**
HTML	超文本链接标示语言
XML	可扩展标示语言
UNIVAC	通用自动计算机
ICs(integrated circuits)	集成电路
COBOL(Common Business-Oriented Language)	面向商业的通用语言
VLSI(Very large Scale Integration)	超大规模集成电路
CD-RW(compact disk rewriter)	刻录机
take delivery of	正式接过
computational capability	计算能力
the increased sophistication of operating systems	复杂化程度的提高

句子翻译
The main problem with the radix-1 complement is that a negative or a positive zero exists; in the radix complement system, only a positive zero can exist.
反码(基数减一补码)的主要问题是它存在负零或者正零，而补码(基数补码)系统中只能存在正零。
Boolean addition and multiplication are associative and commutative, as are ordinary addition and multiplication.
布尔加和布尔乘与普通的加和乘一样，满足结合律和交换律。
In signal processing, sampling is the reduction of a continuous signal to a discrete signal.
在信号处理中，采样是把一个连续信号简化成一个离散信号的过程。
a processing unit containing an arithmetic logic unit and processor registers
一个处理单元包含一个算术逻辑单元和处理器寄存器
Floppy disk may be double-density or high-density
Java技术既是一种编程语言，也是一个平台
Since the UNIVAC-1's introduction, raw computer speed has increased by about 11 to 12 orders of magnitude in about 50 years, or a factor of 10 every five years.
自从UNIVAC-1的发明以来,计算机的原始速度在50年内增加了11至12个数量级，或每五年增加10倍

Exercises

1.Choose the right answer

(1)A **processor** is a functional unit that interprets and carries out instructions.

(2) A **programming language** consists of the symbols, characters, and usage rules that permit people to communicate with computer.

(3) **Application** software, also called end-user program, includes database programs, word processors, spreadsheets, etc.

(4) In **a stack** , the only element that can be deleted or removed is the one that was inserted most recently.

(1)Most online services have their own browsers.

大多数在线服务都有自己的浏览器。

(2)Floppy disk may be double-density or high-density.

软盘可能是双倍密度的或者高密度的。

(3)Java technology is both a programming language and a platform.

Java技术既是一种编程语言，也是一个平台。

(4)A window manager can be though of as a GUI(graphical user interface) for an OS.

一个视窗管理器可以被看作是操作系统的图形用户界面。

(5)A database management system handles user requests for database action.

数据库管理系统处理用户对数据库的操作请求。

We can define a computer as a device that accepts input, processes data, stores data, and produces output. According to the **(1) mode** of processing, computer are either analog or **(2) digital** . They can also be classified as mainframes, **(3) minicomputer** , workstation, or microcomputers. All else (for example, the age of the machine) being equal, this **(4) categorization** provides some indication of the computer's **(5) speed** , size, cost, and abilities.

Ever since the **(6) advent** of the computers, there have been constant changes. First-generation computers of historic **(7) significance** , such as UNIVAC, introduced in the early 1950s, were **(8) based** on vacuum tubes. Second-generation computers, **(9) appeared** in the early 1960s, were those in which **(10) transistors** replaced vacuum tubes. In third-generation computers, dating from the 1960s, integrated **(11) circuits** replaced transistors. In fourth-generation computers such as **(12) microcomputer** , which first appeared in the mid-1970s, large-scale **(13) integration** enabled thousands of circuits to in incorporated on one **(14) chip** . Fifth-generation computers are expected to **(15) combine** very-large-scale integration with sophisticated approaches to **(16) computing** , including artificial intelligence and true distributed processing.

PC (Personal Computer)

It is a single user computer system having moderately powerful microprocessor.

Workstation

It is also a single user computer system, similar to personal computer however has a more powerful microprocessor.

Mini Computer = midrange computer

It is a multi-user computer system, capable of supporting hundreds of users simultaneously.

Main Frame

It is a multi-user computer system, capable of supporting hundreds of users simultaneously. Software technology is different from minicomputer.

Supercomputer

It is an extremely fast computer, which can execute hundreds of millions of instructions per second.

(1)一个处理单元包含一个算术逻辑单元和处理器寄存器；

(2)一个控制单元包含一个指令寄存器和程序计数器；

(3)存储数据和指令的存储器；

(4) 外部的大容量存储器；

(5) 输入和输出的机制。

This describes a design architecture for an electronic digital computer with parts consisting of

这描述了一个电子数字计算机的设计体系结构，它包含如下部件：

a processing unit containing an arithmetic logic unit and processor registers

(1)一个处理单元包含一个算术逻辑单元和处理器寄存器；

a control unit containing an instruction register and program counter;

(2)一个控制单元包含一个指令寄存器和程序计数器；

a memory to store both data and instructions;

(3)存储数据和指令的存储器；

external mass storage

(4) 外部的大容量存储器；

and input and output mechanisms.

(5) 输入和输出的机制。

Organization of Computers

pins	**bidirectional**	**unidirectional**	**hierarchy**
插脚，管脚	双向的	单向的	层级
synchronize	**specify**	**deassert**	**configuration**
使...同步	指明	撤销	构造
interleaving	**alignment**	**homogeneous**	
交叉，交错	对齐方式	同类的	

短语	**意思**
from a system perspective	从系统的角度
ALU(Arithmetic Logic Unit)	算术逻辑单元
RISC(Reduced Instruction Set Computer)	精简指令集计算机
high-order interleaving	高位交叉技术
pipelined memory access	流水线存储器访问
DMA(Direct Memory Access)	直接存储器访问
tri-state buffers	三态缓冲器

翻译
Many data formats use more than one 8-bit byte to represent a value, whether it is an integer, floating point number, or character string.
许多数据格式使用多个字节（一个字节8位）来表示一个数据，而不管此数值是整型数、浮点数还是字符串。
Most CPUs assign addresses to 8-bit memory locations, so these values must be stored in more than one location. It is necessary for every CPU to define the order it expects for the data in these locations.
由于大多数CPU给8位的存储器单元分配地址，因此这些值必须存储在多个单元中，每个CPU必须定义数据在这些单元中的顺序。
There are programs which can convert data files from one format to the other
有程序可以将两种数据文件进行格式转换
One other issue of concern for multibyte words is **alignment**.
多字节的另一个值得关注的问题是对齐问题。现代微处理器在某一时刻可以读出多个字节。
Alignment simply means storing multibyte values in locations such that they begin at a location that also begins a multibyte read block.
对齐简单地说就使存储多字节值的起始单元刚好是某个多字节读取模块的开始单元
In this example, this means beginning multibyte values at memory locations that have addresses evenly divisible by four, thus guaranteeing that a four-byte value can be accessed by a single read operation.
在这个例子中，意味着多字节值开始存储的单元的地址要能被4整除，这样就保证该4字节值可在单一的一个读操作中存取到。
The key to this design is the enable logic. Just as every memory location has a unique address, each I/O device also has a unique address
这一设计的关键在于使能逻辑。正如每一个存储单元都有一个惟一的地址一样，每一个I/O设备也有一个惟一的地址。

QA

In computers, a **(1)pipeline** is the continuous and somewhat overlapped movement of **(2)instructions** to the processor or in the arithmetic steps taken by the processor to perform an instruction. Pipelining is the use of a pipeline.

Without a pipeline, a computer processor gets the first instruction from memory, performs the **(3)operation** it calls for, and then goes to get the next instruction from memory, and **(4)so forth**. While **(5)fetching** the instruction, the **(6)arithmetic** part of the processor is **(7)idle**. It must wait until it gets the next instruction.

With pipelining, the computer **(8)architecture** allows the next instructions to be fetched while the processor is performing arithmetic operations, holding them in a **(9)buffer** close to the processor until each instruction operation can be performed. The staging of instruction fetching is continuous. The result is an **(10)increase** in the number of instructions that can be performed

during a given time period.

ROM和RAM芯片的内部组成是相似的。为了说明一个最简单的组成——线性组成，我们来考虑一个8´2的ROM芯片。

The internal organizations of ROM and RAM chips are similar. To illustrate the simplest organization, a linear organization, consider an 8´2 ROM chip.

为了简化，编程器件没有画出来。这个芯片有三个地址输入端和两个数据输出端，以及16位的内部存储元件，它排列成8个单元，每个单元2位。

For simplicity, programming components are not shown. This chip has three address inputs and two data outputs, and 16 bits of internal storage arranged as eight 2-bit locations.

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撇号：prime e.g. x' -> X-prime

连接号(-):hyphen

破折号(——):dash

下划线(_):underline

CPU, memory system, and **input/output devices** are three main components in computer organization.

The CPU keeps the address of the next instruction to be fetched in **program counter**.

The instruction cycle is also called the **fetch-decode-and-execute** cycle.

Either both chips or neither chip **is** active at any given time.

When **high-order interleaving** is used, all memory locations within a chip are contiguous within system memory.

Virtual memory uses **a hard disk** as a part of the computer's memory.

Number Systems and boolean Algebra

quotient	carry	remainder	denominator
商	进位	余数	除数，分母
algebraist	**logician**		
代数学家	逻辑学家		

短语	意思
whole number	整数
significant figure	有效数字
exponential value/powers	指数值/幂
decimal point	十进制小数点
(BCH)Binary-coded hexadecimal	二进制编码的十六进制
radix -1 complement	反码
radix complement	补码
component-wise	以分量形式
two-element Boolean algebra	二值布尔代数

$$\exists : there\ exists$$
$$\forall : for\ all$$
$$p \implies q : p\ implies\ q或if\ p, then\ q$$
$$p \iff q : p\ if\ and\ only\ if\ q$$

$\sum_{i=1}^{n} a_i$:from 1 to n of the ai

$(\frac{x}{y})^2$:x over y all squared

$\int_0^\infty$:the integral from zero to infinity

$lim_{x \to +0}$:the limit as x approaches zero from above

句子翻译
Conversions from decimal to other number systems are more difficult to accomplish than conversion to decimal. To convert the whole number portionof a number to decimal, divide by the radix. To convert the fractional portion, multiply by the radix.
由十进制转换成其他进制比由其他进制转换成十进制困难。转换整数部分时，要用基数去除，转换分数部分时，要用基数去乘它们。
The main problem with the radix-1 complement is that a negative or a positive zero exists; in the radix complement system, only a positive zero can exist.
反码的主要问题是它存在负零或者正零，而补码系统中只能存在正零。

QA

在十六进制数制系统中，个位的权为16^0；十位的权为16^1；而百位的权为16^2。
In a (based 16) hexadecimal number system, the units position has a weight of 16^0 ; the tens position has a weight of 16^1; and the hundreds position has a weight of 16^2.

Conversions from decimal to other number systems are more difficult to accomplish than conversion to decimal. To convert the whole number portion of a number to decimal, divide by the radix**.** To convert the fractional portion**,** multiply by the radix**.**

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•How to generate the radix-1 and radix complements?

•To form the radix-1 complement, each digit of the number is subtracted from the radix-1.

•To form the radix complement, first find the radix-1 complement, and then add a one to the result.

Data Structure

reusability	**traversing**	**context-free**	**simplistic**
复用性	遍历	与上下文无关	过分简单的
blockchain	**ledger**	**inviting**	**contiguous**
区块链	账簿	引人心动的	邻近的
pseudocode	**shrink**	**pertinent**	**allot**
伪代码	收缩	有关的	分配
vacancy	**retrieve**	**entail**	**terminology**
空白	重新得到	使...承担	术语
backtracking	**demonstrate**	**entail**	**rear**
回溯	演示	涉及	后面

短语	**意思**
singly/doubly linked list	单/双向链表
data fiely	数据字段
PoW(Proof of work)	工作量证明
conceptual structure	概念结构
a collection of procedures	一组过程(函数)

翻译
Three reasons for using data structures are efficiency, abstraction, and reusability.
使用数据结构的三个原因是效率、抽象性和复用性。
Data structures are reusable because they tend to be modular and context-free.
因为数据结构趋向于模块化并和环境无关,所以数据结构是可以复用的。
They are modular because each has a prescribed interface through which access to data stored in the data structure is restricted.
因为每种结构有一个预定的接口,通过该接口限制访问存储在数据结构中的数据，所以它们是模块化的。
That is, we access the data using only those operations the interface defines.
也就是说,我们只能使用接口定义的那些操作来访问数据。
In this manner, the queue chases(追逐) itself around within the block rather than wandering off (偏离) through memory.
在此方法下，队列在一块区域内循环而不会出现内存溢出情况。

QA

Multiply linked list**（多重链表）**
While doubly linked lists can be seen as special cases of multiply linked list, the fact that the two orders are opposite to each other leads to simpler and more efficient algorithms, so they are usually treated as a separate case.

虽然双向链表可以被看作是多重链表的特殊情况，但是拥有两种彼此相反次序的链表能得到更简单和更有效的算法，所以它们通常被视为单独的情况。

Reusability
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They are modular because each has a prescribed interface through which access to data stored in the data structure is restricted**.**
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复用性
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6.Virtual memory uses **a hard disk** as a part of the computer's memory

1. What are big endian and little endian.

In big endian format, the most significant byte of a value is stored in location X, the following byte in location X+l, and so on.

In little endian, the order is reversed. The least significant byte is stored in location X, the next byte in location X+1, and so on.

2. What does “word” mean in computer architecture.

A word in computer architecture is a fixed-sized piece of data handled as a unit by the instruction set or the hardware of the processor.

A buffer is a data area shared by **(1)hardware** devices or program processes that **(2)operate** at different speeds or with different sets of priorities. The buffer allows each **(3)device** or process to operate without being held up by the **(4)other**.

In order for a buffer to be **(5)effective**, the size of the buffer and the algorithms for **(6)moving** data into and out of the buffer need to be **(7)considered** by the buffer **(8)designer**. Like a cache, a buffer is a 'midpoint holding place' but **(9)exists** not so much to accelerate the **(10)speed** of an activity as to support the coordination of separate activities.

Operating System

facilitate	**constraint**	**embody**	**perceive**
推动	约束	具体表达	感知
suboptimal	**concurrent**	**preemption**	**entruct**
未达到最佳标准的	并发的	预先	委托
enty	**inherent**	**compilation**	**monolithic**
条目、登录	固有的	汇编	整体式的
segregate	**portability**	**stratify**	**invoke**
隔离	可移植的	分层	调用
interrupt-driven	**detract**		
中断驱动的	削弱		

Expressions	
mutual interference	相互干扰
resource allocation	资源分配
access privileges	访问权限
suboptimal utilization	实际需要
computational structure	计算结构
of marginal relevance	无关紧要
minimal functionalities	最小功能组件

句子翻译
In the partitioned resource allocation approach, the OS decides on the resources to be allocated to a program based on the number of resources and the number of programs in the system.
在资源分区分配方法中，操作系统依据系统中的资源数目和程序数目决定如何进行资源分配。
The shorter term preemption is used for preemption of the CPU, and the full term resource preemption is used for preemption of other resources.
我们称抢占CPU为抢占，而称抢占其他资源为资源抢占。
Both the partitioning and the pool-based allocation approaches can be used to manage the memory resource.
资源分区和基于资源池的分配方式都适用于存储器资源管理。
In a concurrent program, different parts of the program can execute concurrently.
而在并发程序中，程序的不同部分可被同时执行。
Some well-known microkernels include the QNX kernel which is only 8K bytes in size and includes process scheduling, interrupt handling, interprocess communication and core network services.
一些知名的微内核包括一个只有8Kb大小，但包含过程调度、中断处理、进程间通信及核心网络服务的QNX内核。

Two popular strategies for resource allocation are:

• **Partitioning of resources**

• **Allocation from a pool**

资源分配通常采取以下两种策略：资源分区/从资源池中分配。

Resource preemption /资源抢占

There are different ways in which resource can be shared by a set of programs. Some of these are:

•Sequential sharing

•Concurrent sharing

资源被一系列程序分享可以有多种不同的方式，如:串行共享,并行共享

QA

1. Policies are usually architecture **independent**, while mechanisms are often architecture **dependent/specific.**
2. The porting effort of an operating system is determined by **the size of the OS kernel**.
3. Resource control actions of the module can be classified into

(a). **Policies** governing the use of resources.

(b). **Mechanisms** to implement the policy.

4. Thus, in either case the entry to the kernel is through the interrupt processing mechanism. For this reason, the OS kernel is often said to be **interrupt-driven**.

An operating system (sometime abbreviated as "OS") is the program that, after being initially **(1)loaded** into the computer by a **(2)boot(引导)** program, manages all the other programs in a computer. The other programs are called **(3)applications** or application programs. The application programs make **(4)use** of the operating system by making **(5)requests** for services through a **(6)defined** application program interface (API). In addition, users can **(7)interact** directly with the operating system **(8)through** a user interface such as a **(9)command** language or a **(10)graphical** user interface (GUI).

QA

1.OS functions can be divided into **resource allocation and related functions, and user interface functions** .

2.Resources can be divided into **system provided resources, and user-created resources** .

3.Two types of strategies for resource allocation are partitioning of resources **(static allocation)** , and allocation from a pool **(dynamic allocation)** .

4.There are two ways of sharing: **sequential sharing, and concurrent sharing** .

5.What is resource preemption?

When a resource is sequentially shareable, the system can de-allocate a resource when the program makes an explicit request for de-allocation.

Alternatively, **it can de-allocate a resource by force**. This is called resource preemption, that is, **forceful de-allocation of a resource**.

Software Engineering

nondescriptive	**authorized**	**generic**	**specification**
非描述性的	权威认可的	一般的	说明书
evasive	**imperative**	**routine**	**well-established**
逃避的	强制性的	程序	充分证实的
paradigm	**conducive**	**spreadsheet**	**prototype**
范例	有助于...的	电子数据表	原型
parity	**subordinate**	**off-the-shelf**	**maintenance**
奇偶校验	从属模块	现成的	维护

Expressions	
manufactured products	工业产品
software life cycle	软件生命周期
in terms of	根据
modular design	模块化设计
evolutionary prototyping	演化史原型
object-oriented	面向对象的
GUI(Graphical User Interfaces)	图形用户界面
CASE(computer-aided software engineering)	计算机辅助软件工程
wear out	磨损
effort-versus-benefit leverage	付出与收益的杠杆作用
pertaining to	相关
waterfall model	瀑布模型
incremental model	增量式模型
design pattern	设计模式

句子翻译
After all, to develop a large software system is to solve a problem.
毕竟，开发一个大型的软件系统是去解决一个问题

QA

(1)(D): An error can be caused by attempting to divide by 0.

A.Interrupt B. Default C. Underflow **D. Overflow**

(2) (A): The process of identifying and correcting errors in a program.

A.Debug B. Bug C. Fault D. Default

(3) (B): A collection of related information, organized for easy retrieval.

A.Data **B. Database** C. Buffer D. Stack

(4)(C): A location where data can be temporarily stored.

A.Area B. Disk **C. Buffer** D. File

(5) Every valid character in a computer that uses even (A) must always have an even number of 1 bits.

A.parity B. check C. test D. compare

(6) The maximum number of data that can be expressed by 8 bits is (C).

A.64 B. 128 **C. 255** D. 256

(7) Integration (C) is the process of verifying that the components of a system work together as described in the program design and system design specification.

A. trying B. checking **C. testing** D. coding

中译英，英译中

(1) software life cycle 软件生命周期

(2) specification 详述, 说明书*,* 规范

(3) modular 模块的, 有标准组件的

(4) maintenance 维护, 保持

(5) waterfall model 瀑布模型

(6) 增量式模型 incremental model

(7) 设计模式 design pattern

(8) 原型 prototype

(9) 白盒测试 White box testing

(10) 现成组件 off-the-shelf components

Programming Languages

primitive	**appropriating**	**interpreter**	**compiler**
原始的	适当的	解释程序	编译器
prompt	**esoteric**	**intermediary**	**premium**
提示符	深奥的	中间的	额外费用，奖金
assembler	**cryptic**	**cross-compiler**	**macro**
汇编程序	秘密的	交叉编译器	宏
inheritance	**discrete**	**polymorphism**	**encapsulation**
继承	单个的，离散的	多态性	封装
instances	**diversity**	**descendant**	
实例	多样性	后代	

Expressions	
telemetry calculation	遥测计算
dialog box	对话框
hardware-dependent	基于硬件的
error prone	易出错的
symbolic machine code	符号化的机器语言
an order of magnitude	一个数量级
OOP(Object-Oriented Programming)	面向对象的编程技术
stepwise refinement	分段优化
stem from	源于
ode refactoring	代码重构

句子翻译
Preprocessing is the first pass of any C compilation. It processes include-files, conditional compilation instructions and macros.
预处理是所有C语言编译过程的第一个步骤。它对包含文件、条件编译指令和宏定义进行处理。
On the other side are the concepts understood by a computer system: electric impulses, micro code, machine code instructions, and programming language constructions.
另一端是计算机系统所理解的概念，电脉冲，微代码，机器代码指令和程序设计语言结构。

A compiler translates the code into **an intermediary form** . This step is called **compiling** , and produces **an object file** . The compiler then invokes **a linker** , which turns the object file into **an executable program**.

the C's program building process involves four stages and utilizes different 'tools' such as a **preprocessor** , **compiling** , **assembler** , and **linker** .

(1)(**load**): To transfer (data) from a storage device into a computer's memory.

(2)(**compile**): To translate (a program) into machine language.

(3)(**value**): An assigned or calculated numerical quantity.

(4)(**instruction**): A machine code telling a computer to perform a particular operation.

(5) (**interpret**): To translate a statement or instruction into executable from and then execute it.

(6) (**alphabet**): The letters of a language, arranged in the order fixed by custom.

(7) (**assembler**): A program operating on symbolic input data to produce the equivalent executable machine code.

(8) (**utility**): A program designed to perform a particular function; the term usually refers to software that solve narrowly focused problems or those related to computer system management.

(9) (**communication**): The technology employed in transmitting message.

(10) (**programmer**): One who writes computer programs.

java is A programming language expressly designed for use in the distributed **(1)environment** of the Internet. IT was designed to have the "look and feel" of the C++ language, but it's simpler to use than C++ and **(2)enforces** an object oriented programming model. Java can be used to create complete applications that may run on a **(3)single** computer or be distributed among **(4)servers** and clients in a network. It can also be used to build a small application module or **(5)applet** for use as part of a Web page. Applets make it possible for a web page user to **(6)interact** with the page.

The Java virtual machine includes an optional just-in-time **(7)compiler** that dynamically compiles bytecode into **(8)executable** code as an alternative to interpreting one bytecode instruction at a time. In many case, the **(9)dynamic** JIT compilation is faster then the virtual machine **(10)interpretation** .

The Internet:Technology Background

hyperlink	**glibly**	**legitimization**	**fledging**
超链接	流利地	合法化	刚会飞的幼鸟
gigabyte	**reminiscent**	**Ethernet**	**pundit**
十亿字节	怀旧的	以太网	空谈家
conceptualize	**quad**	**Router**	**institutional**
使有概念	四元组	路由器	制度上的
follow on	**vulnerable**		
继续	易受攻击的		

Expressions	
packet-switching	分组交换技术
circuit switching	线路转接
instant messaging	即时信息服务
TCP(Transfer Control Protocol)	传输控制协议
IP(Internet Protocal)	网际协议
FTP(File Transfer Protocol)	文件传输协议
POP(Post Office Protocol)	邮局协议
URL(Uniform Resource Locator)	统一资源定位
SSL(Secure Socket Layer)	加密套接字协议层
SMTP(Simple Message Transfer Protocol)	简单邮件传输协议
IMAP(Internet Message Access Protocol)	Internet消息访问协议
demonstration project	示范性项目
ARPANET(Advanced Research Projects Agency Network)	高级研究计划局建立的计算机网
pick up the slack	收拾残局
terminal emulation program	终端模拟程序

句子翻译
The basic building blocks are: packet-switching hardware, client/server computing, and a communications protocol called TCP/IP.
其基本的构建模块是:分组交换硬件、客户机/服务器计算技术和一个被称为传输控制协议的通信协议。
Packet switching makes nearly full use of almost all available communication lines and capacity.
分组交换几乎充分利用了所有可用的通信线路和能力。
A protocol is a set of rules for formatting, ordering, compressing, and error-checking messages.
协议是一组用于信息的格式化、次序化、压缩和检查错误的规则。
Protocols can be implemented in either hardware or software.
协议既可以通过硬件也可通过软件来实现。
The Internet Layer is responsible for addressing, packaging, and routing messages on the Internet.
因特网层负责信息的寻址、封装及其在因特网上的路线排定
Domain Names and URLs. Most people cannot remember 32-bit numbers. IP addresses can be represented by a natural language convention called domain names.
域名和统一资源定位(URL)。大多数人记不住32位的数字。IP地址可由一个自然语言约定(称为域名)来表示。
SSL helps secure e-commerce communications and payments through a variety of techniques such as message encryption and digital signatures.
通过诸如信息加密和数字签名等多种技术，SSL促进安全的电子商务通信和支付。

“Internet” refers to the global information system that—
I. is logically linked together by **a globally unique address space** based on the **Internet Protocol (IP)** or its subsequent extensions/**follow-ons;**
II. is able to support communications using the **Transmission Control Protocol/Internet Protocol (TCP/IP) suite** or its subsequent extensions/follow-ons, and/or other IP-compatible protocols; and
III. provides, uses or makes accessible, either publicly or privately, **high level services** layered on the communications and related infrastructure described herein.

The basic building blocks used in Internet are **client/server computing**,**packet-switching** and **TCP/IP**.

The history of the Internet can be segmented into **innovation phase**,**institutional phase** and **commercialization phase**.

TCP/IP is divided into four separate layers : **network Interface layer , internet layer , transport layer** , and **application layer**.

分组交换是传输数据的一种方法，它先将数据信息分割成许多称为“分组”的数据信息包；当路径可用时，经过不同的通信路径发送；当到达目的地后，再将它们组装起来。
Packet switching is a method of slicing digital messages into parcels called “packets,” sending the packets along different communication paths as they become available, and then reassembling the packets once they arrive at their destination.

The World Wide Web

supplant	**extension**	**amateur**	**compromise**
排挤掉，代替	扩展名	业余	损害，妥协，退让
discrete	**transceiver**		
离散的	发收器		

Expressions	
SGML(Standard Generalized Markup Language)	(标准)通用标记语言
SSL(Secure Socket Layer)	加密套接字协议层
PDA(personal digital assistant)	个人数字助理
format and categorize	格式化并归类
site traffic	网站访问量
various flavors	各种不同风格的
peer-to-peer	对等的

句子翻译
The advantage of SGML is that it can run independent of any software program but, unfortunately, it is extremely complicated and difficult to learn. Probably for this reason, it has not been widely adopted.
SGML的优点是它能独立于任何软件程序运行，但不幸的是，它极端复杂和难学。或许因为这个理由，它没有被广泛地采用。
HTML functions to define the structure and style of a document, including the headings, graphic positioning, tables, and text formatting.
HTML的功能是定义文件的结构和风格,包括标题、图形定位、表格和本文格式。
Extensible Markup Language (XML) takes Web document formatting a giant leap forward.
XML使网络文件格式化发生了一次巨大的飞跃。
You already know that a server is a computer attached to a network that stores files, controls peripheral devices, interfaces with the outside world—including the Internet—and does some processing for other computers on the network.
你已经知道服务器是一台联接到网络的计算机，用于储存文件、控制外设、与外界——包括因特网接口，且为网络上的其他计算机进行一些处理。
The two leading brands of Web server software are Apache, which is free Web server shareware that accounts for about 60% of the market, and Microsoft's NT Server software, which accounts for about 20% of the market.
网络服务器软件的两种主要品牌是Apache和微软的NT服务器软件,前者是一种免费的网络服务器共享软件，约占有60%的市场；后者约占有20%的市场。
Although any personal computer can run Web server software, it is best to use a computer that has been optimized for this purpose.
虽然任何个人计算机都能运行网络服务器软件，但是最好使用一部为这个目的最佳化的计算机。

Bluetooth requires that a low-cost **(1)transceiver** chip be included in each device. The transceiver transmits and **(2)receives** in a previously unused **(3)frequency** band of 2.45 GHz that is available **(4)globally** (with some variation of bandwidth in different countries), In addition to data, up to three **(5)voice** channels are available. Each device has a **(6)unique** 48-bit address from the IEEE 802 standard. Connections can be point-to-point or **(7)multipoint**.
The maximum range is 10 meters. Data can be **(8)exchanged** at a rate of 1 megabit per second (up to 2 Mbps in the second generation of the technology). A frequency hop **(9)scheme** allows devices to communicate even in areas with a great deal of electromagnetic interference. Built-in encryption and **(10)verification** is provided.

For a family of four, for example, it is more convenient as well as cheaper to sit comfortably at home, with almost unlimited entertainment available, than to go out in search of amusement elsewhere.

譬如, 对于一个四口之家来说, 舒舒服服地在家中看电视, 就能看到几乎数不清的娱乐节目, 这比到外面别的地方去消遣又便宜又方便。

顺序法

Even when we turn off the beside lamp and are fast asleep, electricity is working for us, driving our refrigerators, heating our water, or keeping our rooms air-conditioned.

即使在我们关掉了床头灯深深地进入梦乡时, 电仍在为我们工作: 帮我们开动电冰箱, 把水加热, 或使室内空调机继续运转。

逆序法

For our purposes we will say e-commerce begins in 1995, following the appearance of the first banner advertisements placed by ATT, Volvo, Sprint and others on Hotwired.com in late October 1994, and the first sales of banner ad space by Netscape and Infoseek in early 1995.

伴随着ATT、Volvo、Sprint等公司所做的第一例横幅广告于1994年10月下旬出现在Hotwired.com上，和1995年初Netscape与Infoseek领先出售横幅广告空间，我们会说电子商务是从1995年开始的。

分句法

The number of the young people in the United States who can't read is incredible about one in four.

大约有1/4的美国青年人没有阅读能力, 这简直令人难以置信。

综合法

Napster.com, which was established to aid Internet users in finding and sharing online music files known as MP3 files, is perhaps the most well-known example of peer-to-peer e-commerce, although purists note that Napster is only partially peer-to-peer because it relies on a central database to show which users are sharing music files.

Napster.com建立的目标是帮助因特网用户发现并分享在线音乐文件，即人所共知的MP3文件。尽管纯化论者强调：因为它依赖中央数据库来显示哪一位用户正在分享音乐文件，所以Napster仅仅是部分对等。但Napster或许是对等电子商务最著名的实例。

学术论文结构

标题：**title**

摘要：**abstract**

关键词：keywords,index terms

目录：table of contents

术语表：nomenclature

引言：**introduction**

正文：**proposed method(方法),experimental results(结果),discussions(讨论),conclusions(结论)**

致谢：acknowledgement

注释：notes

参考文献：**references**

附录：appendix

*八个加粗内容必不可少

Computer and Network Security

breach	**depositor**	**perimeter**	**exposure**
破坏	寄托者	周围	曝光
interception	**fabricate**	**spurious**	**vulnerability**
截取	伪造	假的	弱点
penetrate	**tamper**	**intruder**	**perpetrate**
渗入	篡改	入侵者	犯（罪）,做（坏事）
inadvertent	**illicit**	**cipher**	**proliferate**
非故意的	非法	密钥	增生
authenticity	**prerequisite**	**retrieve**	**customizable**
真实性	先决条件	检索	可定制的
unsolicited	**session**	**proxy**	**inundate**
主动提供的	会话	代理	淹没
steganoraphy	**scrutiny**	**hypothesis**	
隐写术	监听	假设	

Expressions	
counterfeit object	虚伪的对象
state-of-the-art	最新的
DES(Data Encryption System)	数据加密系统
DCE(Distributed Computing Environment)	分布式计算环境
data integrity	数据完整性
hardware encryption devices	硬件加密设备
CA(certificate authority)	认证中心
digital signature	数字签名
packet filtering	数据包过滤
stateful inspection	状态检查
digital forensics	数字取证

句子翻译
The major assets of computing systems are hardware, software, and data.
计算机系统的主要资源是硬件、软件和数据。
There are four kinds of threats to the security of a computing system: interruption, interception, modification, and fabrication.
有四种对计算机安全的威胁：中断，截取，篡改和伪造。
An interception means that some unauthorized party has gained access to an asset.
截取是指某一非特许用户掌握了访问资源的权利。
Recent research has confirmed that triple-DES is indeed more secure than single-DES.
最新研究已确认三重DES确实比单重DES更安全。
steganography is concerned with concealing the fact that a secret message is being sent, as well as concealing the contents of the message.
隐写术考虑秘密消息如何进行发送及隐藏消息的内容。
Media files are ideal for steganographic transmission because of their large size.
媒体文件因为其尺寸较大，是隐写传输的理想载体。
The technical aspect of an investigation is divided into several sub-branches, relating to the type of digital devices involved; computer forensics, network forensics, forensic data analysis and mobile device forensics.
一个调查的技术现状，按照涉及的数字设备的种类，可分为几个子类：计算机取证、网络取证、取证数据分析和移动设备取证。

The term hacker is used in popular **(1)media** to describe someone who attempts to break into computer systems. Typically, this kind of hacker would be a **(2)proficient** programmer or engineer with sufficient **(3)technical** knowledge to understand the weak points in a (4)security system.
A **(5)cracker** is someone who breaks into someone else's computer system, often on a network; bypasses passwords or **(6)licenses** in computer programs; or in other ways intentionally **(7)breaches** computer security.
A cracker can be doing this for profit, maliciously, for some altruistic purpose or cause, or because the **(8)challenge** is there. Some breaking-and-entering has been done ostensibly to point out **(9)weaknesses** in a site's security system.
The term "cracker" is not to be **(10)confused** with "hacker". Hackers generally deplore cracking. However, as Eric Raymond, compiler of The New Hacker's Dictionary notes, some journalists ascribe break-ins to "hackers."

Steganography includes the concealment of information within computer files.

In digital steganography, electronic communications may include steganographic coding inside of a transport layer, such as a document file, image file, program or protocol.

隐写术包括在计算机文件中隐藏信息。在数字隐写术中，电子通信可能传输层中包括隐写编码，比如一个文档文件、图像文件、程序或是协议。

The two leading brands of Web server software are Apache, which is free Web server shareware that accounts for about 60% of the market, and Microsoft's NT Server software, which accounts for about 20% of the market.

网络服务器软件的两种主要品牌是Apache和微软的NT服务器软件,前者是一种免费的网络服务器共享软件，约占有60%的市场；后者约占有20%的市场。

Database Management

facilitate	**field**	**retrieval**	**bibliography**
使容易	字段	检索	参考书目
periodical	**declarative**	**prevalent**	**talubar**
期刊	陈述性的	流行的	表格式的
add-on	**console**	**eliminate**	**mundane**
附加的	控制台	排除，消除	平凡的
archivelog	**bundle**	**proactive**	**repository**
档案日志	捆绑	前摄的	综合
wizard			
向导			

expressions	
pertaining to	属于
break down	分解
flat databases	(扁平化)非结构化的数据库
hierarchical database	层次型数据库
no structure for indexing	没有索引结构
relational database model	关系型数据库
deviate from	违背
EAV(Entity–attribute–value model)	实体-属性-数值模型
sparse matrix	稀疏矩阵
superior-subordinate relationship	主-从结构

句子翻译
A database management system (DBMS) is a computer software application that interacts with the user, other applications, and the database itself to capture and analyze data.
数据库管理信息系统是一个与用户、其他应用、及数据库本身进行交互来捕获、分析数据的一个计算机软件应用。
A general-purpose DBMS is designed to allow the definition, creation, querying, update, and administration of databases.
通用的数据库管理信息系统用于进行定义、构建、查询、更行和管理数据库。
the most popular database systems since the 1980s have all supported the relational model as represented by the SQL language.
自1980年起，最流行的数据库信息管理系统均支持使用SQL语言的关系型数据库模型。
The last invoice in the chain would be identified by the use of a special character as a pointer.
此链接的最后一个发票记录由一个作为指针的特殊字符标识。

A database is a **(1)collection** of information that is organized so that it can easily be **(2)accessed**, managed, and **(3)updated**. In one view, databases can be classified according to **(4)types** of content: bibliographic, full-text, numeric, and images.

In computing, databases are sometimes classified according to their **(5)organizational** approach. The most prevalent approach is the **(6)relational** database, a tabular database in which data is defined so that it can be **(7)reorganized** and accessed in a number of different ways. A **(8)distributed** database is one that can be dispersed or replicated among different points in a **(9)network**. An object-oriented programming database is one that is congruent with the data defined in object **(10)classes** and subclasses.

Filter/Filtering

Low-pass filter: low frequencies are passed, high frequencies are attenuated.

High-pass filter: high frequencies are passed, low frequencies are attenuated.

Band-pass filter: only frequencies in a frequency band are passed.

Band-stop filter or band-reject filter: only frequencies in a frequency band are attenuated.

低通滤波:低频通过，高频减弱。

高通滤波:高频通过，低频减弱。

带通滤波:指定频段的频率通过。

带阻滤波:指定频段的频率减弱。

Multimedia

retention	**chipmaker**	**unleash**	**arcade**
保留	芯片制造商	释放	带拱顶街道
playback	**jargon**	**jerky**	**frame**
重播	术语	急动的	帧
specification	**synthesizer**	**thruport**	**buzzword**
规范	合成器	通路	术语

Expressions	
MIDI(Musical Instrument Digital Interface)	乐器数学接口
MPC(Multimedia Personal Computer)	多媒体个人计算机
CD-ROM(Compact Disc-Read Only Memory)	光盘只读存储器
feature-length	长篇电影
coordinated with	协调
business strength	具有事务处理能力
ADC(analog-to-digital converter)	模-数转换器
project from	伸出来
housed within	安装在
pulse-code modulation	脉冲编码调制
analog circuit	模拟电路
signal distortion	信号扭曲
build-up of noise	积累噪声

句子翻译
As you may guess,textual information takes the least amount of space to store.
可以推测，文本信息占用存储空间最小。
Even if a multimedia machine had unlimited resources, you would still want to add a combination of these multimedia technologies.
即使多媒体机有无限的资源，人们仍想增加融这些多媒体技术于一体的综合技术。
Loudspeakers or headphones convert an electrical audio signal into sound. Digital representations of audio signals exist in a variety of formats.
扬声器或耳机可以把电气音频信号转换为声音。音频信号的数字表示具有多种格式。
Digital audio is technology that can be used to record, store, generate, manipulate, and reproduce sound using audio signals that have been encoded in digital form.
数字音频是使用已被编码成数字格式的音频信号来记录、存储、产生、操作和复制声音的一种技术。
Digital audio systems may include compression, storage, processing and transmission components.
数字音频系统可能包括压缩、存储、处理和传输等部件。
For video, there are two frame rate standards: NTSC, at about 30 frames per second, and PAL at 25 frames per second.
对于视频，有两种主要的帧率标准：NTSC，每秒约30帧，PAL，每秒25帧。
A filter is a device or process that removes some unwanted components or features from a signal.
滤波器是把一些不需要的成分或特征从一个信号中去除的设备或过程。

(1) text : Data that consists of characters representing the words and symbols of humna speech; usually, character coded according to the ASCII standard, which assigns numeric values to numbers, letters, and certain symbols.
(2) media : The physical matrerial, such as paper, disk, and tape, used for storing computer-based information.
(3) bitmap : A data structure in memory that represents information in the form of a collection of individual bits.
(4) compress : To reduce the size of a set of data, such as a file or a communications message, so that it can be stored in less space or transmitted with less bandwidth.
(5) clip : A short extract from a film or videotape.
(6) microphone : An instrument that coverts sound waves into an electric current, ususlly fed into an amplifier, a recorder, or a broadcast transmitter.

Quantization is the process of mapping a large set of input values to a (countable) smaller set.

Rounding and **truncation** are typical examples of quantization processes.

Quantization forms the core of essentially all lossy compression algorithms.

量化是把一个大集合的输入值映射到一个（可数的）小集合的过程。

舍入和**截断**是量化过程的两种典型例子。

量化是**有损压缩**算法的基本核心。

Types of databases: **relational database,hierarchical database ,network database,object-oriented database and text database.**

There are four kinds of threats to the security of a computing

system : **interception**，**interruption** ，**modification** , and **fabrication**.

Two main cryptography schemes:**symmetric** and **asymmetric** .

Key elements of a scientific research paper:**Title ,Abstract,Introduction,Proposed method,experimental,Result,Disscussions,conclusion,and references.**

在密码学里，公钥基础设施是一种把公钥和实体身份进行绑定的一种约定。绑定是使用认证中心进行证书注册、证书发放的过程。基于绑定的确保等级，这个过程可以是一个自动的过程，也可以在人类监督下进行。

In cryptography, public key infrastructure is a convention that binds a public key to an entity's identity. Binding is the process of certificates ' register and allocation using an authentication center.Based on the level of assurance of the binding, this process can be an automatic process or can be performed under human supervision.

Computer Graphics

adage	**perspective**	**pervade**	**intractable**
谚语	透视的	蔓延	难解决的
indispensable	**premodminant**	**intensity**	**resolution**
不可缺少的	支配的	强度	分辨率
armrest	**deflection**	**ellipse**	**parabola**
扶手	偏转，偏差	椭圆	抛物线
hyperbola	**degenerate**	**cone**	**cylinder**
双曲线	退化	圆锥体	圆柱体
storyboard	**transparency**		
剧本	透明性		

Expressions	
CRT(Cathode-ray tube)	阴极射线管
LCD(Liquid Crystal Display)	液晶显示器
visual appeal	视觉魅力
DVST(Direct-View Storage Tube)	直视存储管
pen plotter	笔形绘图仪
flat-panel displays	平板显示器
in any specified order	按任意指定的顺序
frame-buffer	帧缓冲器

句子翻译
In addition to changing object position with translations or rotations, a computer-generated animation could display time variations in object size, color, transparency, or surface texture.
除了通过平移、旋转来改变对象的位置外，计算机生成的动画还可以随时间进展而改变对象大小、颜色、透明性和表面纹理等。
Depending on the speed specified for the motion, some key frames can be duplicated.
依赖于为运动指定的速度，有些关键帧可重复使用。
Another typical function simulates camera movements.Standard motions are zooming, panning, and tilting.
另一种典型功能是模拟照相机的运动，标准的运动有拉镜头、摇镜头和倾斜。

Linearly varying horizontal and vertical deflection voltages are generated that are proportional to the required changes in the x and y directions to produce the smooth line.

这是根据x方向和y方向需要修改的实际量，线性地改变水平和垂直偏转电压而实现的。

What is packaged software?

Packaged software is a collection of programs that perform similar functions or have similar features.

For example, Microsoft Office includes multiple applications such as Excel, Word, and PowerPoint.

Virtual Reality

perspective	**stereo**	**mount**	**multisensory**
透视图	立体的	装配	多感官的
illusion	**inherently**	**criteria**	**interoperable**
幻想	天性的	准则	能共同使用的
encapsulation	**implicitly**	**recursively**	**syntax**
封装	含蓄地	递归地	语法
aural	**semantic**	**sphere**	**spatial**
听觉的	语义	球体	空间的
dissipate	**compact**		
使消失	紧凑的		

Expressions	
VR(Virtual Reality)	虚拟现实
BOOM(Binocular Omni-Orientation Monitor)	双目全方位监视器
HMD(head-mounted display)	头盔显示器
VRML(The Virtual Reality Modeling Language)	虚拟现实建模语言
API(application programmer interface)	应用程序界面
AM(additive manufacturing)	增材制造

句子翻译
One definition of virtual reality is a wide-field presentation of computer-generated, multisensory information that tracks a user in real time.
虚拟现实的定义之一：虚拟现实是对由计算机生成的、能够实时追踪用户的多感官信息的一种笼统表述。
The main advantage over ordinary graphics systems is that the users are surrounded by the projected images, which means that the images are the users'main field of vision.
与普通的图形系统相比，它的主要优势在于用户被投影图像所包围，这意味着这些图景是用户的主要视野。

VRML has been designed to fulfill the following requirements:

创造性：Authorability

重构性：Composability

扩展性：Extensibility

适用性：Implementability

性能：Performance

可扩展性：Scalability