

计算机专业英语

(修订本)

Fundamental and New Computer Concepts



杨永田 王慧强 主编
哈尔滨工程大学出版社

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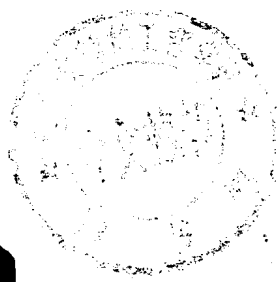
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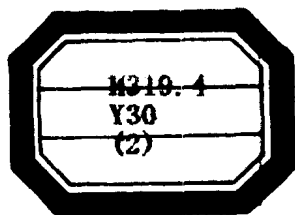
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内容简介

本书共20章,前11章包含了计算机科学与技术的专业基础课和专业课的主要内容。掌握了这些章的基本概念和关键的英语词汇为阅读文献资料与书籍打下坚实的基础。后9章包含了近几年来计算机研究、发展与应用的新技术与新概念,读者掌握了这些新概念和关键的专业词汇可大大提高阅读理解能力。

本书供大学本科二、三年级作教材;还可供计算机硬件、软件和信息处理等专业的科研及工程技术人员、经营管理人员以及在校师生自学;对准备参加全国计算机应用软件人员英语水平考试的同志大有帮助;对非计算机专业人员想通过英文或中文学到一些计算机专业的知识,也是一本好读物。

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前 言

目前,计算机技术发展之迅速和应用之广泛与深入引起了人们的普遍兴趣与关注。如何才能跟上计算机技术发展与应用的最水平,并迅速地掌握与利用这一技术的最新成果为我国社会主义现代化服务呢?一个极其重要的条件就是要能熟练地阅读英文的计算机技术文献、资料和书籍。在今后相当长的一段时间内,美、日和英等发达资本主义国家在该技术领域仍处于领先的地位,大量的最新研究成果和新产品都以英文公布于世。因此,每个从事计算机科学与技术的教学、科研、工程技术及经营管理人员都必须具有一定的计算机专业英语水平。为了满足计算机专业人员以及有关人员学习之需要,我们编译、注释了《**Fundamental Computer Concepts**——计算机基础概念》一书。

我们在编写中的指导思想是:

一、书的内容应有较宽的知识面。既有硬件知识,又有软件知识,还要有计算机系统知识;既有专业基础内容,又有较高层次的专业内容,还要有与计算机专业关系密切的其它专业内容。力图让读者掌握一定量的词汇和较多的计算机专业的基本概念。

二、专业内容不宜过深。计算机专业的基本概念很多,本书的内容突出了众多基本概念中最基础的概念,进行了阐述,这样就突出了一些重要词汇,使读者理解、掌握和记忆这些词汇。较高层次的一些基本概念,我们打算收集在《**New Computer Concepts**》一书中。

自从1987年以来,我们用本书的内容进行计算机专业英语教学,效果很好,经总结编译成书。该书的出版得到了哈尔滨船舶工程学院计算机与信息科学系主任张昭善的支持,在此表示谢意。

黑龙江大学服务公司和计算机应用技术开发公司也给予了大力的帮助，向他们表示诚挚的谢意。

由于编译者水平有限，书中存在着不少缺点和不足之处，敬请读者提出宝贵意见，在此谨表谢意。

作 者

1991.6 于哈尔滨船舶工程学院

再版前言

《计算机专业英语—Fundamental Computer Concepts》一书于1991年8月出版,受到广大读者的喜爱,在3年多的时间里5次印刷。许多读者给作者来信,询问、鼓励并希望尽早出版《New Computer Concepts》一书,许多学校都建议增加内容,够70~80学时授课使用。为此,我们在原书基础上修订,出版《计算机专业英语—Fundamental and New Computer Concepts》一书。

我们在修订中的指导思想是:

1. 保留原书11章的内容,为精简本书篇幅,删除了原书中的照片和一些不必要的示意图。这11章的内容是基础概念,仍作为本书的重点学习内容。

2. 增加了计算机科学与技术的新概念,安排在后9章。这几章的选材力求做到内容新,知识面宽,含新概念、新词汇多,但内容不深。选材时还充分注意了广泛选用不同国家的作者,不同文字风格的文章。

3. 尽量保持原书的编排。每章由英文课文、关键字的英、中文解释、词汇、课文注释、参考译文和自我测试及答案等部分组成。不仅可作为授课教材,而且方便广大读者自学。

自1987年以来,我们一直用前11章作为讲授本科生计算机专业英语的基本内容,以新概念部分作为进一步提高阅读理解的内容。因为教与学的最终目的是培养学生能直接阅读英文资料,理解与掌握自己不熟悉的新技术,对于计算机学科的学生,基础概念的内容较熟悉,不能达到这一目的,所以后9章的内容必不可少。每章的内容按4学时讲授编写。

本书前11章由杨永田在原书的基础上改编而成,第12、13章和第19章19.2节由杨永田编写;第14至18章,第19章19.1节和第20章由王慧强编写;张丽珂参加了原书的校审和全书的校审

工作；梁利华参了本书部分章节校审工作。全书由杨永田、王慧强审定。

由于作者水平有限，书中难免有错误与不足，敬请读者批评指正。

作 者

1994 年 10 月于哈尔滨工程大学

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1 Computers : Getting Started

1.1 What Is a Computer?

1.1.1 Data and Information

A **computer** is a machine whose function is to accept **data** and process them into **information**. Data are facts or observations, while information is the meaning we attribute to them.

Let's use an example to illustrate. A medieval astronomer, Tycho Brahe, spent his entire adult life observing and recording the positions of the planets. [1] He collected data; on a given night, Mars occupied a given position in the sky. He recorded volumes of such data, but was never quite sure what they meant.

His successor, Johannes Kepler, sensed a pattern; the orbit of Mars resembled an ellipse. He spent much of his life processing Brahe's data, performing tedious computations and reorganizing the observations in an attempt to verify that pattern. Eventually he succeeded, publishing his laws of planetary motion in 1621.

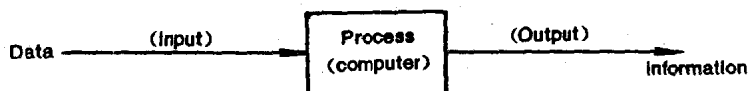
Kepler's laws represent information. Using them, he could understand and predict the motions of the planets. Scientists and engineers still rely on his laws to help plan space flights. Information has meaning.

Clearly, Kepler's laws were derived from Brahe's data, but the raw data were useless without processing. Until they were organized and the necessary calculations performed, the data were unstructured facts, with no clear meaning. Knowing the exact position of Mars on April, 1599, might earn an extra move in Trivial Pursuit, but, by itself, that fact is not very useful. [2] Processing data extracts their meaning.

1.1.2 Data Processing

A **computer** is a data processing machine. Data flow into the machine as **input** (*Fig. 1. 1*). Information flows from the machine as **output**. The computer processes the data. Johannes Kepler spent twenty years of his life processing data. Today, a college student using a computer can repeat his computations in a few *hours*.

Fig. 1. 1 A computer is a machine that processes data into information. It accepts input data, processes these data, and generates information as output.



What do we mean when we say that a computer processes data? We process iron ore to make steel; we process wood pulp to make paper. "Process" implies that a change takes place, that the raw materials are in some way restructured or manipulated. [3] Often, *data* processing involves filtering and summarizing data so that underlying patterns can be perceived. How does a computer process its data? What functions, what operations, can it perform? Generally, computers can add, subtract, multiply, divide, compare, copy, request input, and request output. So can most pocket calculators. What makes a computer different?

1.1.3 The Stored Program Concept

To add two numbers on a calculator, you:

1. Enter the first number.