

# Utility

A technical sans serif typeface  
with a humanistic touch.

The style of Utility is inspired by the constructed, industrial and rational typefaces like for example Eurostile or Din 1451. The superellipse structure of the curves lend his typeface that typical technical look, but with a slightly humanistic touch. This humanistic touch was achieved by veering away from the construction-based model through handwriting motives. For example the outgoing stroke on the lowercase ‘e’ breaks out of the grid and infuses some dynamism into the letterform. Opening up the end strokes allows the characters to breathe and improves their legibility. The family has 7 weights and is ideally suited for film and tv, editorial and publishing, logo, branding & corporate design as well as sports. Utility provides advanced typographical support with features such as ligatures, alternate characters, case-sensitive forms, fractions, super- and subscript characters, and stylistic alternates. It comes with small caps and a complete range of figure set options – oldstyle and lining figures, each in tabular and proportional widths.

## STYLES

Thin, Extralight, Light, Regular,  
Medium, Bold, Black

## DESIGNER

Lukas Schneider  
2008-2023

## SUPPORTED LANGUAGES

Afrikaans	French	Luxembourgian	Slovak
Albanian	Frisian	Malagasy	Slovenian
Alvdalska	Frisian, East	Maltese	Somali
Aragonese	Frisian, North	Manx Gaelic	Sorbian, Lower
Arumanian	Frisian, West	Maori	Sorbian, Upper
Asturian	Friulian	Marshall Ese	Sotho, Northern
Baraba Tatar	Galician	Norwegian, Bokmal	Sotho, Southern
Basque	German	Norwegian, Nynorsk	Spanish
Bislama	Greenlandic	Occitan	Swedish
Breton	Hawaiian	Pilipino (Tagalog)	Tahitian
Catalan	Hungarian	Polish	Tongan
Chamorro	Icelandic	Portuguese	Tsonga
Chichewa	Indonesian	Portunhol	Tswana
Cook Islands Maori	Interlingua	Rhaeto-Romance	Turkish
Croatian	Irish	Romanian	Ubykh
Czech	Istro-Romanian	Romansch	Vamhusmal
Danish	Italian	Sami, Inari	Vepsian
Dutch	Kashubian	Sami, Lule	Wallisian
English	Kurmanji	Sami, Northern	Walloon
Esperanto	Ladin	Sami, Southern	Welsh
Estonian	Latin	Sami, Ume	Wolof
Faroese	Latvian	Samoan	Xhosa
Finnish	Lithuanian	Sardinian	Yapese
Franco-Provencal	Low German	Scottish Gaelic	Zulu

---

Utility Thin

---

Utility Extralight

---

Utility Light

---

Utility Regular

---

Utility Medium

---

Utility Bold

---

Utility Black

---

Breakdancer Newsletter Lake  
Electronic Device Brandguides

Circulation Butternut Eternal  
British Columbian Electronics

Greater Extroverted Centro  
Intelligence Approximately

Fiction Department Edges  
Vancouver Active Network

Borderline Realismus Duo  
The International Bridges

Interest Circles Revolute  
New Modern Harmonium

Magma Forma Diversity  
Dimension Shapeshaker

Plug Share is a crowdsourced map of charging locations

Rechargeable Batteries  
**Bidirectional**

Photovoltaic solar panels is the cheapest new-build electricity

**Natural Resources**

Logistic Corporation International

**INFORMATION**

Rapid transformation will be required across all global systems

Electric Aircraft Ltd

PUBLIC NETWORK WITH SMARTPHONE-ENABLED CHARGING

**ECONOMICAL**

Automotive navigation

---

Elevations

---

Accelerate

---

Resources

---

Protection

---

Directional

---

Technocrat

---

Syntactic highlight

---

Analytics software

---

Nuclide Programm

---

GitHub Repository

---

Web technologies

---

Front-end engines

---

Package manager

---

Interface Network

---

---

**Amplitude module**

---

**Business practices**

---

**Direct distribution**

---

**Tracking Software**

---

**Rebuild expedition**

---

**Intellectual books**

---

**Protection System**

---

**Marketing advices**

**ALTERNATION**  
REGENERATIVE  
**DEACTIVATION**  
MEASUREMENT  
**TRANSPARENT**  
**ENGINEERING**  
MANUFACTURE  
**DIMENSIONAL**  
**EMERGENCIES**

CERTIFICATION  
**DEFINITIVELY**  
PERFORMANCE  
**MEMBERSHIP**  
REMEMBERING  
**DIRECTORIES**  
NUMBERPLATE  
NETWORKERS  
**WORLDWIDE**

---

Integrated Controler

---

Window Framework

---

System Activation\*

---

Artificial Intelligence

---

04 Electronica Atom

---

Satellite Navigation

---

Code Version 1.183

---

Virtual Environment

---

A programming tool or software development tool is a computer program that software developers use to create, debug, maintain, or otherwise support other programs and applications. The term usually refers to relatively simple programs, that can be combined to accomplish a task.

# RECHARGEABLE BATTERY CHARGER

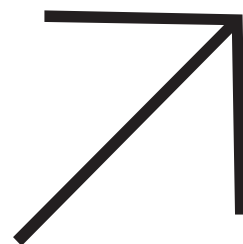
The Economics of E-Mobility  
for Passenger Transportation

---

Global Electric  
Mobility Programme

---

E-MOBILITY  
SOLUTIONS



# ELECTRIC ENERGY STORAGE SYSTEM

18/22 PT

A programming tool or software development tool is a computer program that software developers use to create, debug, maintain, or otherwise support other programs and applications. The term usually refers to relatively simple programs, that can be combined to accomplish a task, much as one might use multiple hands to fix a physical object. The most basic tools are a source code editor and a compiler or interpreter, which are used ubiquitously and continuously. Other tools are used more or less depending on the language, development methodology, and individual engineer, often used for a discrete task, like a debugger or profiler. Tools may be discrete programs, executed separately – often from the command line – or may be parts of a single large program, called an integrated development environment.

14/17.5 PT

Modern computers are very complex and in order to productively program them, various abstractions are needed. For example, rather than writing down a program's binary representation a programmer will write a program in a programming language like C, Java or Python. Programming tools like assemblers, compilers and linkers translate a program from a human write-able and readable source language into the bits and bytes that can be executed by a computer. Interpreters interpret the program on the fly to produce the desired behavior.. These programs perform many well defined and repetitive tasks that would nonetheless be time-consuming and error-prone when performed by a human, like laying out parts of a program in memory and fixing up the references between parts of a program as a linker does. Optimizing compilers on the other hand can perform complex transformations on

16/20 PT

Because of the high complexity of software, it is not possible to understand most programs at a single glance even for the most experienced software developer. The abstractions provided by high-level programming languages also make it harder to understand the connection between the source code written by a programmer and the actual program's

## FRENCH

Il reçoit des demandes d'utilisation des ressources de l'ordinateur — ressources de stockage des mémoires (par exemple des accès à la mémoire vive, aux disques durs), ressources de calcul du processeur central, ressources de communication vers des périphériques (pour parfois demander des ressources de calcul au GPU par exemple ou tout autre carte d'extension) ou via le réseau — de la part des logiciels applicatifs. Le système d'exploitation gère les demandes ainsi que les ressources nécessaires évitant les interférences entre les logiciels<sup>1</sup>. Le système d'exploitation est le logiciel principal d'un ordinateur car il permet aux programmes de fonctionner après que le programme d'amorçage a configuré tous les périphériques lors du

## SPANISH

Uno de los propósitos del sistema operativo que gestiona el núcleo intermediario consiste en gestionar los recursos de localización y protección de acceso del hardware, hecho que alivia a los programadores de aplicaciones de tener que tratar con estos detalles. La mayoría de aparatos electrónicos que utilizan microprocesadores para funcionar, llevan incorporado un sistema operativo (teléfonos móviles, reproductores de DVD, computadoras, enrutadores, etc.). En cuyo caso, son manejados mediante una interfaz gráfica de usuario, un gestor de ventanas o un entorno de escritorio, si es un celular mediante una consola o control remoto si es un DVD y, mediante una línea de comandos o navegador web si es un enrutador.

## CZECH

Operační systém je základní programové vybavení počítače, které umožňuje běh programů a ovlivňuje, jak bude počítačový systém komunikovat s uživatelem. Kromě počítačů používají operační systém i některá zařízení, která za počítač nepovažujeme, ale mají v sobě nějaký druh počítače zabudovaný, jako jsou mobilní telefony, herní konzole, televizory, set-top boxy, síťové prvky jako routery, apod. Použití operačního systému v určitém zařízení usnadňuje vývoj programového vybavení, a zpřístupňuje jeho vývoj i jiným subjektům než je výrobce zařízení, což obvykle přináší významné rozšíření možností uživatelského nastavení, přizpůsobení a použitelnosti daného zařízení. Operační systém je základní programové vybavení počítače,

## GERMAN

Ein Betriebssystem, auch OS (von englisch operating system) genannt, ist eine Zusammenstellung von Computerprogrammen, die die Systemressourcen eines Computers wie Arbeitsspeicher, Festplatten, Ein- und Ausgabegeräte verwaltet und diese Anwendungsprogrammen zur Verfügung stellt. Das Betriebssystem bildet dadurch die Schnittstelle zwischen den Hardware-Komponenten und der Anwendungssoftware des Benutzers.[2] Betriebssysteme bestehen in der Regel aus einem Kernel (deutsch: Kern), der die Hardware des Computers verwaltet, sowie speziellen Programmen, die beim Start unterschiedliche Aufgaben übernehmen. Zu diesen Aufgaben gehört unter anderem das Laden von Gerätetreibern. Betriebs-

## DANISH

Nyere styresystemer har overtaget forvaltningen af fx printerdrivere og skrifter. Det betyder i princippet at uanset hvilket program som anvendes på styresystemet, haves adgang til alle printerdrivere og skrifter. Hvis man senere får eller køber flere printere (med printerdrivere) og flere skrifter, skal de kun installeres én gang i styresystemet. Det sparer arbejdstid og evt. fejlfinding, da man ikke behøver at have og installere separate printerdrivere og skrifter i sine programmer. Både for at undgå at skulle programmere de samme ting flere gange til flere programmer, men også for at få et ensartet udseende i alle programmer. Nyere styresystemer har overtaget forvaltningen af fx printerdrivere og skrifter. Det betyder i princippet at

## TURKISH

İşletim sistemi; bilgisayarda çalışan donanım kaynaklarını yöneten ve çeşitli uygulama yazılımları için yaygın servisleri sağlayan bir yazılımlar bütünüdür. İşletim sistemi, uygulama programları ve bilgisayar donanımı arasındaki iletişimi sağlamaktadır. İşletim sistemlerine örnek olarak; Microsoft Windows, Mac OS X, GNU/Linux, BeOS, Android ve IOS örnek verilebilir. İşletim sistemleri sadece bilgisayarlar, video oyun konsolları, cep telefonları ve web sunucularında değil; arabalarda, beyaz eşyalarda hatta akıllı saatlerin içinde bile yüklü olabilmektedir. İşletim sistemleri işlevlerinin genişliği ile değil, donanımı belli bir amaç doğrultusunda programlayabilme nitelikleriyle değerlendirilmelidir. İşletim sistemi; bilgisayarda çalışan donanım kaynak-

18/22 PT

A programming tool or software development tool is a computer program that software developers use to create, debug, maintain, or otherwise support other programs and applications. The term usually refers to relatively simple programs, that can be combined to accomplish a task, much as one might use multiple hands to fix a physical object. The most basic tools are a source code editor and a compiler or interpreter, which are used ubiquitously and continuously. Other tools are used more or less depending on the language, development methodology, and individual engineer, often used for a discrete task, like a debugger or profiler. Tools may be discrete programs, executed separately – often from the command line – or may be parts of a single large program, called an integrated

14/17.5 PT

Modern computers are very complex and in order to productively program them, various abstractions are needed. For example, rather than writing down a program's binary representation a programmer will write a program in a programming language like C, Java or Python. Programming tools like assemblers, compilers and linkers translate a program from a human write-able and readable source language into the bits and bytes that can be executed by a computer. Interpreters interpret the program on the fly to produce the desired behavior.. These programs perform many well defined and repetitive tasks that would nonetheless be time-consuming and error-prone when performed by a human, like laying out parts of a program in memory and fixing up the references between parts of a program as a linker does. Optimizing compilers on the other hand can perform complex trans-

16/20 PT

Because of the high complexity of software, it is not possible to understand most programs at a single glance even for the most experienced software developer. The abstractions provided by high-level programming languages also make it harder to understand the connection between the source code written by a programmer and the actual pro-

## FRENCH

Il reçoit des demandes d'utilisation des ressources de l'ordinateur — ressources de stockage des mémoires (par exemple des accès à la mémoire vive, aux disques durs), ressources de calcul du processeur central, ressources de communication vers des périphériques (pour parfois demander des ressources de calcul au GPU par exemple ou tout autre carte d'extension) ou via le réseau — de la part des logiciels applicatifs. Le système d'exploitation gère les demandes ainsi que les ressources nécessaires évitant les interférences entre les logiciels<sup>1</sup>. Le système d'exploitation est le logiciel principal d'un ordinateur car il permet aux programmes de fonctionner après que le programme d'amorçage a

## SPANISH

Uno de los propósitos del sistema operativo que gestiona el núcleo intermediario consiste en gestionar los recursos de localización y protección de acceso del hardware, hecho que alivia a los programadores de aplicaciones de tener que tratar con estos detalles. La mayoría de aparatos electrónicos que utilizan microprocesadores para funcionar, llevan incorporado un sistema operativo (teléfonos móviles, reproductores de DVD, computadoras, enrutadores, etc.). En cuyo caso, son manejados mediante una interfaz gráfica de usuario, un gestor de ventanas o un entorno de escritorio, si es un celular mediante una consola o control remoto si es un DVD y, mediante una línea de comandos o navegador web si es un

## CZECH

Operační systém je základní programové vybavení počítače, které umožňuje běh programů a ovlivňuje, jak bude počítačový systém komunikovat s uživatelem. Kromě počítačů používají operační systém i některá zařízení, která za počítač nepovažujeme, ale mají v sobě nějaký druh počítače zabudovaný, jako jsou mobilní telefony, herní konzole, televizory, set-top boxy, síťové prvky jako routery, apod. Použití operačního systému v určitém zařízení usnadňuje vývoj programového vybavení, a zpřístupňuje jeho vývoj i jiným subjektům než je výrobce zařízení, což obvykle přináší významné rozšíření možností uživatelského nastavení, přizpůsobení a použitelnosti daného zařízení. Operační systém je základní

## GERMAN

Ein Betriebssystem, auch OS (von englisch operating system) genannt, ist eine Zusammenstellung von Computerprogrammen, die die Systemressourcen eines Computers wie Arbeitsspeicher, Festplatten, Ein- und Ausgabegeräte verwaltet und diese Anwendungsprogrammen zur Verfügung stellt. Das Betriebssystem bildet dadurch die Schnittstelle zwischen den Hardware-Komponenten und der Anwendungssoftware des Benutzers.[2] Betriebssysteme bestehen in der Regel aus einem Kernel (deutsch: Kern), der die Hardware des Computers verwaltet, sowie speziellen Programmen, die beim Start unterschiedliche Aufgaben übernehmen. Zu diesen Aufgaben gehört unter anderem das Laden

## DANISH

Nyere styresystemer har overtaget forvaltningen af fx printerdrivere og skrifter. Det betyder i princippet at uanset hvilket program som anvendes på styresystemet, haves adgang til alle printerdrivere og skrifter. Hvis man senere får eller køber flere printere (med printerdrivere) og flere skrifter, skal de kun installeres én gang i styresystemet. Det sparer arbejdstid og evt. fejlfinding, da man ikke behøver at have og installere separate printerdrivere og skrifter i sine programmer. Både for at undgå at skulle programmere de samme ting flere gange til flere programmer, men også for at få et ensartet udseende i alle programmer. Nyere styresystemer har overtaget forvaltningen af fx printerdrivere og skrifter. Det

## TURKISH

İşletim sistemi; bilgisayarda çalışan donanım kaynaklarını yöneten ve çeşitli uygulama yazılımları için yaygın servisleri sağlayan bir yazılımlar bütünüdür. İşletim sistemi, uygulama programları ve bilgisayar donanımı arasındaki iletişimi sağlamaktadır. İşletim sistemlerine örnek olarak; Microsoft Windows, Mac OS X, GNU/Linux, BeOS, Android ve IOS örnek verilebilir. İşletim sistemleri sadece bilgisayarlar, video oyun konsolları, cep telefonları ve web sunucularında değil; arabalarda, beyaz eşyalarda hatta akıllı saatlerin içinde bile yüklü olabilmektedir. İşletim sistemleri işlevlerinin genişliği ile değil, donanımı belli bir amaç doğrultusunda programlayabilme nitelikleriyle değerlendirilmelidir. İşletim sistemi;

18/22 PT

**A programming tool or software development tool is a computer program that software developers use to create, debug, maintain, or otherwise support other programs and applications. The term usually refers to relatively simple programs, that can be combined to accomplish a task, much as one might use multiple hands to fix a physical object. The most basic tools are a source code editor and a compiler or interpreter, which are used ubiquitously and continuously. Other tools are used more or less depending on the language, development methodology, and individual engineer, often used for a discrete task, like a debugger or profiler. Tools may be discrete programs, executed separately – often from the command line – or may be parts of a single large program,**

14/17.5 PT

**Modern computers are very complex and in order to productively program them, various abstractions are needed. For example, rather than writing down a program's binary representation a programmer will write a program in a programming language like C, Java or Python. Programming tools like assemblers, compilers and linkers translate a program from a human write-able and readable source language into the bits and bytes that can be executed by a computer. Interpreters interpret the program on the fly to produce the desired behavior.. These programs perform many well defined and repetitive tasks that would nonetheless be time-consuming and error-prone when performed by a human, like laying out parts of a program in memory and fixing up the references between parts of a program as a linker does. Optimizing compilers**

16/20 PT

**Because of the high complexity of software, it is not possible to understand most programs at a single glance even for the most experienced software developer. The abstractions provided by high-level programming languages also make it harder to understand the connection between the source code written by a programmer and the**

## FRENCH

Il reçoit des demandes d'utilisation des ressources de l'ordinateur — ressources de stockage des mémoires (par exemple des accès à la mémoire vive, aux disques durs), ressources de calcul du processeur central, ressources de communication vers des périphériques (pour parfois demander des ressources de calcul au GPU par exemple ou tout autre carte d'extension) ou via le réseau — de la part des logiciels applicatifs. Le système d'exploitation gère les demandes ainsi que les ressources nécessaires évitant les interférences entre les logiciels<sup>1</sup>. Le système d'exploitation est le logiciel principal d'un ordinateur car il permet aux programmes de fonctionner après que le programme

## SPANISH

Uno de los propósitos del sistema operativo que gestiona el núcleo intermediario consiste en gestionar los recursos de localización y protección de acceso del hardware, hecho que alivia a los programadores de aplicaciones de tener que tratar con estos detalles. La mayoría de aparatos electrónicos que utilizan microprocesadores para funcionar, llevan incorporado un sistema operativo (teléfonos móviles, reproductores de DVD, computadoras, enrutadores, etc.). En cuyo caso, son manejados mediante una interfaz gráfica de usuario, un gestor de ventanas o un entorno de escritorio, si es un celular mediante una consola o control remoto si es un DVD y, mediante una línea de comandos o

## CZECH

Operační systém je základní programové vybavení počítače, které umožňuje běh programů a ovlivňuje, jak bude počítačový systém komunikovat s uživatelem. Kromě počítačů používají operační systém i některá zařízení, která za počítač nepovažujeme, ale mají v sobě nějaký druh počítače zabudovaný, jako jsou mobilní telefony, herní konzole, televizory, set-top boxy, síťové prvky jako routery, apod. Použití operačního systému v určitém zařízení usnadňuje vývoj programového vybavení, a zpřístupňuje jeho vývoj i jiným subjektům než je výrobce zařízení, což obvykle přináší významné rozšíření možností uživatelského nastavení, přizpůsobení a použitelnosti daného zařízení. Operační

## GERMAN

Ein Betriebssystem, auch OS (von englisch operating system) genannt, ist eine Zusammenstellung von Computerprogrammen, die die Systemressourcen eines Computers wie Arbeitsspeicher, Festplatten, Ein- und Ausgabegeräte verwaltet und diese Anwendungsprogrammen zur Verfügung stellt. Das Betriebssystem bildet dadurch die Schnittstelle zwischen den Hardware-Komponenten und der Anwendungssoftware des Benutzers. [2] Betriebssysteme bestehen in der Regel aus einem Kernel (deutsch: Kern), der die Hardware des Computers verwaltet, sowie speziellen Programmen, die beim Start unterschiedliche Aufgaben übernehmen. Zu diesen Aufgaben gehört

## DANISH

Nyere styresystemer har overtaget forvaltningen af fx printerdrivere og skrifter. Det betyder i princippet at uanset hvilket program som anvendes på styresystemet, haves adgang til alle printerdrivere og skrifter. Hvis man senere får eller køber flere printere (med printerdrivere) og flere skrifter, skal de kun installeres én gang i styresystemet. Det sparer arbejdstid og evt. fejlfinding, da man ikke behøver at have og installere separate printerdrivere og skrifter i sine programmer. Både for at undgå at skulle programmere de samme ting flere gange til flere programmer, men også for at få et ensartet udseende i alle programmer. Nyere styresystemer har overtaget forvaltningen af fx

## TURKISH

İşletim sistemi; bilgisayarda çalışan donanım kaynaklarını yöneten ve çeşitli uygulama yazılımları için yaygın servisleri sağlayan bir yazılımlar bütünüdür. İşletim sistemi, uygulama programları ve bilgisayar donanımı arasındaki iletişimi sağlamaktır. İşletim sistemlerine örnek olarak; Microsoft Windows, Mac OS X, GNU/Linux, BeOS, Android ve IOS örnek verilebilir. İşletim sistemleri sadece bilgisayarlar, video oyun konsolları, cep telefonları ve web sunucularında değil; arabalarda, beyaz eşyalarda hatta akıllı saatlerin içinde bile yüklü olabilmektedir. İşletim sistemleri işlevlerinin genişliği ile değil, donanımı belli bir amaç doğrultusunda programlayabilme nitelikleriyle değerlendirilme-

18/22 PT

**A programming tool or software development tool is a computer program that software developers use to create, debug, maintain, or otherwise support other programs and applications. The term usually refers to relatively simple programs, that can be combined to accomplish a task, much as one might use multiple hands to fix a physical object. The most basic tools are a source code editor and a compiler or interpreter, which are used ubiquitously and continuously. Other tools are used more or less depending on the language, development methodology, and individual engineer, often used for a discrete task, like a debugger or profiler. Tools may be discrete programs, executed separately – often from the command line – or may be parts of**

14/17.5 PT

**Modern computers are very complex and in order to productively program them, various abstractions are needed. For example, rather than writing down a program's binary representation a programmer will write a program in a programming language like C, Java or Python. Programming tools like assemblers, compilers and linkers translate a program from a human write-able and readable source language into the bits and bytes that can be executed by a computer. Interpreters interpret the program on the fly to produce the desired behavior.. These programs perform many well defined and repetitive tasks that would nonetheless be time-consuming and error-prone when performed by a human, like laying out parts of a program in memory and fixing up the references between parts of a program as a linker**

16/20 PT

**Because of the high complexity of software, it is not possible to understand most programs at a single glance even for the most experienced software developer. The abstractions provided by high-level programming languages also make it harder to understand the connection between the source code written by a pro-**

## FRENCH

Il reçoit des demandes d'utilisation des ressources de l'ordinateur — ressources de stockage des mémoires (par exemple des accès à la mémoire vive, aux disques durs), ressources de calcul du processeur central, ressources de communication vers des périphériques (pour parfois demander des ressources de calcul au GPU par exemple ou tout autre carte d'extension) ou via le réseau — de la part des logiciels applicatifs. Le système d'exploitation gère les demandes ainsi que les ressources nécessaires évitant les interférences entre les logiciels<sup>1</sup>. Le système d'exploitation est le logiciel principal d'un ordinateur car il permet aux programmes de fonctionner

## SPANISH

Uno de los propósitos del sistema operativo que gestiona el núcleo intermediario consiste en gestionar los recursos de localización y protección de acceso del hardware, hecho que alivia a los programadores de aplicaciones de tener que tratar con estos detalles. La mayoría de aparatos electrónicos que utilizan microprocesadores para funcionar, llevan incorporado un sistema operativo (teléfonos móviles, reproductores de DVD, computadoras, enrutadores, etc.). En cuyo caso, son manejados mediante una interfaz gráfica de usuario, un gestor de ventanas o un entorno de escritorio, si es un celular mediante una consola o control remoto si es un DVD y, mediante una

## CZECH

Operační systém je základní programové vybavení počítače, které umožňuje běh programů a ovlivňuje, jak bude počítačový systém komunikovat s uživatelem. Kromě počítačů používají operační systém i některá zařízení, která za počítač nepovažujeme, ale mají v sobě nějaký druh počítače zabudovaný, jako jsou mobilní telefony, herní konzole, televizory, set-top boxy, síťové prvky jako routery, apod. Použití operačního systému v určitém zařízení usnadňuje vývoj programového vybavení, a zpřístupňuje jeho vývoj i jiným subjektům než je výrobce zařízení, což obvykle přináší významné rozšíření možností uživatelského nastavení, přizpůsobení a použitelnosti daného

## GERMAN

Ein Betriebssystem, auch OS (von englisch operating system) genannt, ist eine Zusammenstellung von Computerprogrammen, die die Systemressourcen eines Computers wie Arbeitsspeicher, Festplatten, Ein- und Ausgabegeräte verwaltet und diese Anwendungsprogrammen zur Verfügung stellt. Das Betriebssystem bildet dadurch die Schnittstelle zwischen den Hardware-Komponenten und der Anwendungssoftware des Benutzers.[2] Betriebssysteme bestehen in der Regel aus einem Kernel (deutsch: Kern), der die Hardware des Computers verwaltet, sowie speziellen Programmen, die beim Start unterschiedliche Aufgaben übernehmen. Zu diesen

## DANISH

Nyere styresystemer har overtaget forvaltningen af fx printerdrivere og skrifter. Det betyder i princippet at uanset hvilket program som anvendes på styresystemet, haves adgang til alle printerdrivere og skrifter. Hvis man senere får eller køber flere printere (med printerdrivere) og flere skrifter, skal de kun installeres én gang i styresystemet. Det sparer arbejdstid og evt. fejlfinding, da man ikke behøver at have og installere separate printerdrivere og skrifter i sine programmer. Både for at undgå at skulle programmere de samme ting flere gange til flere programmer, men også for at få et ensartet udseende i alle programmer. Nyere styresystemer

## TURKISH

İşletim sistemi; bilgisayarda çalışan donanım kaynaklarını yöneten ve çeşitli uygulama yazılımları için yaygın servisleri sağlayan bir yazılımlar bütünüdür. İşletim sistemi, uygulama programları ve bilgisayar donanımı arasındaki iletişimi sağlamaktadır. İşletim sistemlerine örnek olarak; Microsoft Windows, Mac OS X, GNU/Linux, BeOS, Android ve IOS örnek verilebilir. İşletim sistemleri sadece bilgisayarlar, video oyun konsolları, cep telefonları ve web sunucularında değil; arabalarda, beyaz eşyalarda hatta akıllı saatlerin içinde bile yüklü olabilmektedir. İşletim sistemleri işlevlerinin genişliği ile değil, donanımı belli bir amaç doğrultusunda programlaya-

18/22 PT

**A programming tool or software development tool is a computer program that software developers use to create, debug, maintain, or otherwise support other programs and applications. The term usually refers to relatively simple programs, that can be combined to accomplish a task, much as one might use multiple hands to fix a physical object. The most basic tools are a source code editor and a compiler or interpreter, which are used ubiquitously and continuously. Other tools are used more or less depending on the language, development methodology, and individual engineer, often used for a discrete task, like a debugger or profiler. Tools may be discrete programs, executed separately – often from the com-**

14/17.5 PT

**Modern computers are very complex and in order to productively program them, various abstractions are needed. For example, rather than writing down a program's binary representation a programmer will write a program in a programming language like C, Java or Python. Programming tools like assemblers, compilers and linkers translate a program from a human write-able and readable source language into the bits and bytes that can be executed by a computer. Interpreters interpret the program on the fly to produce the desired behavior.. These programs perform many well defined and repetitive tasks that would nonetheless be time-consuming and error-prone when performed by a human, like laying out parts of a program in memory and fixing up the references between parts of a program**

16/20 PT

**Because of the high complexity of software, it is not possible to understand most programs at a single glance even for the most experienced software developer. The abstractions provided by high-level programming languages also make it harder to understand the connection between the source code written by**

28/30 PT

A programming tool or software development tool is a computer program that software developers use to create, debug, maintain, or otherwise support other programs and applications. The term usually refers to relatively simple programs, that can be combined to accomplish a task, much as one might use multiple hands to fix a physical object. The most basic tools are a source code editor and a compiler or interpreter, which are used ubiquitously and continuously-

20/24 PT

Modern computers are very complex and in order to productively program them, various abstractions are needed. For example, rather than writing down a program's binary representation a programmer will write a program in a programming language. Programming tools like assemblers, compilers and linkers translate a program from a human write-able and readable source language into the bits and bytes that can be executed by a computer. Interpreters interpret the program on the fly to produce the desired behavior.. These programs perform many well defined and repetitive tasks that would nonetheless be time-consuming and error-prone when performed by a human, like laying out parts of a program in memory and fixing up the references between parts of a program as a linker does.

**A package manager or package-management system is a collection of software tools that automates the process of installing, upgrading, configuring, and removing computer programs for a computer in a consistent manner.**

A package manager deals with packages, distributions of software and data in archive files. Packages contain metadata, such as the software's name, description of its purpose, version number, vendor, checksum (preferably a cryptographic hash function), and a list of dependencies necessary for the software to run properly. Upon installation, metadata is stored in a local package database. Package managers typically maintain a database of software dependencies and version information to prevent software mismatches and missing prerequisites. They work closely with software repositories, binary repository managers, and app stores. Package managers are designed to eliminate the need for manual installs and updates. This can be particularly useful for large enterprises whose operating systems typically consist of hundreds or even tens of thousands of distinct software packages. A software package is an archive file containing a computer program as well as necessary metadata for its deployment. The computer program can be in source code that has to be compiled and built first. Package metadata include package description, package version, and dependencies (other packages that need to be installed beforehand). Computer systems that rely on dynamic library linking, instead of static library linking, share executable libraries of machine instructions across packages and applications. In these systems, conflicting relationships between different packages requiring different versions of libraries results in a challenge colloquially known as "dependency hell".

18/22 PT

## Distinguishing in this way yields modularity, allowing each level to be described and processed separately and often independently.

First, a lexer turns the linear sequence of characters into a linear sequence of tokens. Second, the parser turns the linear sequence of tokens into a hierarchical syntax tree; this is known as “parsing” narrowly speaking. Thirdly, the contextual analysis resolves names and checks types. This modularity is sometimes possible, but in many real-world languages an earlier step depends on a later step – for example, the lexer hack in C is because tokenization depends on context. Even in these cases, syntactical analysis is often seen as approximating this ideal model.

12/15 PT

### **Tools have been written that automatically generate a lexer from a lexical specification written in regular expressions and a parser from the phrase grammar written in BNF:**

this allows one to use declarative programming, rather than need to have procedural or functional programming. A notable example is the lex-yacc pair. These automatically produce a concrete syntax tree; the parser writer must then manually write code describing how this is converted to an abstract syntax tree. Contextual analysis is also generally implemented manually.

Python’s developers strive to avoid premature optimization and reject patches to non-critical parts of the CPython reference implementation that would offer marginal increases in speed at the cost of clarity.[75] When speed is important, a Python programmer can move time-critical functions to extension modules written in languages such as C; or use PyPy, a just-in-time compiler. Cython is also available, which translates a Python script into C and makes direct C-level API calls into the Python interpreter. A common neologism in the Python community is pythonic, which has a wide

16/20 PT

Rather than building all of its functionality into its core, Python was designed to be highly extensible via modules. This compact modularity has made it particularly popular as a means of adding programmable interfaces to existing applications. Van Rossum’s vision of a small core

SMALL CAPS	Small Caps	▶	SMALL CAPS
FRACTIONS	1/4 5/8 2/3	▶	¼ ⅝ ⅔
SUPERSCRIPIT	0123456789	▶	0123456789
SUBSCRIPT	0123456789	▶	0123456789
NUMERATORS	0123456789	▶	0123456789
DENOMINATORS	0123456789	▶	0123456789
STYLISTIC SET 01	Tangent	▶	Tangent
STYLISTIC SET 02	Tangent	▶	Tangent
CASE SENSITIVE FORMS	H-H«H»	▶	H-H«H»
TABULAR FIGURES	0123456789	▶	0123456789
OLDSTYLE FIGURES	0123456789	▶	0123456789
OLDSTYLE TABULAR FIGURES	0123456789	▶	0123456789
ARROWS	↖ ↗ ↘ ↙ ← → ↓ ↕		

