

Chapter 3

Application Software

Computing Essentials 2023
O'Leary

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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

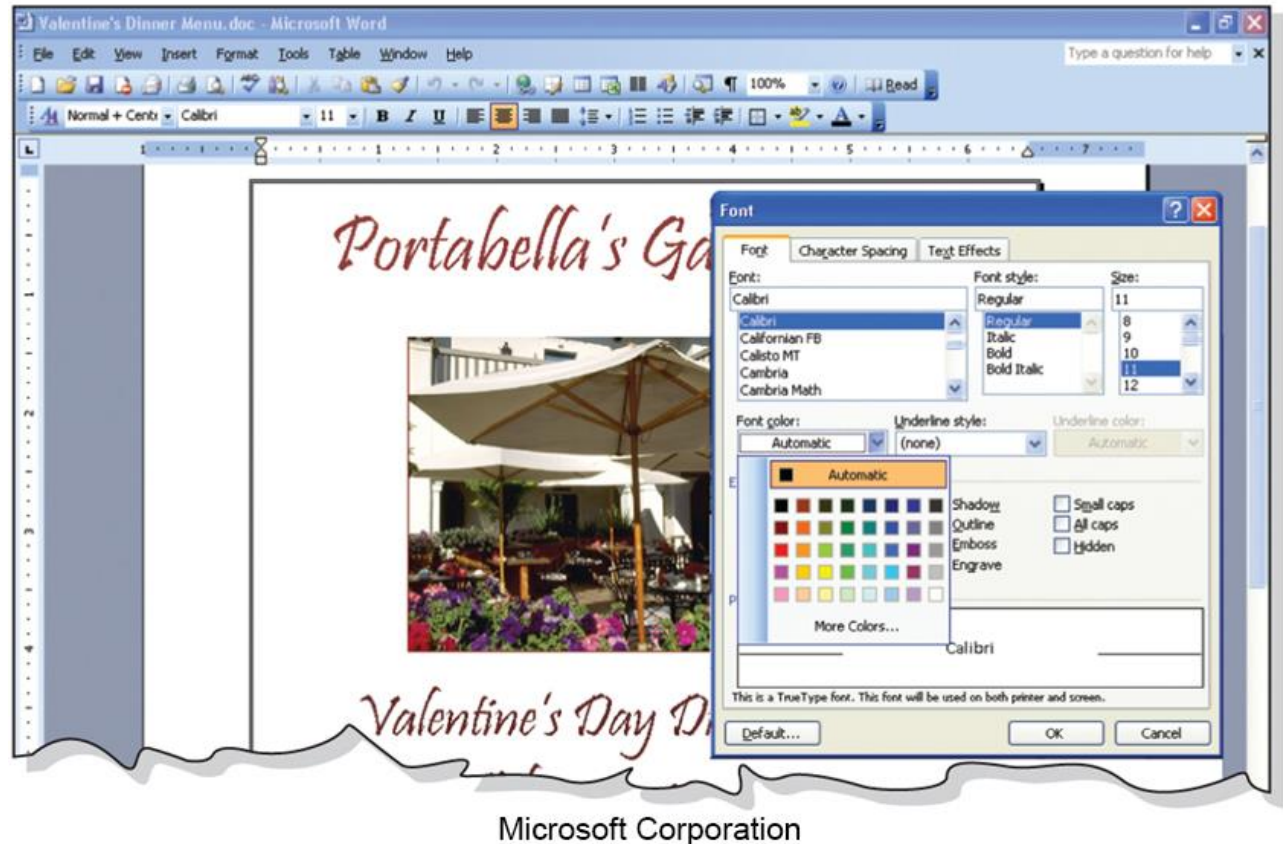
- Menu bar.

Toolbars

- Buttons.

Dialog Boxes

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Common Features in Microsoft

Ribbon GUI

Ribbons.

Tabs.

- Groups.
- Contextual tabs.

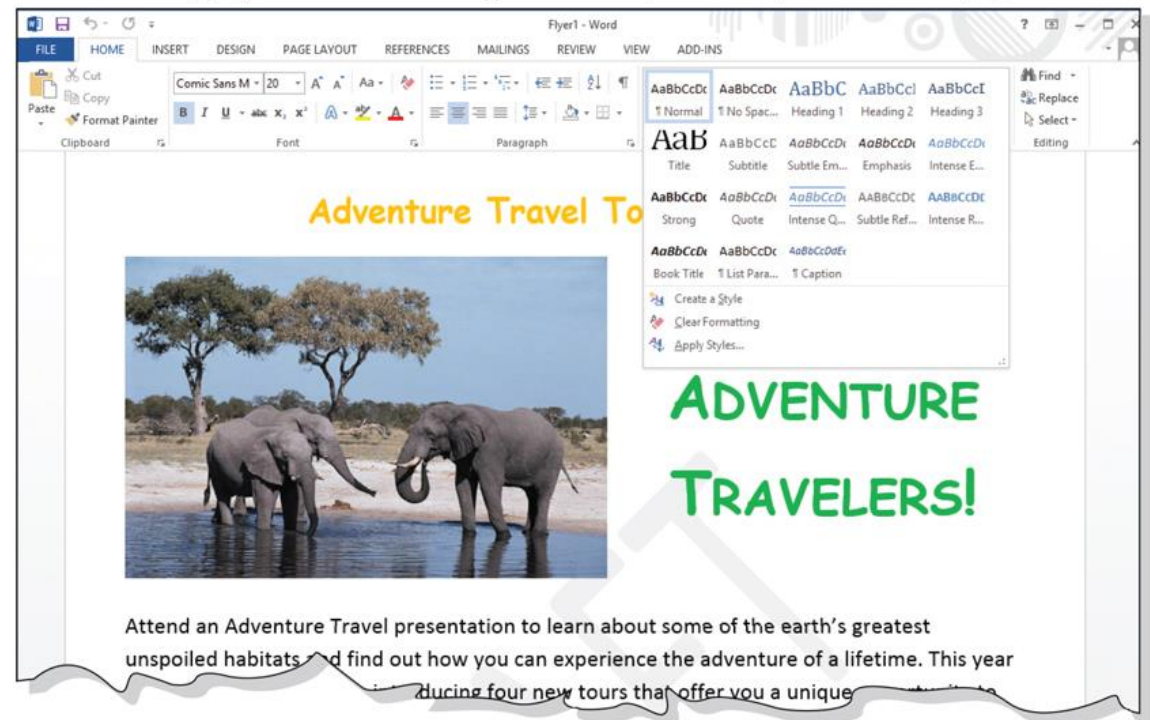
Galleries.

Spell checkers

Alignment

Font and Font Sizes

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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.

Spell Checker

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

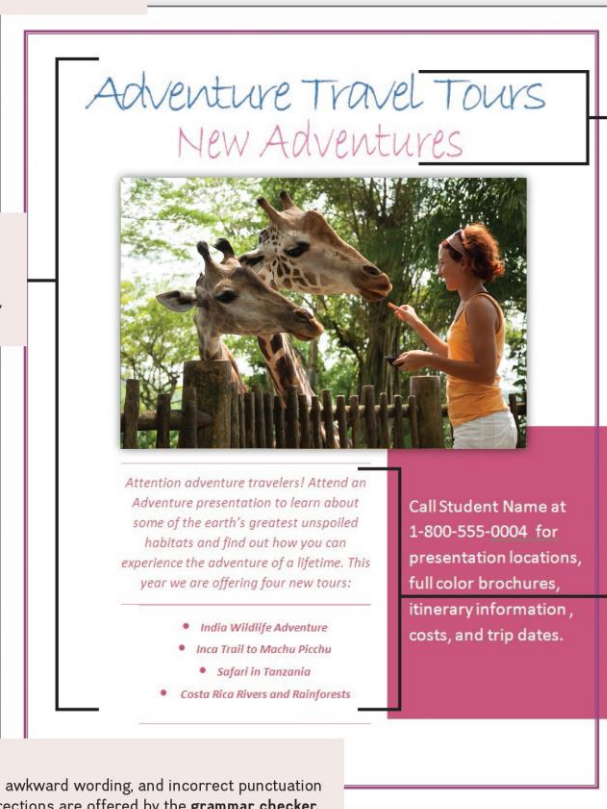
Center-Aligning

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**.

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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.

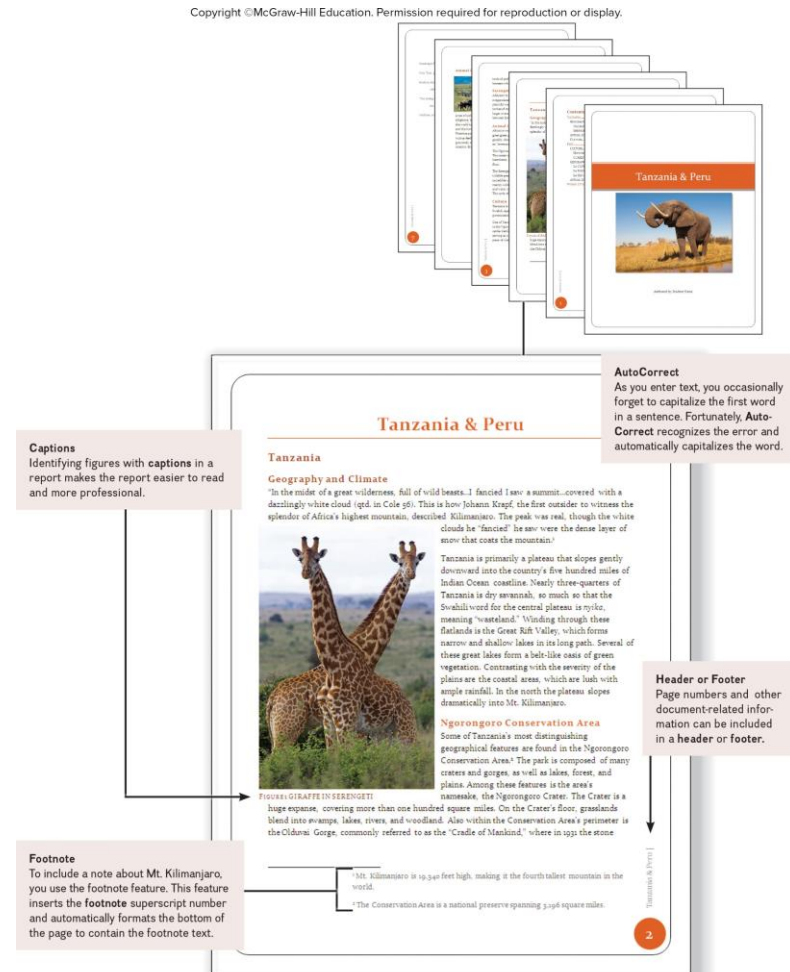
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Creating a Report

Report Features

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



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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.



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.



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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.

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.

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	A	B	C	D	E	F
1	Downtown Internet Café					
2	First Quarter Forecast					
3						
4						
5		JAN	FEB	MAR	TOTAL	AVG
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	\$ 22,730	\$ 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	

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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.

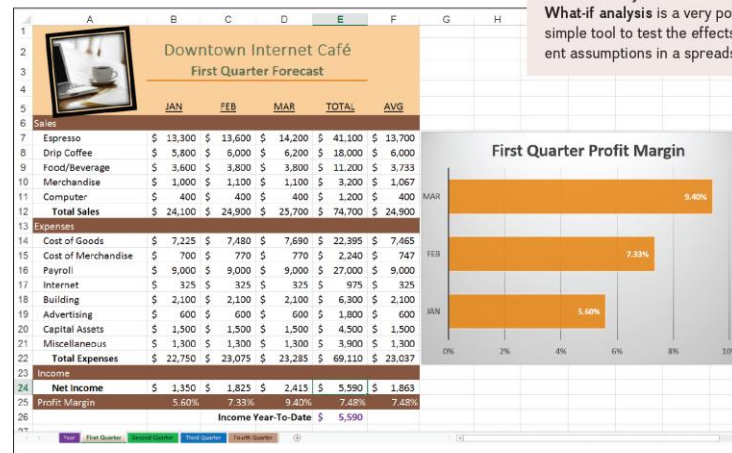
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
Sales									
Espresso	\$13,300	\$13,600	\$14,200	\$14,400	\$15,200	\$15,500	\$15,300	\$15,300	\$15,800
Drip Coffee	\$5,800	\$6,000	\$6,200	\$6,200	\$6,200	\$6,200	\$6,000	\$6,000	\$6,500
Food/Beverage	\$3,600	\$3,800	\$3,800	\$3,600	\$3,800	\$3,800	\$4,000	\$4,000	\$4,000
Merchandise	\$1,000	\$1,100	\$1,100	\$1,300	\$1,500	\$1,500	\$2,000	\$2,000	\$2,000
Computer	\$400	\$400	\$400	\$400	\$400	\$400	\$400	\$400	\$400
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	\$1,090	\$1,090	\$1,090	\$1,400	\$1,400	\$1,400
Payroll	\$9,000	\$9,000	\$9,000	\$7,860	\$8,190	\$8,190	\$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	\$23,265	\$23,630	\$24,225	\$24,250	\$24,525
Income									
Net Income	\$1,350	\$1,825	\$2,415	\$3,945	\$4,085	\$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%					
Income Year-To-Date	\$5,590				\$17,800			\$23,900	

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.



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.

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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.

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.

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	Ⓜ(0)
22407	Mazeau	Rebecca	7383 Oak Dr.	Landis	CA	(941) 555-1093	9/23/1982	Ⓜ(0)
03225	Morgan	Dan	564 S. Lemon Dr.	Maldin	CA	(507) 555-4567	3/5/1984	Ⓜ(0)
99999	Name	Student	123 Any St.	River Mist	CA	(507) 555-9999	1/1/1989	Ⓜ(0)
00617	Nichols	Cathy	75 Brooklea Dr.	Landis	CA	(507) 555-0001	5/19/1972	Ⓜ(0)
00907	Pennington	Mark	23 Mill Ave.	Landis	CA	(507) 555-1333	7/7/1977	Ⓜ(0)
12194	Polonsky	Mitch	8701 E. Sheridan	Maldin	CA	(507) 555-1018	1/13/1990	Ⓜ(0)
12247	Rath	Kathy	87 E. Aurora Ave.	Chesterfield	CA	(507) 555-4797	5/30/1988	Ⓜ(0)
12594	Reddie	Mark	900 W. Campus Dr.	Maldin	CA	(507) 555-1139	11/1/1986	Ⓜ(0)
12230	Rennie	Suzanne	932 E. Parkway Dr.	Landis	CA	(507) 555-1191	7/14/1988	Ⓜ(0)
13005	Reilly	Emily	125 N. Marigold St.	Maldin	CA	(941) 555-4532	5/21/1988	Ⓜ(0)
12612	Richards	Melissa	5522 W. Marin Lane	River Mist	CA	(507) 555-4789	9/30/1981	Ⓜ(0)
06000	Robertson	Kirk	832 S. William Ave.	Maldin	CA	(507) 555-3730	4/5/1982	Ⓜ(0)
22297	Rogondino	Patricia	7583 Turquoise	Chesterfield	CA	(941) 555-4539	8/30/1980	Ⓜ(0)
07287	Roman	Anita	2348 S. Bala Dr.	Maldin	CA	(507) 555-4870	1/15/1990	Ⓜ(0)
12918	Ruiz	Carlos	10101 First St.	Maldin	CA	(507) 555-0125	7/27/1987	Ⓜ(1)
08391	Ruiz	Enrique	35 Palm St.	Chesterfield	CA	(507) 555-0091	12/30/1982	Ⓜ(0)
04321	Sabin	Greg	90 E. Rawhide Ave.	Chesterfield	CA	(507) 555-4455	9/30/1987	Ⓜ(0)
00212	Schiff	Chad	235 N. Cactus Dr.					
22114	Schneider	Paul	1731 Jackson Ave.					
01421	Spehr	Timothy	90 Royal Dr.					
12366	Stacey	David	737 S. College Rd.					
13497	Steele	Jeff	1013 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.

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 Records

Employee ID: 08391

Last Name: Ruiz

First Name: Enrique

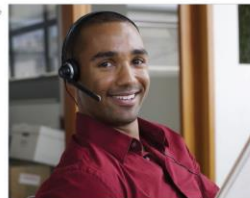
Address: 35 Palm St.

City: Chesterfield

State: CA

Home Phone: (507) 555-0091

Birth Date: 12/30/1982

Photo/Resume: 

Microsoft Corporation; Sam Edwards/age fotostock

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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. (Movavi Video Editor Plus for android, Apple i-movie for apple devices, Adobe Premier for Professional tool on labtop and desktop)
- Image or photo editors. (Snapseed for cell phone and tablets, Microsoft photo for labtop and desktop, Adobe Photoshop for Professional)
- Illustration or drawing programs. (Procreate, Adobe Illustrator Draw, and Autodesk Sketchbook.)
- Desktop publishing programs. (Adobe InDesign, Microsoft Publisher, and QuarkXPress.)

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. • (Recording, audio editing, and mastering suites)
- Moneytree Software Total Planning Suite. (Financial planning suites)

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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