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Application Software

Chapter 3

Computing Essentials 2023
O'Leary

Learning Objectives

1. Identify general-purpose applications.
2. Describe word processors, spreadsheets, presentation programs, and database management systems.
3. Describe specialized applications, such as graphics, web authoring, and video game development programs.
4. Describe mobile apps and app stores.
5. Identify software suites.
6. Describe office suites, cloud suites, specialized suites, and utility suites.

Introduction

Word processors

Spreadsheets

Presentation programs

Database management systems

Application Software Categories

Two kinds of software:

- system software
- application software

Application software

- Accomplish a variety of tasks

Three categories

- Mobile Apps
- General Purpose Applications
- Specialized Applications

User Interface

Icons

Pointer

Windows

Menus

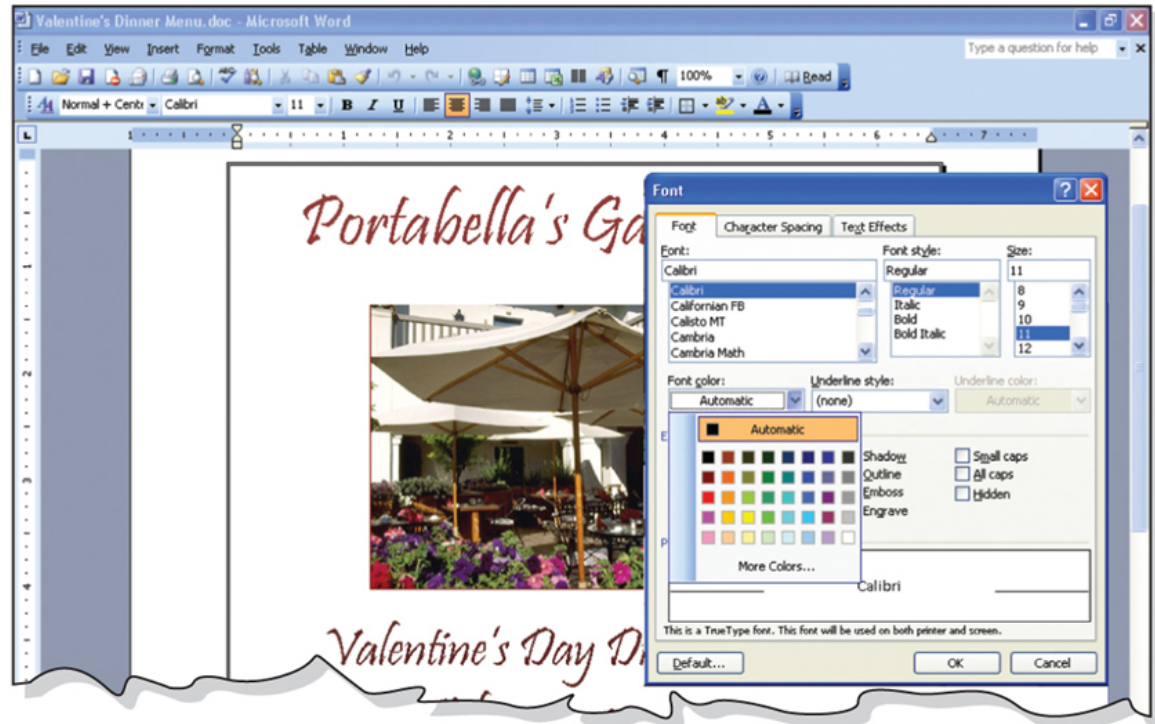
- Menu bar

Toolbars

- Buttons

Dialog Boxes

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Microsoft Corporation

Common Features in Microsoft

Ribbon GUI

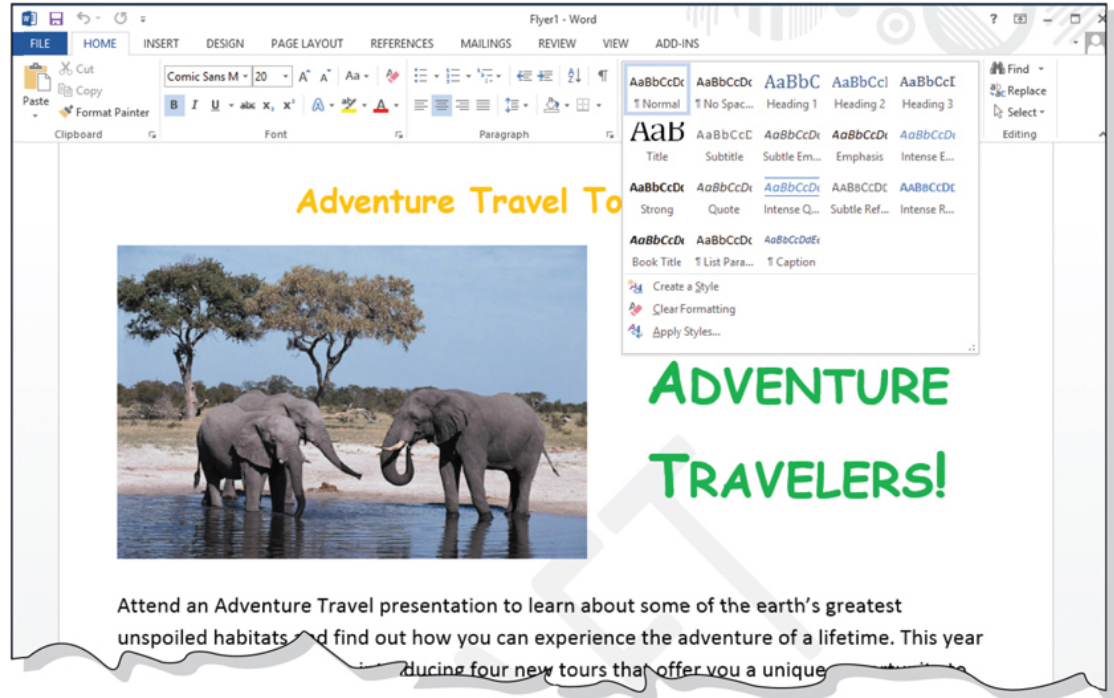
- Ribbons
- Tabs
 - Groups
 - Contextual tabs
- Galleries

Spell checkers

Alignment

Font and Font Sizes

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Microsoft Corporation; Comstock/Getty Images

Mobile Apps

Mobile applications, often referred to simply as Apps

- Programs for a variety of mobile devices
- Examples include: address books, lists, alarms

Apps can be used on both mobile and other devices

- Over 3.5 million apps on Google Play alone
- Music, video, social networking, shopping, games

Privacy

- Often constantly recording location, photos taken, and businesses visited
- Concerns regarding unintended use, such as employers using data recorded by apps when evaluating job candidates

General Purpose Applications

**Word
processors**

Spreadsheets

**Presentation
programs**

**Database
management
systems**

Word Processor Programs

Create text-based documents

- Memos, letters, and reports
- Newsletters, manuals, and brochures

Word processing programs

- Microsoft Word
- Apple Pages
- Google Docs

Creating a Flyer

Flyer Features

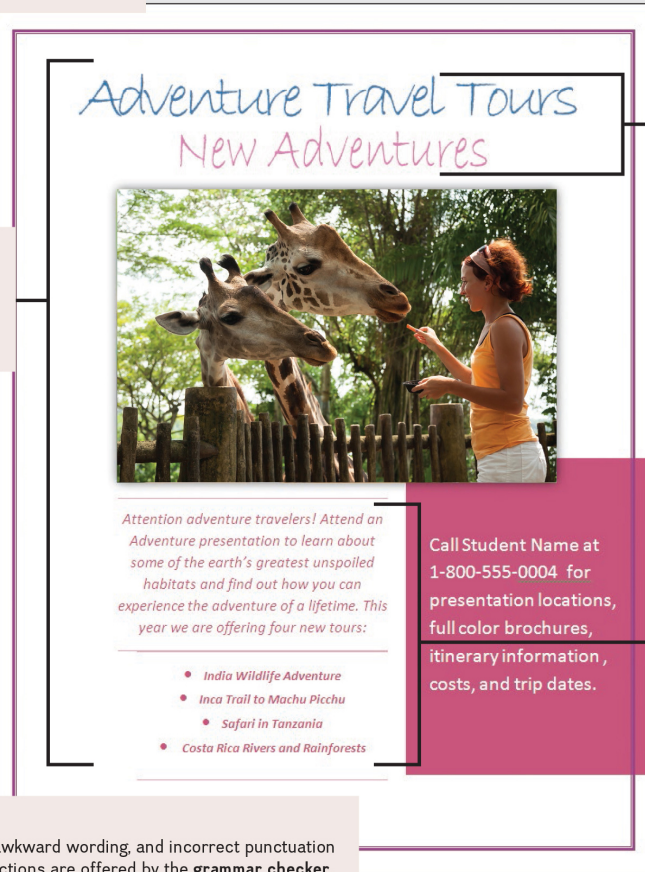
- Spell Checker
- Center-alignment
- Grammar Checker
- Fonts
- Font Sizes
- Word Wrap
- Character Effects

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Spell Checker
Correcting spelling and typing errors identified by the **spell checker** creates an error-free and professional-looking document.

Center-Aligning
Center-aligning all of the text in the flyer creates a comfortable, balanced appearance.

Grammar Checker
Incomplete sentences, awkward wording, and incorrect punctuation are identified and corrections are offered by the **grammar checker**.



Fonts and Font Size
Using interesting **fonts** and a **large font size** in the flyer's title grabs the reader's attention.

Character Effects
Adding **character effects** such as **bold** and **color** makes important information stand out and makes the flyer more visually interesting.

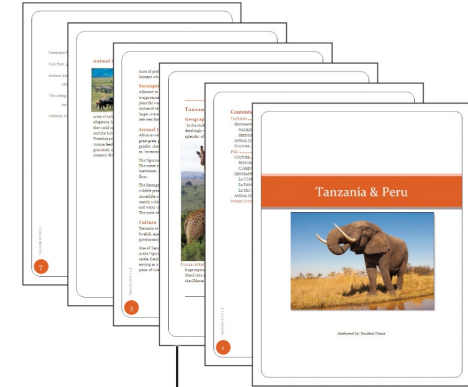
Panksvatouny/Shutterstock

Creating a Report

Report Features

- AutoCorrect
- Footnote
- Header or Footer
- Captions and Cross References

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Captions
Identifying figures with captions in a report makes the report easier to read and more professional.

Tanzania

Geography and Climate

"In the midst of a great wilderness, full of wild beasts...I fancied I saw a summit...covered with a dazzlingly white cloud (qtd. in Cole 56). This is how Johann Krupf, the first outsider to witness the splendor of Africa's highest mountain, described Kilimanjaro. The peak was real, though the white clouds he "fancied" he saw were the dense layer of snow that coats the mountain."



FIGURE: GIRAFFE IN SERENGETI

Tanzania is primarily a plateau that slopes gently downward into the country's five hundred miles of Indian Ocean coastline. Nearly three-quarters of Tanzania is dry savannah, so much so that the Swahili word for the central plateau is *nyika*, meaning "wasteland." Winding through these flatlands is the Great Rift Valley, which forms narrow and shallow lakes in its long path. Several of these great lakes form a belt-like oasis of green vegetation. Contrasting with the severity of the plains are the coastal areas, which are lush with ample rainfall. In the north the plateau slopes dramatically into Mt. Kilimanjaro.

Ngorongoro Conservation Area

Some of Tanzania's most distinguishing geographical features are found in the Ngorongoro Conservation Area.¹ The park is composed of many craters and gorges, as well as lakes, forest, and plains. Among these features is the area's namesake, the Ngorongoro Crater. The Crater is a huge expanse, covering more than one hundred square miles. On the Crater's floor, grasslands blend into swamps, lakes, rivers, and woodland. Also within the Conservation Area's perimeter is the Olduvai Gorge, commonly referred to as the "Cradle of Mankind," where in 1931 the stone

AutoCorrect
As you enter text, you occasionally forget to capitalize the first word in a sentence. Fortunately, **AutoCorrect** recognizes the error and automatically capitalizes the word.

Header or Footer
Page numbers and other document-related information can be included in a header or footer.

Footnote
To include a note about Mt. Kilimanjaro, you use the footnote feature. This feature inserts the footnote superscript number and automatically formats the bottom of the page to contain the footnote text.

¹Mt. Kilimanjaro is 19,340 feet high, making it the fourth tallest mountain in the world.

²The Conservation Area is a national preserve spanning 3,196 square miles.

Presentation Graphics Programs

Combine a variety of visual objects to create visually interesting presentations

Presentation programs

- Microsoft PowerPoint
- OpenOffice Impress
- Apple Keynote
- Google Slides
- Prezi

Creating a Presentation

Features

- Document Theme
- Animation
- Templates

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Document Theme

To make your presentation more professional and eye-catching, you select a **document theme**, built-in sets of colors, fonts, and effects that can be quickly applied to your entire presentation.

How Does the Foundation Help?

- ▶ Provides temporary homes
- ▶ Provides obedience training
- ▶ Provides veterinary care
- ▶ Finds loving permanent homes

Animal Rescue Foundation

Who Are Animal Angels?

- ▶ Believe unwanted animals deserve a home
- ▶ Believe you can teach an old dog new tricks
- ▶ Believe you can retrain animals to be better

Animal Rescue Foundation

Templates

Templates provide an excellent way to quickly create a presentation by providing predesigned styles and layouts as well as suggested content based on the type of template you select.

Animation

To provide additional emphasis to items or show the information on a slide in phases, you add **animation** to text and objects. Finally, you use **slide transition** effects to animate the transition from one slide to the next.



Join Animal Angels

Animal Rescue Foundation

Volunteer Coordinator

Microsoft Corporation; Zoom Pet Photography/Image Source/Getty Images

Spreadsheet Programs

Organize, analyze, and graph numeric data

- Budgets and Financial Reports

Spreadsheet programs

- Microsoft Excel
- Apple Numbers
- Google Sheets

Creating a Sales Forecast

Features

- Worksheets
- Text entries
- Cells
- Formulas
- Functions

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Worksheets

Worksheets are used for a wide range of different applications. One of the most common uses is to create, analyze, and forecast budgets.

Text Entries

Text entries provide meaning to the values in the worksheet. The rows are labeled to identify the various sales and expense items. The columns are labeled to specify the months.

Functions


Functions are prewritten formulas. In this case, cell C22 (Total Expenses for February) contains the function SUM(C14:C21) rather than the formula = C14 + C15 + C16 + C17 + C18 + C19 + C20 + C21.

Cells

Cells can contain labels, numbers, formulas, and functions. A cell's content is indicated by the row and column labels. For example, cell D16 contains a number for the Payroll expense expected for March.

Formulas

Formulas provide a way to perform calculations in the worksheet. In this case, cell C24 contains the formula = C12 (Total Sales for February) - C22 (Total Expenses for February) and displays the result of the calculation for the Net Income for February.

	A	B	C	D	E	F
1	 <p style="text-align: center;">Downtown Internet Café First Quarter Forecast</p>					
2						
3						
4						
5						
6	Sales					
7	Espresso	\$ 13,300	\$ 13,600	\$ 14,200	\$ 41,100	\$ 13,700
8	Drip Coffee	\$ 5,800	\$ 6,000	\$ 6,200	\$ 18,000	\$ 6,000
9	Food/Beverage	\$ 3,600	\$ 3,800	\$ 3,800	\$ 11,200	
10	Merchandise	\$ 1,000	\$ 1,100	\$ 1,100	\$ 3,200	
11	Computer	\$ 400	\$ 400	\$ 400	\$ 1,200	
12	Total Sales	\$ 24,100	\$ 24,900	\$ 25,700	\$ 74,700	
13	Expenses					
14	Cost of Goods	\$ 7,225	\$ 7,480	\$ 7,690	\$ 22,395	
15	Cost of Merchandise	\$ 700	\$ 770	\$ 770	\$ 2,240	
16	Payroll	\$ 9,000	\$ 9,000	\$ 9,000	\$ 27,000	\$ 9,000
17	Internet	\$ 325	\$ 325	\$ 325	\$ 975	\$ 325
18	Building	\$ 2,100	\$ 2,100	\$ 2,100	\$ 6,300	\$ 2,100
19	Advertising	\$ 600	\$ 600	\$ 600	\$ 1,800	\$ 600
20	Capital Assets	\$ 1,500	\$ 1,500	\$ 1,500	\$ 4,500	\$ 1,500
21	Miscellaneous	\$ 1,300	\$ 1,300	\$ 1,300	\$ 3,900	\$ 1,300
22	Total Expenses	\$ 22,750	\$ 23,075	\$ 23,285	\$ 69,110	\$ 23,037
23	Income					
24	Net Income	\$ 1,350	\$ 1,825	\$ 2,415	\$ 5,590	\$ 1,863
25	Profit Margin	5.60%	7.33%	9.40%	7.48%	7.48%
26				Income Year-To-Date	\$ 5,590	

Microsoft Corporation; Stockbyte/Getty Images

Analyzing Your Data

Features

- Workbook and worksheets
- What-if Analysis

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Workbook

The first worksheet in a **workbook** is often a summary of the following worksheets. In this case, the first worksheet presents the entire year's forecast. The subsequent worksheets provide the details.

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
Sales									
Espresso	\$13,300	\$13,600	\$14,200	\$14,400	\$15,200	\$15,500	\$15,200	\$15,300	\$15,800
Drip Coffee	\$5,800	\$6,000	\$6,200	\$6,200	\$6,200	\$6,200	\$6,000	\$6,000	\$6,500
Food/Beverage	\$3,600	\$3,800	\$3,800	\$3,600	\$3,800	\$3,800	\$4,000	\$4,000	\$4,000
Merchandise	\$1,000	\$1,100	\$1,100	\$1,500	\$1,500	\$1,500	\$2,000	\$2,000	\$2,000
Computer	\$400	\$400	\$400	\$600	\$600	\$600	\$800	\$800	\$600
Total Sales	\$24,100	\$24,900	\$25,700	\$26,300	\$27,300	\$27,800	\$28,000	\$28,100	\$28,900
Expenses									
Cost of Goods	\$7,225	\$7,480	\$7,690	\$7,620	\$7,940	\$8,015	\$8,000	\$8,025	\$8,300
Cost of Merchandise	\$700	\$770	\$770	\$1,050	\$1,050	\$1,400	\$1,400	\$1,400	\$1,400
Payroll	\$9,000	\$9,000	\$9,000	\$7,860	\$8,350	\$8,740	\$9,000	\$9,000	\$9,000
Internet	\$325	\$325	\$325	\$325	\$325	\$325	\$325	\$325	\$325
Building	\$2,100	\$2,100	\$2,100	\$2,100	\$2,100	\$2,100	\$2,100	\$2,100	\$2,100
Advertising	\$600	\$600	\$600	\$600	\$600	\$600	\$600	\$600	\$600
Capital Assets	\$1,500	\$1,500	\$1,500	\$1,500	\$1,500	\$1,500	\$1,500	\$1,500	\$1,500
Miscellaneous	\$1,300	\$1,300	\$1,300	\$1,300	\$1,300	\$1,300	\$1,300	\$1,300	\$1,300
Total Expenses	\$22,750	\$23,075	\$23,285	\$22,355	\$23,205	\$23,630	\$24,225	\$24,250	\$24,525
Income									
Net Income	\$1,350	\$1,825	\$2,415	\$3,945	\$4,095	\$4,170	\$3,775	\$3,850	\$4,375
Profit Margin	5.60%	7.33%	9.40%	15.00%	15.00%	15.00%	13.48%	13.70%	15.14%
Quarter Profit Margin	7.48%								14.12%
Income Year-To-Date	\$	5,590				\$	17,800		\$
									\$
									\$

Sheet Name

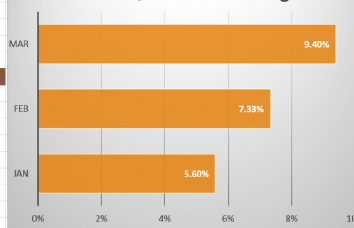
Each worksheet has a unique **sheet name**. To make the workbook easy to navigate, it is a good practice to always use simple yet descriptive names for each worksheet.

What-If Analysis

What-if analysis is a very powerful and simple tool to test the effects of different assumptions in a spreadsheet.

	JAN	FEB	MAR	TOTAL	AVG
Sales					
Espresso	\$ 13,300	\$ 13,600	\$ 14,200	\$ 41,100	\$ 13,700
Drip Coffee	\$ 5,800	\$ 6,000	\$ 6,200	\$ 18,000	\$ 6,000
Food/Beverage	\$ 3,600	\$ 3,800	\$ 3,800	\$ 11,200	\$ 3,733
Merchandise	\$ 1,000	\$ 1,100	\$ 1,100	\$ 3,200	\$ 1,067
Computer	\$ 400	\$ 400	\$ 400	\$ 1,200	\$ 400
Total Sales	\$ 24,100	\$ 24,900	\$ 25,700	\$ 74,700	\$ 24,900
Expenses					
Cost of Goods	\$ 7,225	\$ 7,480	\$ 7,690	\$ 22,395	\$ 7,465
Cost of Merchandise	\$ 700	\$ 770	\$ 770	\$ 2,240	\$ 747
Payroll	\$ 9,000	\$ 9,000	\$ 9,000	\$ 27,000	\$ 9,000
Internet	\$ 325	\$ 325	\$ 325	\$ 975	\$ 325
Building	\$ 2,100	\$ 2,100	\$ 2,100	\$ 6,300	\$ 2,100
Advertising	\$ 600	\$ 600	\$ 600	\$ 1,800	\$ 600
Capital Assets	\$ 1,500	\$ 1,500	\$ 1,500	\$ 4,500	\$ 1,500
Miscellaneous	\$ 1,300	\$ 1,300	\$ 1,300	\$ 3,900	\$ 1,300
Total Expenses	\$ 22,750	\$ 23,075	\$ 23,285	\$ 69,110	\$ 23,037
Income					
Net Income	\$ 1,350	\$ 1,825	\$ 2,415	\$ 5,590	\$ 1,863
Profit Margin	5.60%	7.33%	9.40%	7.48%	7.48%
Income Year-To-Date	\$	5,590			

First Quarter Profit Margin



Chart

Once data is in the worksheet, it is very easy to **chart** the data. All you need to do is to select the data to chart, select the chart type, and add some descriptive text.

Database Management Systems (DBMS)

A collection of related data

Electronic equivalent of a file cabinet

Three most widely used systems

- Microsoft Access
- Apple FileMaker
- Oracle Database Express Edition

Creating a Database

Features

- Primary Key
- Fields
- Tables
- Forms
- Records

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Primary Key

The primary key is the unique employee identification number. You considered using the last name field as the primary key but realized that more than one employee could have the same last name. Primary keys are often used to link tables.

Record

Each record contains information about one employee. A record often includes a combination of numeric, text, and object data types.

Fields

Fields are given names that are displayed at the top of each table. You select the field names to describe their contents.

Table

Tables make up the basic structure of a relational database with columns containing field data and rows containing record information. This table records basic information about each employee, including name, address, and telephone number.

Employee ID	Last Name	First Name	Address	City	State	Home Phone	Birth Date	Photo/Resume
12655	Lahti	Jill	5401 E. Thomas Rd.	Landis	CA	(507) 555-4765	6/14/1980	
22407	Mazeau	Rebecca	7383 Oak Dr.	Landis	CA	(941) 555-1093	9/23/1982	
03225	Morgan	Dan	564 S. Lemon Dr.	Maldin	CA	(507) 555-4567	3/5/1984	
99999	Name	Student	123 Any St.	River Mist	CA	(507) 555-9999	1/5/1989	
00617	Nichols	Cathy	75 Brooklea Dr.	Landis	CA	(507) 555-0001	5/19/1972	
00907	Pennington	Mark	23 Mill Ave.	Landis	CA	(507) 555-3333	7/7/1977	
12194	Polonsky	Mitch	8701 E. Sheridan	Maldin	CA	(507) 555-1018	3/13/1990	
12247	Rath	Kathy	87 E. Aurora Ave.	Chesterfield	CA	(507) 555-4797	5/30/1988	
12594	Reddie	Mark	900 W. Campus Dr.	Maldin	CA	(507) 555-1339	11/5/1986	
12230	Reddie	Suzanne	932 E. Parkway Dr.	Landis	CA	(507) 555-1191	7/14/1988	
13005	Reilly	Emily	125 N. Marigold St.	Maldin	CA	(941) 555-4532	5/23/1988	
12612	Richards	Melissa	5522 W. Marin Lane	River Mist	CA	(507) 555-4789	9/30/1981	
06000	Robertson	Kirk	832 S. William Ave.	Maldin	CA	(507) 555-3730	4/5/1982	
22297	Rogondino	Patricia	7583 Turquoise	Chesterfield	CA	(941) 555-4539	8/30/1980	
07287	Roman	Anita	2348 S. Bala Dr.	Maldin	CA	(507) 555-4870	3/15/1990	
12918	Ruiz	Carlos	10101 First St.	Maldin	CA	(507) 555-0125	7/27/1987	
08391	Ruiz	Enrique	35 Palm St.	Chesterfield	CA	(507) 555-0091	12/10/1982	
04321	Sabin	Greg	90 E. Rawhide Ave.	Chesterfield	CA	(507) 555-4455	9/30/1987	
00212	Schiff	Chad	235 N. Cactus Dr.					
22114	Schneider	Paul	1731 Jackson Ave.					
01421	Speltr	Timothy	90 Royal Dr.					
12366	Stacey	David	737 S. College Rd.					
13497	Steele	Jeff	1011 E. Holly Ln.					
12668	Stueland	Valerie	34 University Dr.					
12583	Sullivan	Marie	78 Omega Drive					
12867	Talic	Elvis	21 Oasis St.					

Form

Like printed paper forms, electronic forms should be designed to be easy to read and use. This form makes it easy to enter and view all employees' data, including their photographs.

Employee Records

Employee ID:

Last Name: Photo/Resume:

First Name:

Address:

City:

State:

Home Phone:

Birth Date:

Microsoft Corporation; Sam Edwards/age fotostock

Specialized Applications

Programs that more narrowly focused on specific disciplines and occupations

Includes:

- Graphics programs
- Web Authoring programs

Graphics Programs

Widely used in graphic arts

Types of graphics programs are:

- Video editors
- Image or photo editors
- Illustration or drawing programs
- Desktop publishing programs

Video Game Design Software

Organize thoughts

Guide user through game design process

- Character development
- Environmental design

Video game design software ranges from free to expensive for professional game designers

- Unreal Game Engine
- Unity development kit
- GameMaker Studio 2

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Cryengine

Web Authoring Programs

Web authoring is the creation of a website

- Design
- Document file displaying website's content

Blog

- Online diary/commentaries

Web Authoring Programs

- Typically used to create commercial sites
- Web page editors or HTML editors
- WYSIWYG (what you see is what you get)

Most widely used programs

- Adobe Dreamweaver
- Froala 4.0

App Stores

Provides access to mobile apps for downloads

- Apple's App Store
 - Apple Devices
 - <https://www.apple.com/app-store/>
- Google Play
 - Android Devices
 - <https://play.google.com/store/apps>

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Software Suites

Collection of separate application programs

- Bundled together – made available as group

Four types of suites

- Office suites or office software suite / productivity suites
 - Microsoft Office
 - Apple iWork,
- Cloud suites or online office suites
 - Google Workspace
 - Microsoft 365
 - Apple iWorks

Software Suites, continued

Specialized suites

- Focus on specific applications
 - Adobe Creative Cloud
 - Magix's Sound Forge Pro 15
 - Moneytree Software Total Planning Suite

Utility suites

- Designed to make computing easier and safer
 - Iolo's System Mechanic Ultimate Defence
 - AVG TuneUp

Careers in IT

Software Engineers

- Analyze users' needs and create application software

Attributes

- Bachelor's or specialized advanced associate's degree in computer science or information systems
- Extensive knowledge of computers and technology
- Good communication and analytical skills
- Web application experience
- Analytical skills

Earning potential of \$63,000 to \$148,000 annually

Making IT Work for You – Cloud Office Suites

Things to consider when choosing a cloud office suite:

- What does your team use now?
- How experienced are your teammates?
- Storage options
- Prices



**Choose a suite
and put it to work
for you!**

A Look to the Future

VR and AR Applications in the Workplace

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Open Ended Questions

1. Explain the difference between general-purpose and specialized applications. Also discuss the common features of application programs, including those with traditional and ribbon graphical user interfaces.
2. Discuss general-purpose applications including word processors, spreadsheets, database management systems, and presentation graphics.
3. Discuss specialized applications, including graphics programs, video game design software, web authoring programs, and other professional specialized applications
4. Describe mobile apps, including popular apps and app stores.
5. Describe software suites, including office suites, cloud suites, specialized suites, and utility suites.



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