Microsoft Project 2016

Lesson 1

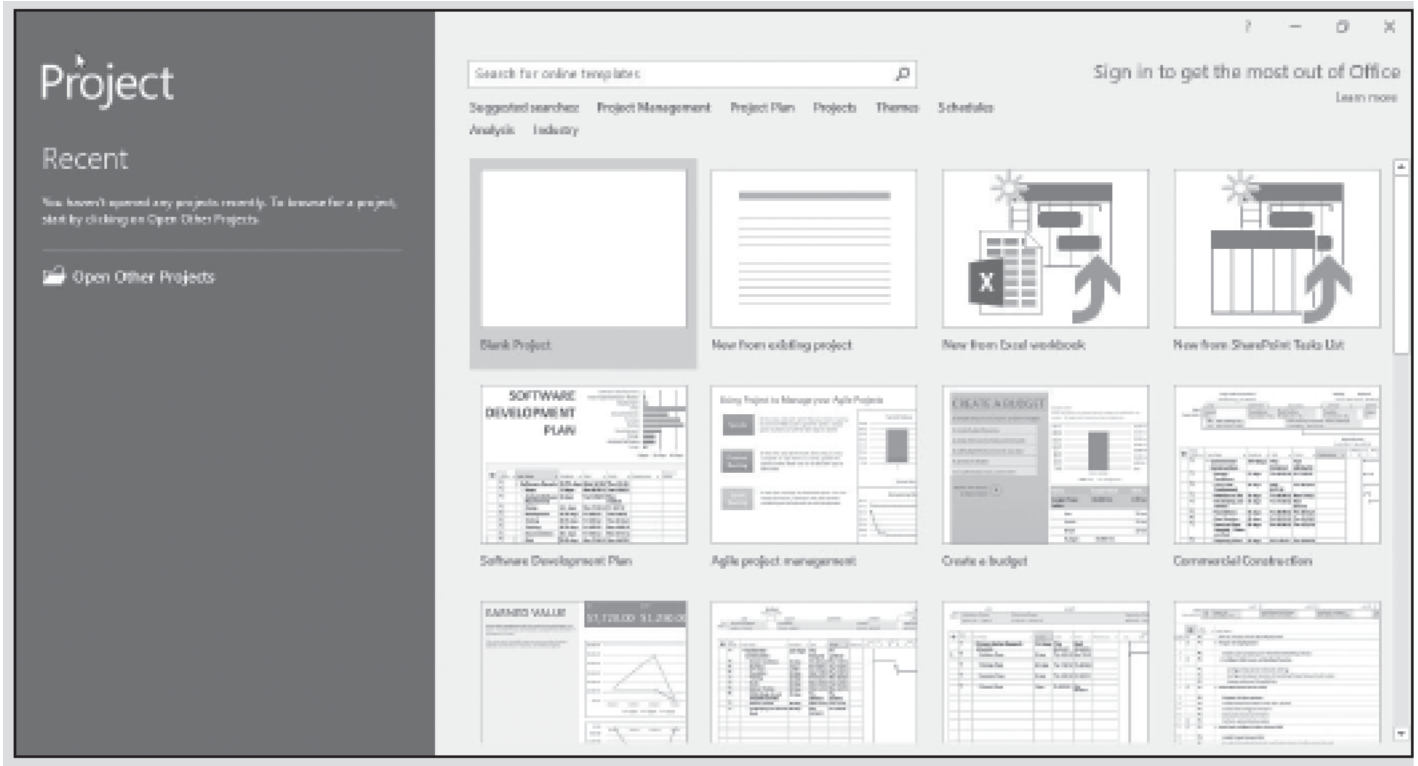
Project Basics

Objectives

Skill	Exercise
Navigating in Microsoft Project • Starting Microsoft Project 2016 and Opening a Template • Using Backstage	Navigate in Microsoft Project Start Microsoft Project Open a template
Creating a Project Schedule • Opening a New Blank Project Schedule • Specifying the Project's Start Date • Saving the Newly Created Project Schedule	Open a new blank project schedule Specify a start date Save the project schedule
Using Project Calendars • Defining Project Calendars	Define the project calendar
Entering Tasks and Task Details • Entering Tasks • Entering Task Durations • Understanding Manual Scheduling and Automatic Scheduling • Creating a Milestone	Enter tasks Enter task durations Switch from Manual to Automatic scheduling Create a milestone
Using Work Breakdown Structure (WBS) • Organizing Tasks into Phases	Create summary tasks
Linking Tasks • Linking Two Tasks • Linking Several Tasks • Linking Phases	Link two tasks Link several tasks at once Link phase and milestone tasks
Documenting Tasks • Entering Task Notes	Enter a task note
Reviewing the Project Schedule's Duration • Checking Project Duration	Check the project's duration

Software Orientation

- When you first launch Microsoft Project, you will see a screen similar to that shown below.

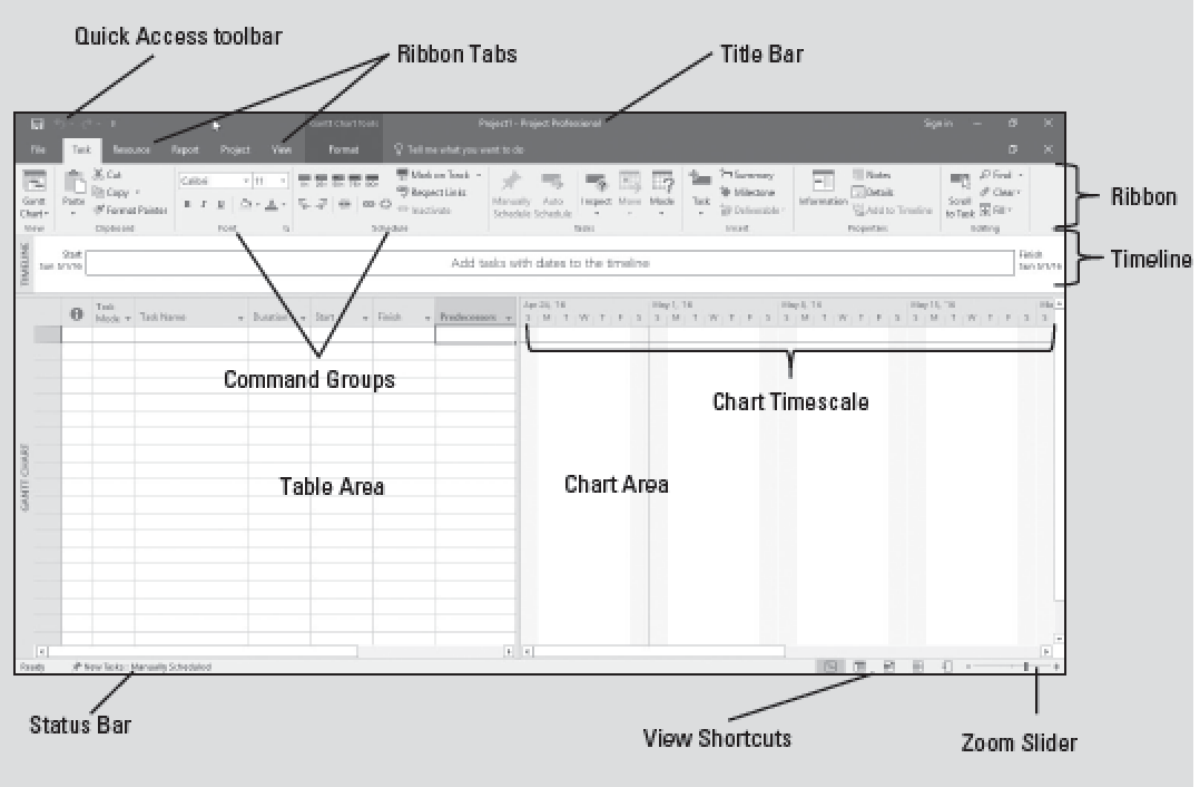


Software Orientation

- Before you begin using Microsoft Project 2017, you will need to become familiar with the user interface, also known as the ***ribbon.***
- This is similar to other Office applications in that the commands are in tabs, such as File, Task, Resource, Report, Project, and View.
- Selecting a tab activates the ribbon. Within each ribbon, commands are organized into groups; each command has its own button, which you activate by clicking with the mouse.
- The Microsoft Project user interface makes it easy to find the commands you need more quickly.

Software Orientation

- The most widely used view is the ***Gantt Chart view***, as shown below.



Navigating in Microsoft Project 2016

- Microsoft Project is the tool used by project managers to manage project schedules—it is not the process of project management.
- A ***project schedule*** is a model of a real project—what you want to happen or what you think will happen throughout the project.
- The schedule contains all of the tasks, resources, time frames, and costs that might be associated with such a project.
- You can modify this schedule (or any other project template) to fit your specific project needs.

Navigating in Microsoft Project 2016

- Later in this lesson, you will learn how to create a project schedule from a blank template.
- A ***template*** is a predefined file that can be blank with the default characteristics set, or it could already contain project task and resource information.
- Knowing how to navigate in and how Microsoft Project 2016 handles data will increase your efficiency in locating needed information.

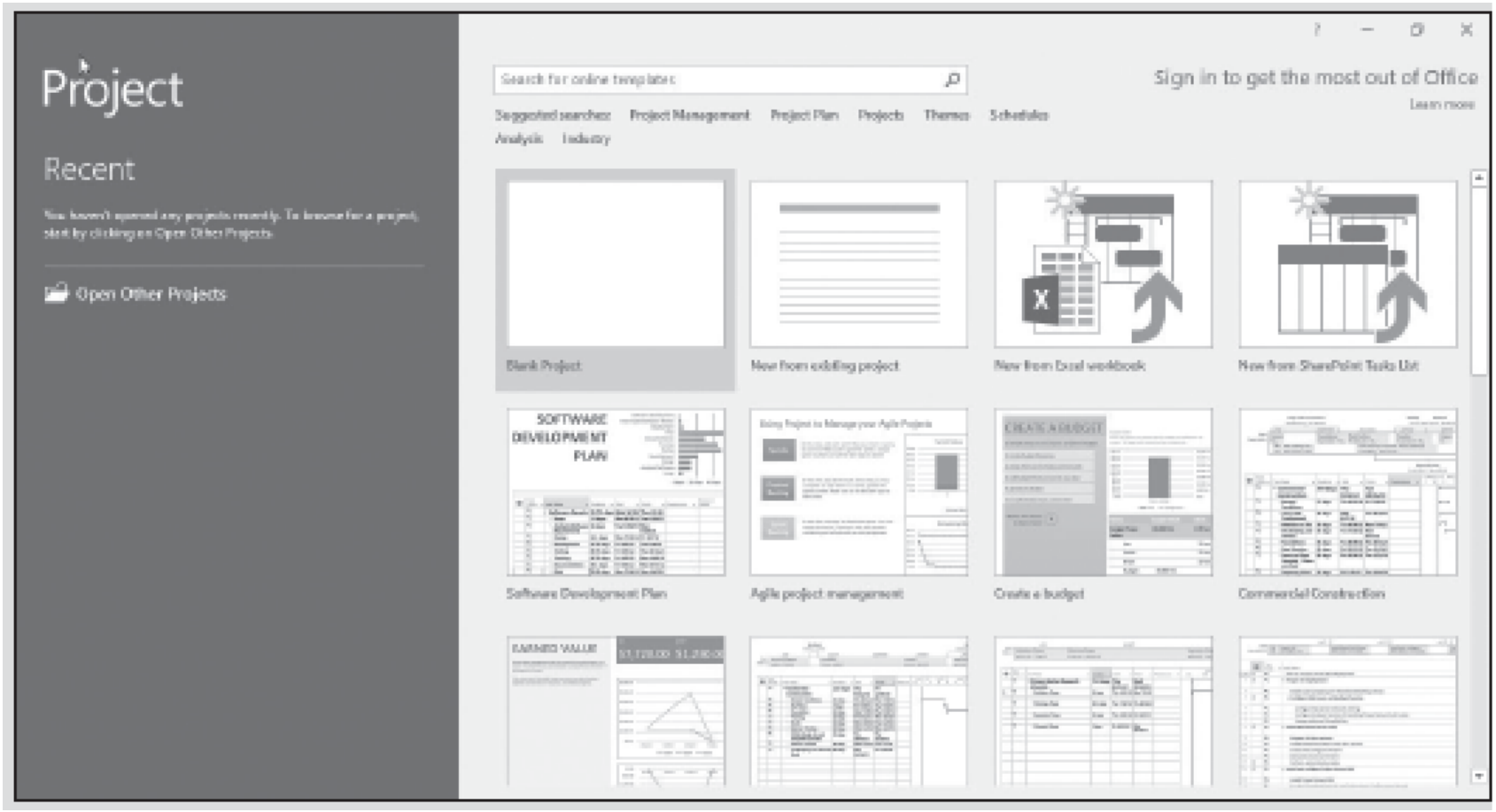
Starting Microsoft Project 2016

- GET READY. Before you begin these steps, be sure to turn on or log on to your computer.

1. On the Windows taskbar, click the Start button. The Start menu appears.
2. On the Start menu, click All Apps. Point to and then click Project 2016. Microsoft Project opens.
3. Your screen should look similar to Figure 1-1. This is the Start screen. From this screen, you can choose to open a blank project, import information from Microsoft Excel or a SharePoint task list, open an existing project file, or open a template.

- PAUSE. LEAVE Microsoft Project open for the next exercise.

Step-by-Step: Starting Microsoft Project 2016

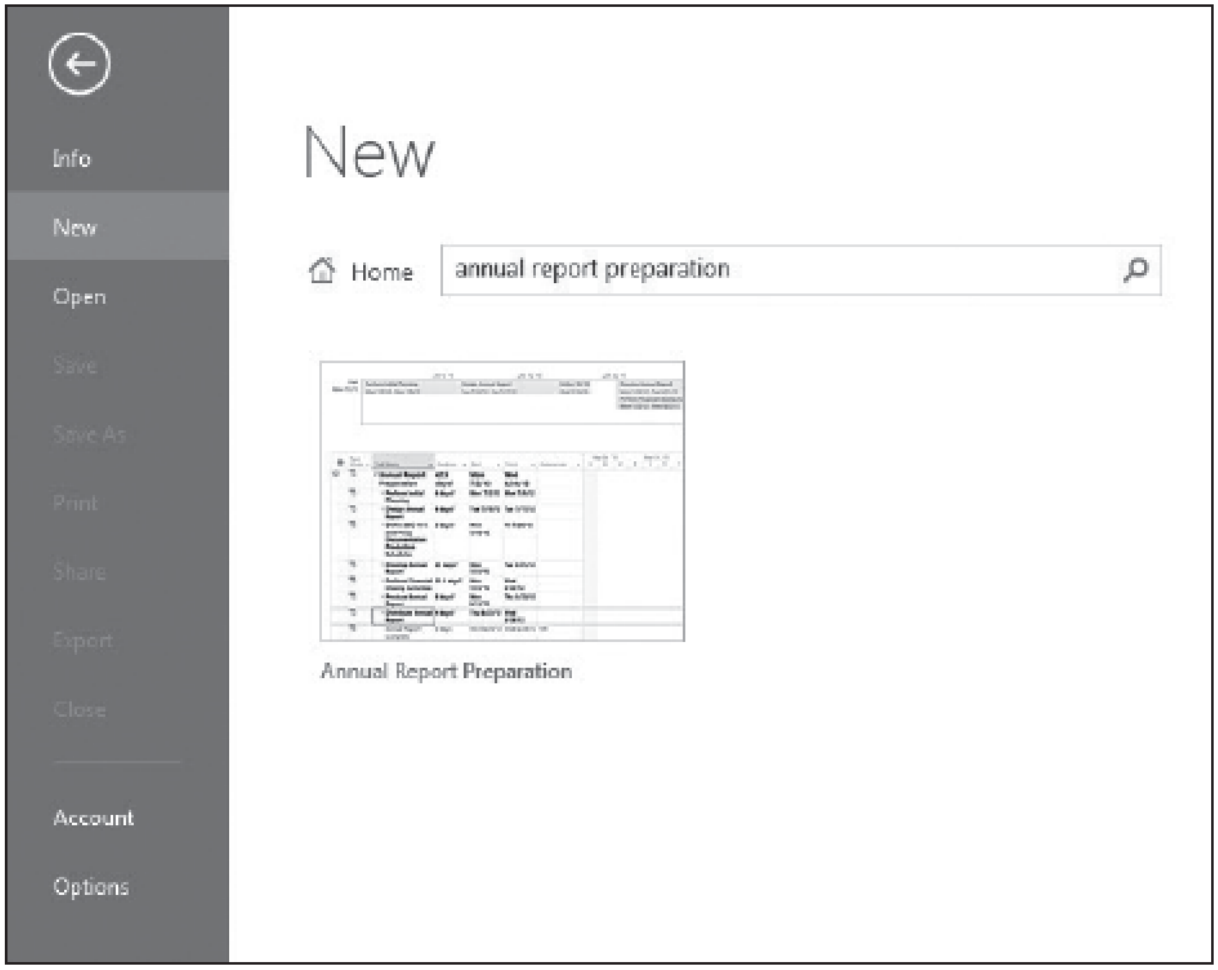


Step-by-Step: Open a Template

- GET READY. Microsoft Project should be open.

1. On the Start screen (shown on previous slide), click in the Search for online templates box located at the top of the screen. Key annual report preparation and then press Enter**.** The template is displayed and a preview of it is on the left of the screen, as shown in the figure on the next slide.

Step-by-Step: Open a Template

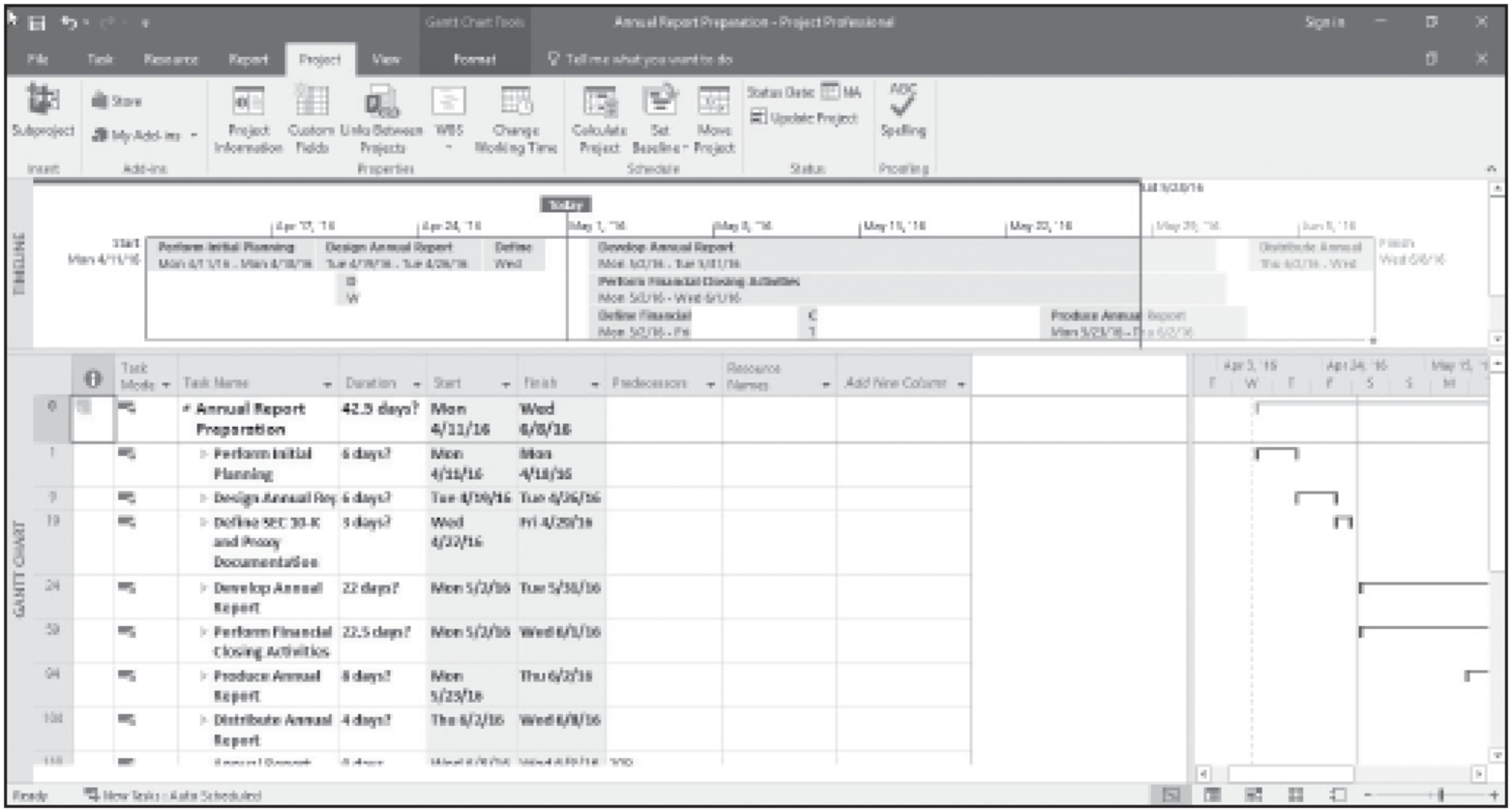


Step-by-Step: Open a Template

2. Double-click on the Annual Report Preparation template graphic. The template is downloaded to your system, then opens a new project based on the template in the Gantt Chart view and closes the New Project screen. The start date selected for the project is the same date you opened the template. Your screen should look similar to the figure shown on the next slide.

- PAUSE**.** LEAVE Microsoft Project open for the next exercise.

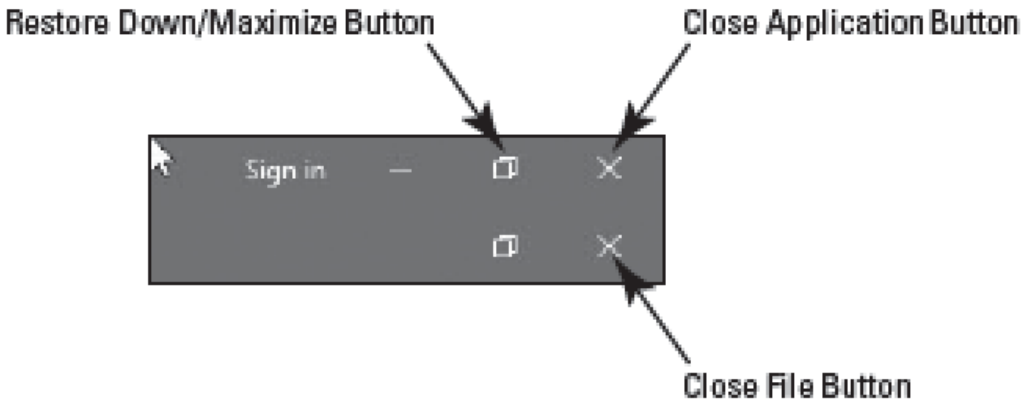
Step-by-Step: Open a Template



Step-by-Step: Modify a Ribbon

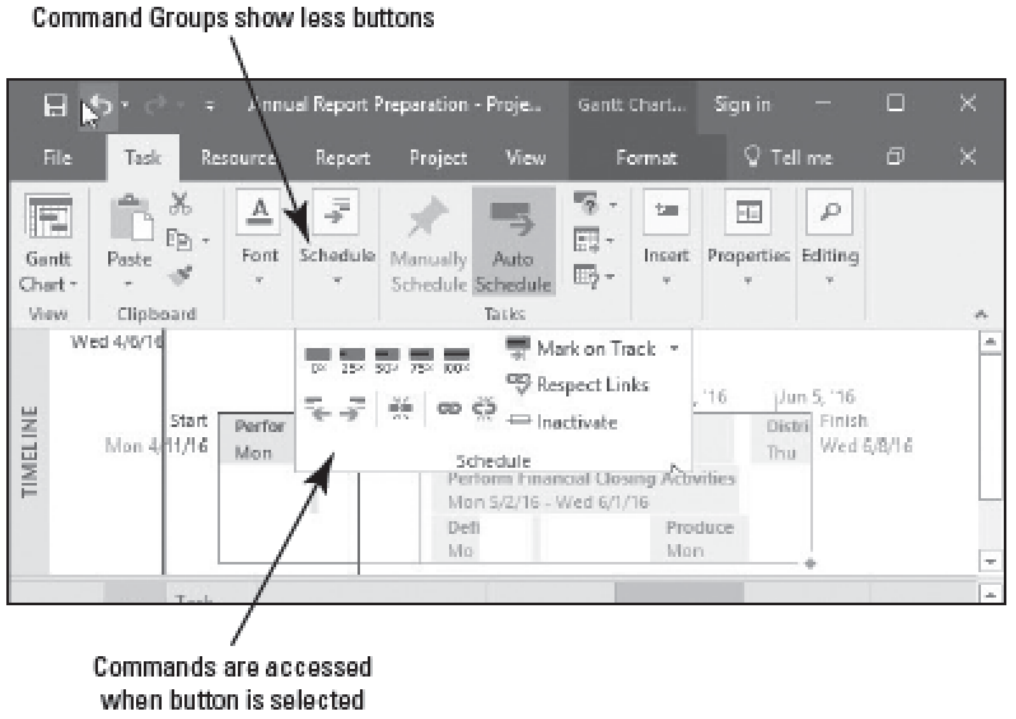
- GET READY. USE the project schedule you created from a template in the previous exercise.

1. To demonstrate the dynamic nature of the ribbon, click the Restore Down/Maximize button. This is located in the upper-right corner of the screen, just to the left of the Close Application button.



Step-by-Step: Modify a Ribbon

2. Using the resizing feature, change the width of the reduced window and watch how the ribbon changes with the changing width. Below is an example of the ribbon at a reduced level of resolution



Step-by-Step: Modify a Ribbon

3. Click the Restore Down/Maximize button again. This sets the window back to full screen. Note the automatic change in the ribbon, as shown below.

- PAUSE. LEAVE Microsoft Project open for the next exercise.

Step-by-Step: Use the Backstage Area

- GET READY. USE the project schedule you created in the previous exercise.

1. Click the File tab. On the left navigation bar, click New.

- This screen is similar to the Start screen that appeared when you first started the software. From this screen, you can open an existing schedule, start a new project from a blank template, or import from Excel or SharePoint.

2. Click Print in the left navigation bar. This section provides a print preview and allows the user to change printers and print settings as well as set the page options, such as headers, footers, and margins.

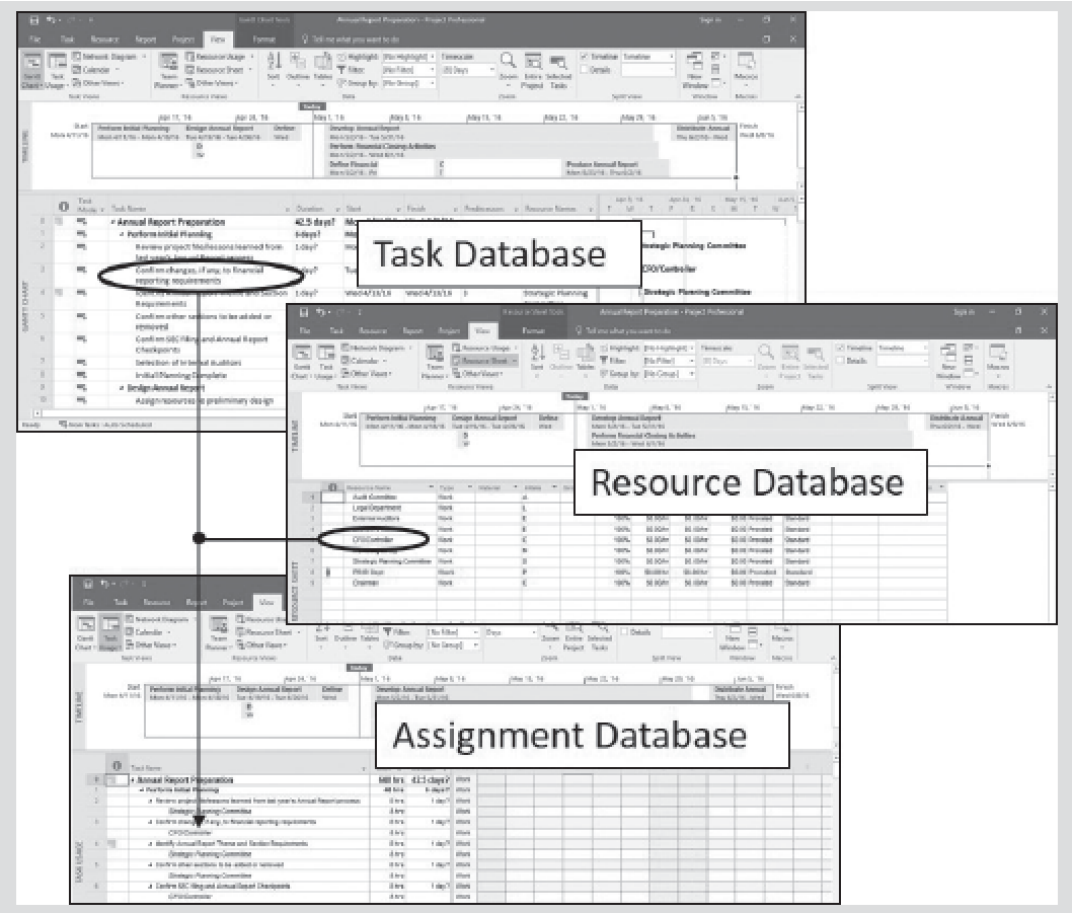
Step-by-Step: Use the Backstage Area

3. Click Share in the left navigation bar. Here, the user can send the project file as an email attachment or sync it with SharePoint.
4. Click Export in the left navigation bar. This section allows the user to create a PDF/XPS document or to save the project file in different formats, such as Excel, XML, or legacy versions of Microsoft Project.
5. Click the return arrow at the top of the navigation bar. Your screen should return to the Gantt Chart view.

- PAUSE. LEAVE Microsoft Project open for the next exercise.

Software Orientation

- Microsoft Project is a database.
- More correctly, it is three databases in one, as shown here.



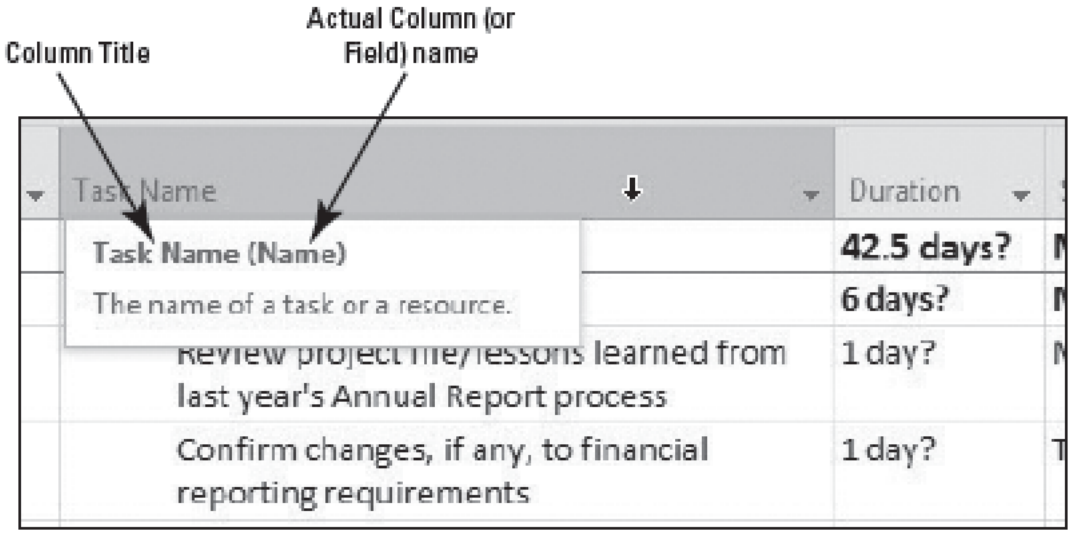
Software Orientation

- The task database is where all task-related information, such as the task name, start, finish, cost, duration, work, and so on, is kept.
- With the resource database, all resource-related information, such as resource name, type of resource, standard rate (pay rate), resource group they belong to, base calendar they are assigned, and maximum number of units for the resource, is stored here.
- The third database is called the assignment database. When a resource is assigned to a task, all of the assignment-related information, for each specific resource on each specific task, is stored here. This includes items such as a resource's start and finish date, the amount of work, and the total cost for that resource on a specific task.

Step-by-Step: Display Data from Each Database

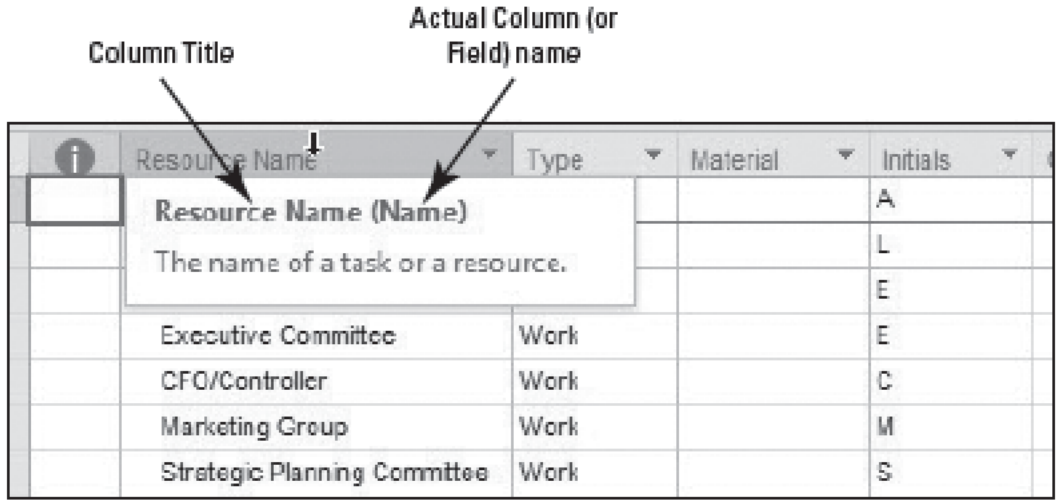
- GET READY. USE the project schedule you created in the previous exercise.

1. Your screen should be on the Gantt Chart view. Place your mouse cursor on the Task Name column heading, but do not click on it. You will notice that a ScreenTip appears, displaying the title of the column (Task Name) and its actual name (Name).



Step-by-Step: Display Data from Each Database

2. Click the View tab; then, in the Resource Views command group, select the Resource Sheet view.
3. Place the mouse cursor on the Resource Name column heading and observe the ScreenTip that appears, as shown below. This field has the same name as the one in shown on the previous slide. You have just witnessed two of the databases.

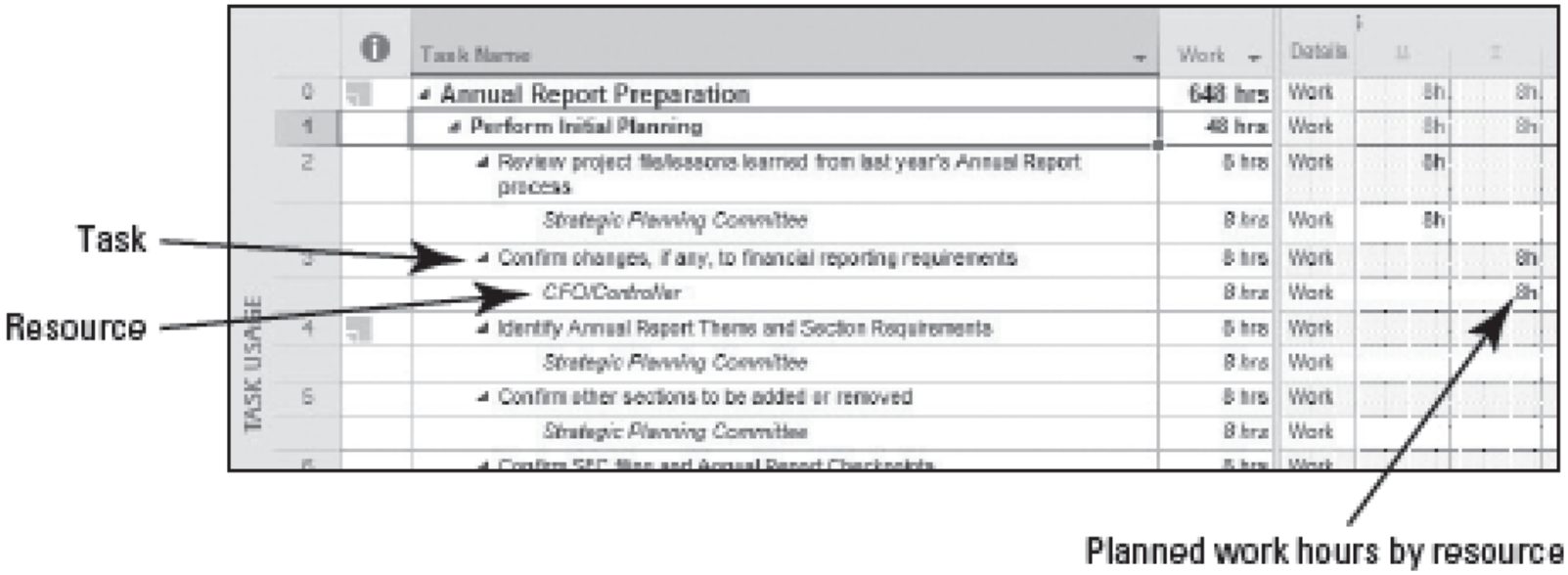


Step-by-Step: Display Data from Each Database

4. On the ribbon, click the Task Usage button, located in the Task Views command group. This is one of two views that display information from the assignment database. Note the Task Usage button is a two-part button, with a submenu on the bottom half.
5. Select the name cell of task 1, Perform Initial Planning.
6. Press the keystroke combination of CTRL + SHIFT + F5**.** This is the Scroll to Task feature, which will be discussed later. Your screen should look similar to the figure shown on the next slide.

- PAUSE**.** LEAVE Microsoft Project open for the next exercise.

Step-by-Step: Display Data from Each Database



Step-by-Step: Display Data from Each Database

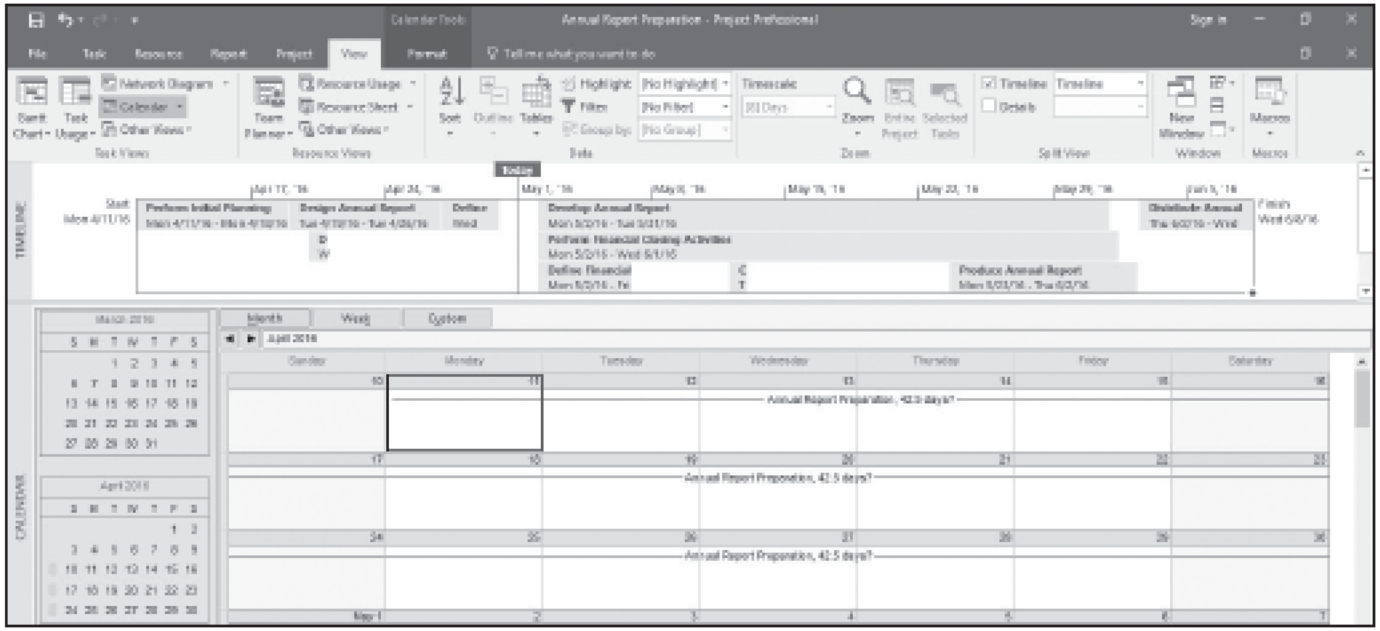
- This table shows the default view and the databases from which they collect information. Knowing which database has the information will help later in knowing which view to activate as well as assisting in developing custom reports.

Default View	Database
Calendar	Task
Gantt Chart	Task
Network Diagram	Task
Task Usage	Assignment
Timeline	Task
Tracking Gantt	Task
Resource Form	Resource
Resource Graph	Assignment
Resource Sheet	Resource
Resource Usage	Assignment
Team Planner	Assignment

Step-by-Step: Use Default Views

- GET READY. USE the project schedule you created in the previous exercise.

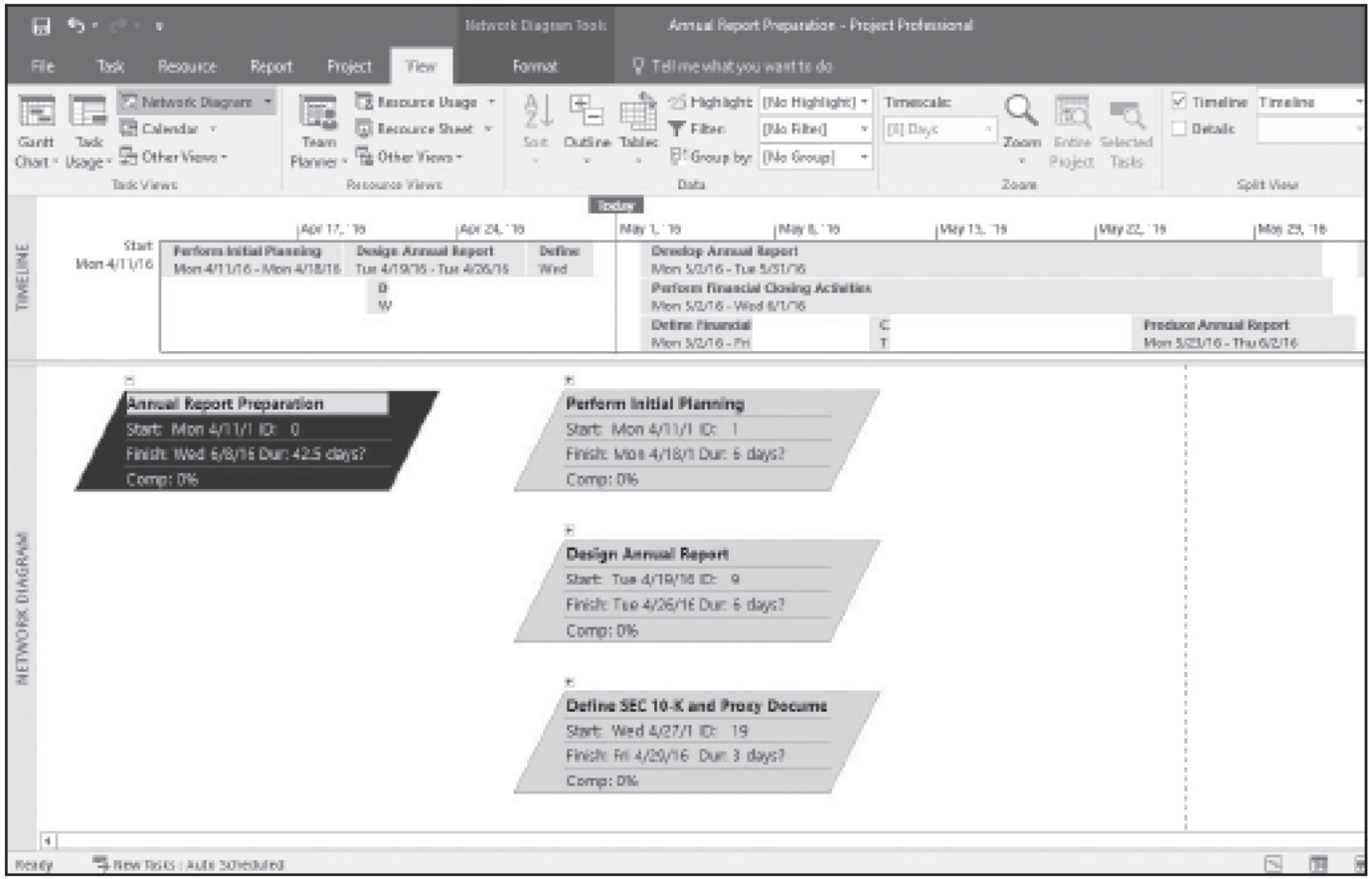
1. On the View tab, select the Calendar view from the Task View command group. Your screen should look similar to this.



Step-by-Step: Use Default Views

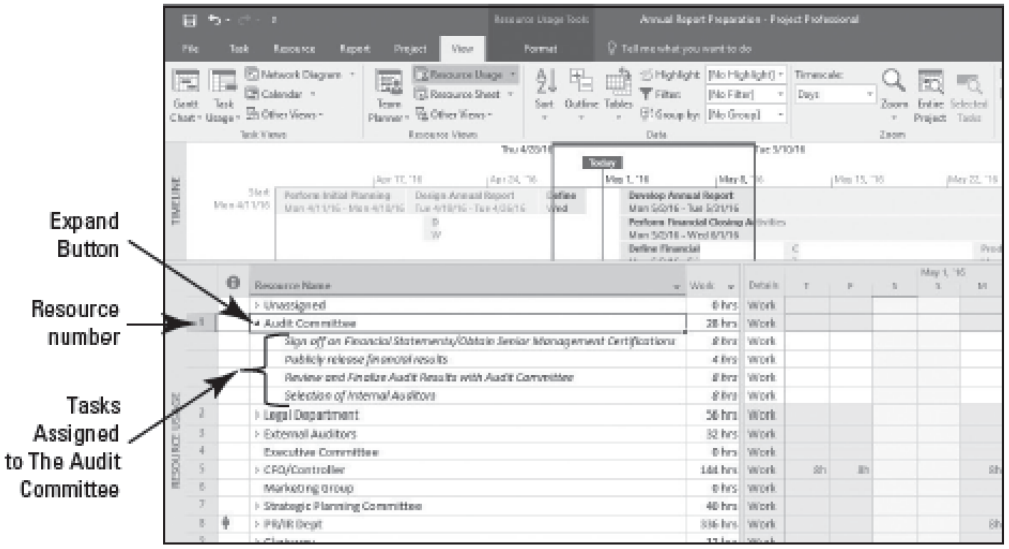
2. The Calendar view provides task data in a calendar format. It is helpful when you need to get project information to those project team members who might not have, or know how to operate, Microsoft Project.
3. On the View tab, select the Network Diagram view. Your screen should look similar to the figure shown on the next slide.
4. On the View tab, select the Resource Usage view. Click the Resource Name column once to highlight the entire column.
5. On the ribbon, in the Data command group, click the Outline button and then select Hide Subtasks.
6. Click the expand button at the left of resource 1, Audit Committee.

Step-by-Step: Use Default Views



Step-by-Step: Use Default Views

7. Auto-fit the Resource Name column. You do this by placing your cursor on the right side of the column name and double-clicking.
8. Move the vertical splitter bar between the table area and chart area to the right, until you can see the Work column.



Step-by-Step: Use Default Views

- The Resource Usage view shows assignments, categorized by resource. In other words, it is helpful to see the assignments each resource has been assigned. This is opposite from the Task Usage view you selected earlier, which categorized assignments by task.

9. CLOSE the file. When asked to save the file, click No.

- LEAVE Microsoft Project open for the next exercise.

Creating a Project Schedule

- Microsoft Project is an active scheduling tool.
- You should perform all the planning processes associated with the project management methodology of your organization before entering any information into Microsoft Project 2016.
- When you create a new project schedule, the first task is to set a start date for your project.
- Rather than use a project schedule template, you can create a new project schedule from a blank template. From this, you can fine-tune to your specific project.
- In the following exercise, you will open a new project schedule.

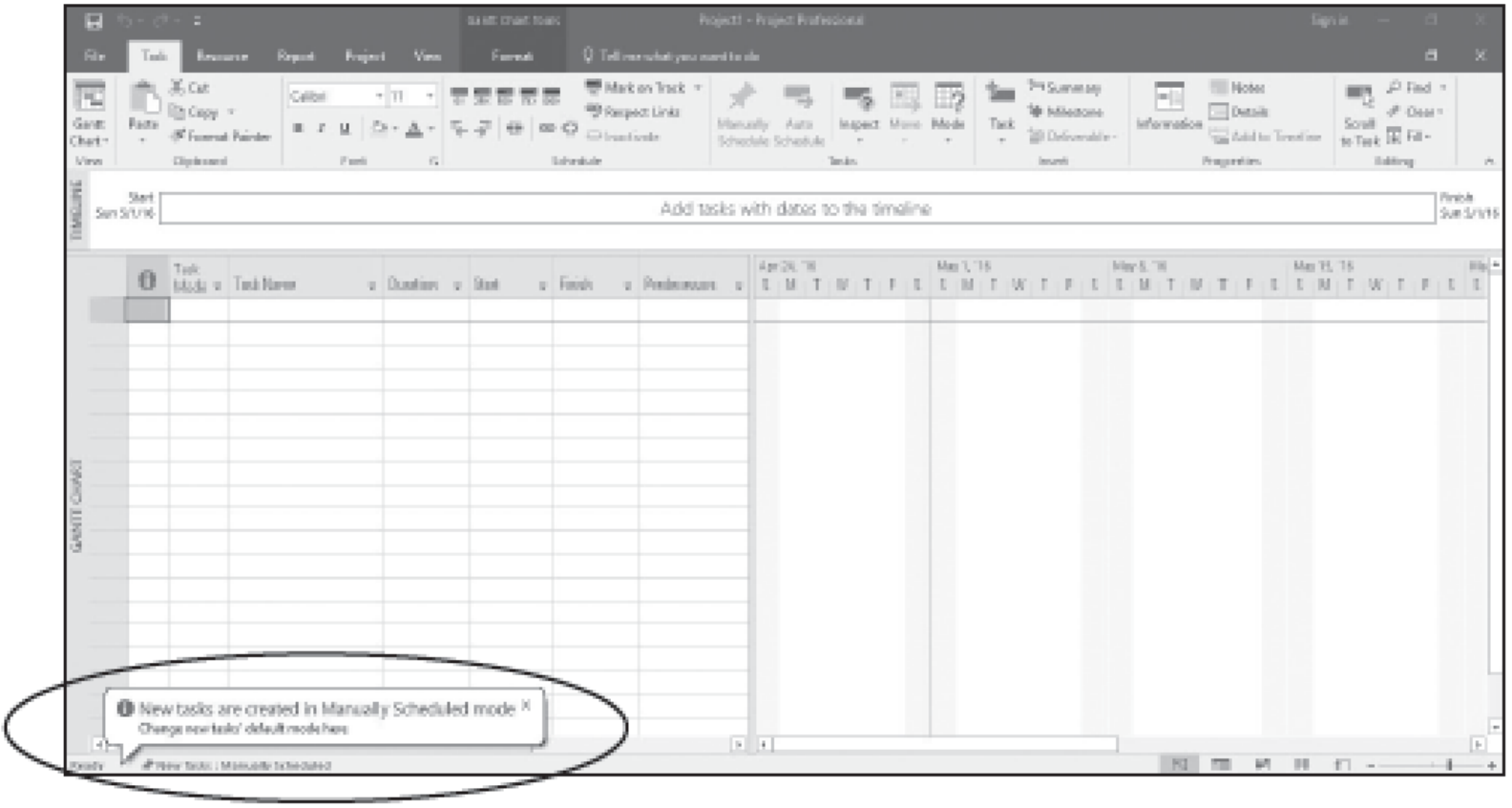
Open a New, Blank Project Schedule

- GET READY. Microsoft Project should be open.

1. On the Start screen, click New.
2. On the screen, double-click the Blank Project option. A new, blank project schedule appears and you are briefly notified that new tasks will be created in the Manually Scheduled mode, which is discussed in Lesson 2. Your screen should look similar to the next slide.

- PAUSE. LEAVE the project schedule open to use in the next exercise.

Open a New, Blank Project Schedule



Specifying the Project's Start Date

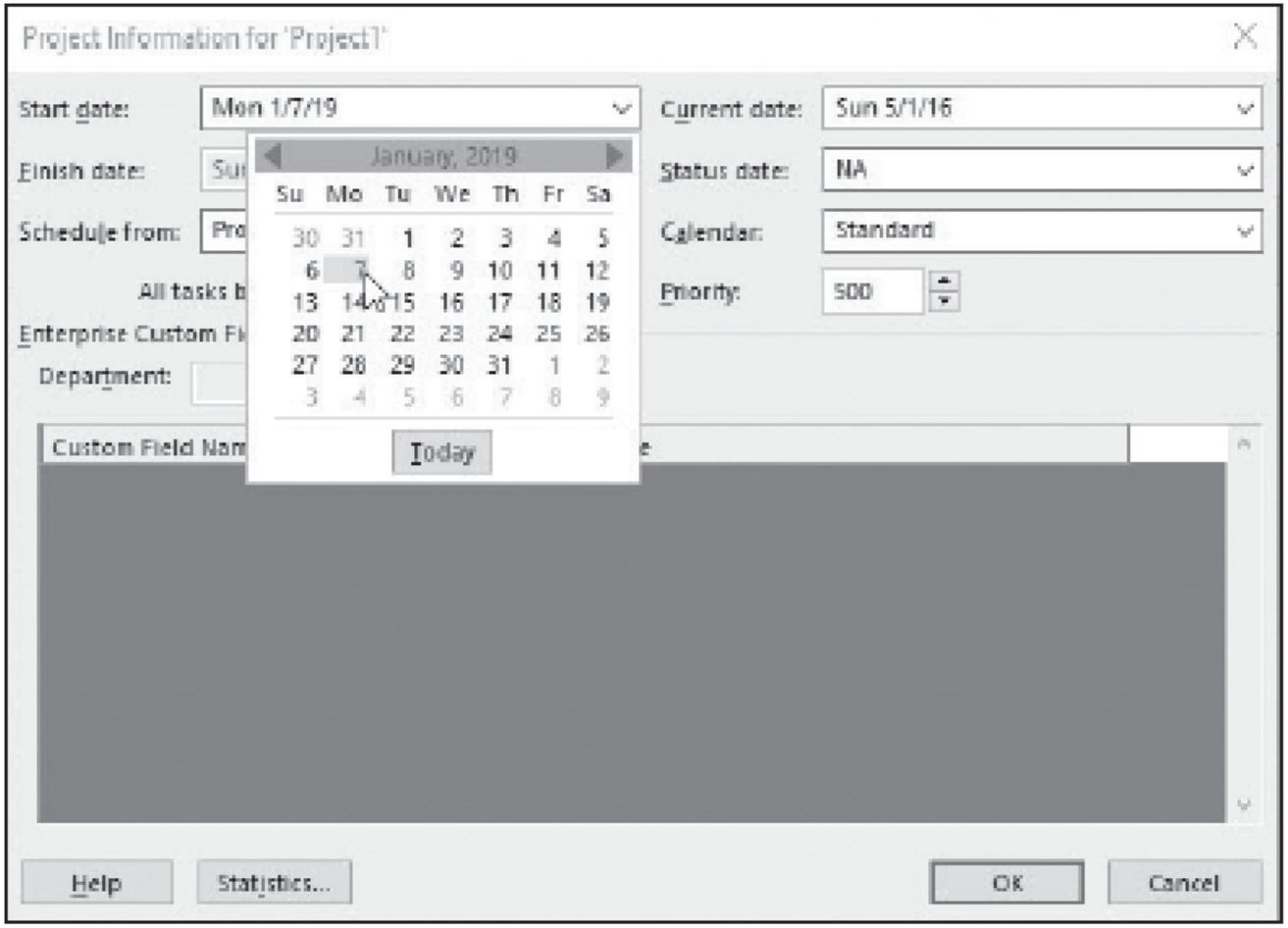
- The first step of creating a new project schedule is to specify the start date for the project.
- You can schedule a project from either the start date or the end date, but not both.
- Most projects should be scheduled from a start date. Scheduling from a start date causes all tasks to start as soon as possible, and it gives you the greatest scheduling flexibility. Scheduling from a finish date can be helpful in determining when a project must start if the finish date is fixed.
- You may change the start date at any time and Microsoft Project will recalculate the start dates for all automatically scheduled tasks.

Specify a Start Date

- GET READY. USE the project schedule you opened in the previous exercise.

1. Click the Project tab. In the Properties group, click the Project Information button. The Project Information dialog box appears.
2. Click once on the drop-down arrow next to the Start Date text box. For this exercise, you will change the project start date to January 7, 2019.
3. Click the calendar's left or right arrow until January 2019 is displayed, as shown on the next slide.
4. In the January calendar, click January 7th.

Specify a Start Date



Specify a Start Date

5. Click OK at the bottom of the dialog box.
6. Note the timescale, located at the top of the chart area of the screen, changes to January of 2019.

- PAUSE**.** LEAVE the project schedule open to use in the next exercise.

Save the Project Schedule

- GET READY. USE the project schedule you created in the previous exercise.

1. On the ribbon, click the File tab and then click the Save option. Because you have not previously saved the project schedule, the *Save-As* section of the navigation bar is activated.
2. In the *Save As* section, click This PC and select Browse.
3. Locate and select the solutions folder for this lesson, as directed by your instructor.
4. In the File name text box, key Tailspin Remote Drone 1.
5. Click Save. The Save As dialog box closes and the project schedule is saved as ***Tailspin Remote Drone 1***.

Using Project Calendars

- In Microsoft Project, calendars determine how tasks and resources assigned to these tasks are scheduled.
- You can set your project calendar to reflect the working days and hours of your project, as well as nonworking times, such as evenings, weekends, and holidays.
- A ***calendar*** is a scheduling tool that determines the standard working time and nonworking time (such as evening or holidays) for the project, resources, and tasks.
- Calendars are used to determine how tasks and resources assigned to these tasks are scheduled.

Using Project Calendars

Project uses four types of calendars:

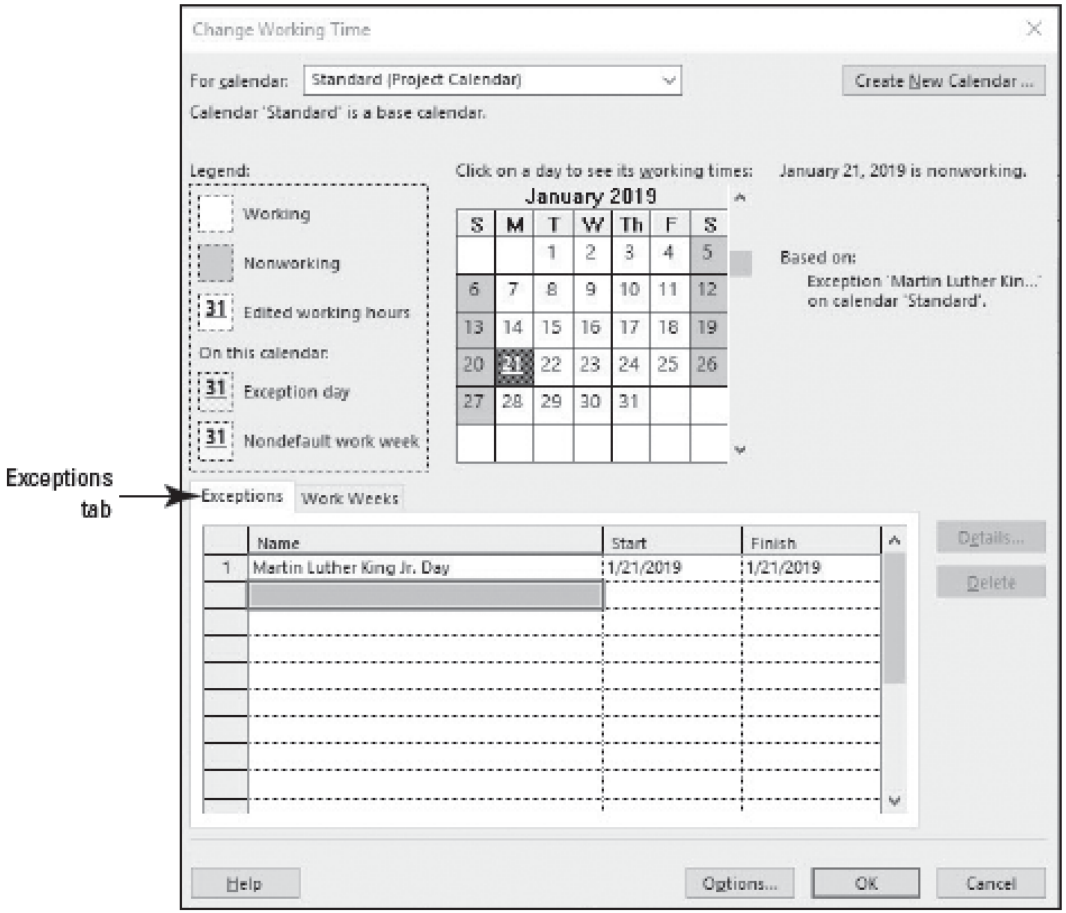
- A ***base calendar*** specifies default working and nonworking times for a set of resources. It can serve as a project calendar or a task calendar. Microsoft Project provides three base calendars: Standard, 24-Hours, and Night Shift.
- A ***project calendar*** is the base calendar used for an entire project. It defines the normal working and nonworking times.
- A ***resource calendar*** defines working and nonworking times for an individual work resource.
- A ***task calendar*** is the base calendar you can use for individual tasks to manage the scheduling of these tasks. A task calendar defines working and nonworking times for a task, regardless of the settings in the project calendar.

Define a Project Calendar

- GET READY. USE the project schedule you created in the previous exercise.

1. On the ribbon, in the Properties command group, select the Change Working Time button.
2. Click the For Calendar drop-down arrow. In the drop-down menu, select Standard, if it is not already selected.
3. Using the scroll control at the right of the calendar, navigate until the calendar displays January 2019. Click the date box for January 21.
4. On the Exceptions tab, click in the first Name field and key Martin Luther King Jr. Day and press **Enter**. Note the start and finish dates of the exception are the same. Your screen should look similar to the next slide.

Define a Project Calendar



Define a Project Calendar

5. Click once on the name of the exception you just entered. Then click the Details button. The Details dialog box appears. Under Recurrence Pattern, click Yearly.
6. Click the The: button, and use the arrows next to each selection box to select Third, Monday, and January.
7. In the Range of Recurrence section, select the option for *End after:* and then key 3 and press **Enter.**
8. Note the new finish date of the exception is now 1/18/2021.
9. Scroll until the calendar in the Change Working Time dialog box displays May 2016. Click once on May 27, 2016.
10. In the next blank exception name cell, key Memorial Day and press **Enter**.

Define a Project Calendar

11. Click once on the name of the exception you just entered. Then click the Details button. The Details dialog box reappears. Under Recurrence Pattern, click Yearly.
12. Click the The: button, and use the arrows next to each selection box to select Last, Monday, and May.
13. In the Range of Recurrence section, select the radio button for *End after:* and then key 3.
14. Note the new finish date of the exception is now 5/31/2021.
15. Click OK to close the Details dialog box, and then click OK to close the Change Working Time dialog box.
16. SAVE the project schedule.

- PAUSE. LEAVE the project schedule open to use in the next exercise.

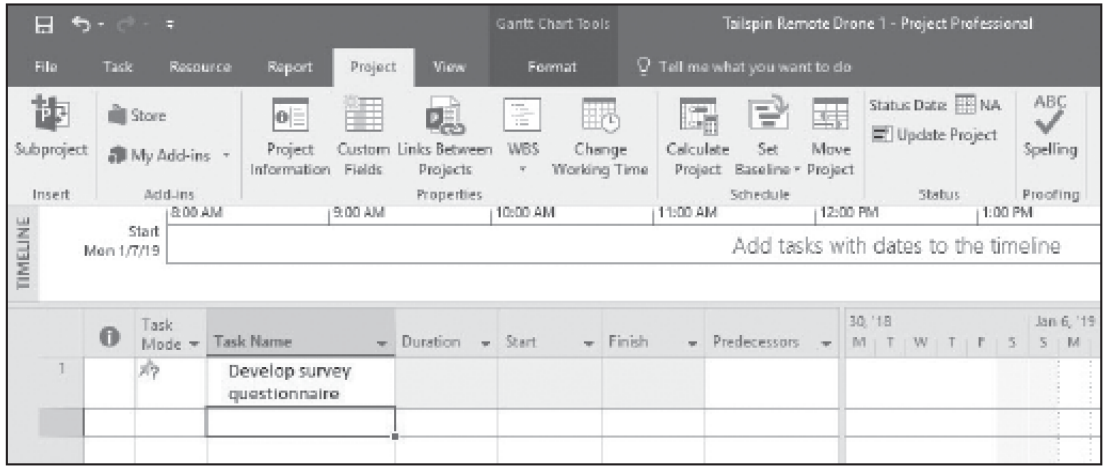
Entering Tasks and Task Details

- ***Tasks*** represent the actual individual work activities that must be completed to accomplish a project's final goal, or deliverable.
- A ***deliverable*** is any unique and verifiable product, service, or result from the work performed on the project. A project may have many deliverables or it may have just one.
- In Microsoft Project, the tasks you define contain the details about each activity or event that must occur in order for your project to be completed.
- These details include the order and duration of tasks, critical tasks, and resource requirements.

Enter Tasks

- GET READY. USE the project schedule from the previous exercise.

1. Click the first blank cell directly below the Task Name column heading.
2. Key Develop survey questionnaire and press Enter. Your screen should look like this:



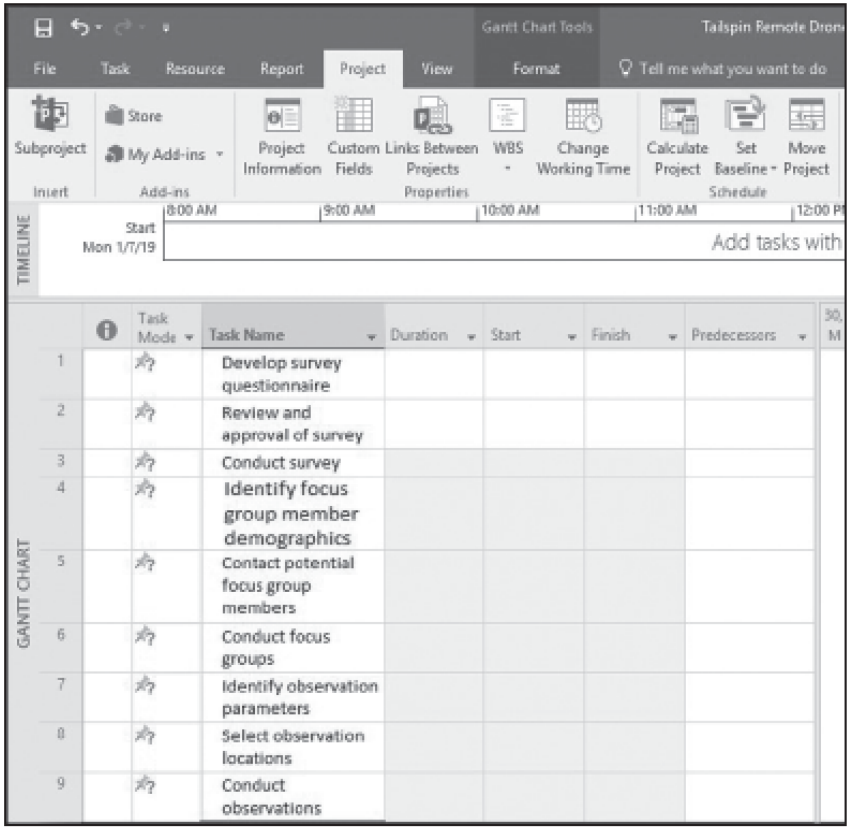
Entering Tasks and Task Details

3. Enter the following task names below the Develop survey questionnaire task name. Press Enter after each task name.

- Review and approval of survey
- Conduct survey
- Identify focus group member demographics
- Contact potential focus group members
- Conduct focus groups
- Identify observation parameters
- Select observation locations
- Conduct observations

4. As you enter new tasks, you will note that each cell automatically wraps the text. Your screen should look similar to the next slide.

Entering Tasks and Task Details



Entering Tasks and Task Details

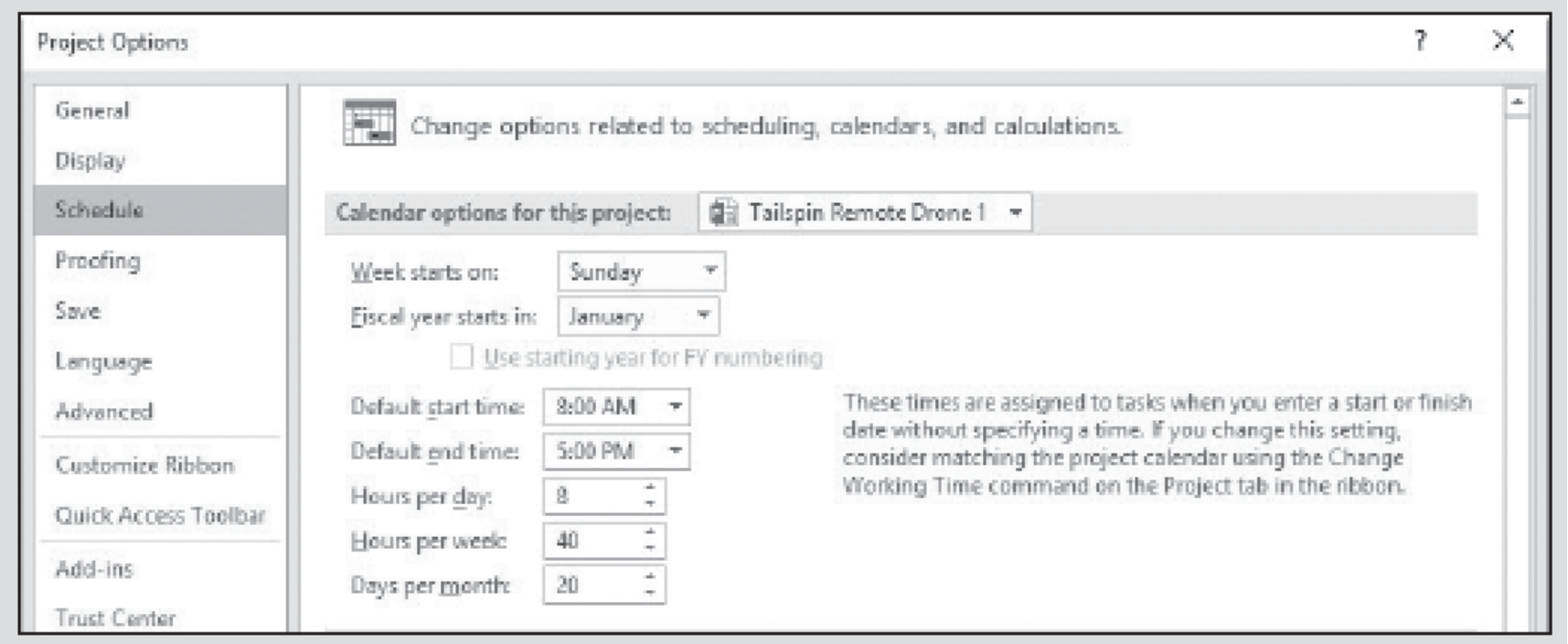
5. SAVE the project schedule.

- PAUSE**.** LEAVE the project schedule open to use in the next exercise.
- You have just added eight tasks to your project schedule. Note that as you entered a task on each row of the Entry table, Microsoft Project assigned a Task ID (refer to the previous slide).
- The ***Task ID*** (sometimes simply referred to as ID) is a unique number that is assigned to each task in the project. It appears on the left side of the task's row.

Software Orientation

- Microsoft Project uses standard values of minutes and hours for durations: One minute equals 60 seconds, and one hour equals 60 minutes.
- However, you can define the duration of days, weeks, and months for your project.
- Click the File tab, select Options, click the Schedule option, and then look under Calendar options for this project (see next slide).

Software Orientation



Software Orientation

- Table 1-2 describes the function of each calendar option.

Calendar Option	Function
Week starts on	Changes the day on which the project week starts
Fiscal year starts in	Changes the month in which the project fiscal year begins
Default start time	Changes the default start time for scheduled tasks
Default end time	Changes the default end time for scheduled tasks
Hours per day	Changes how many hours are scheduled for one day
Hours per week	Changes how many hours are scheduled for one week
Days per month	Changes how many days are scheduled for one month

Entering Task Durations

- A task's ***duration*** is the amount of working time required to complete a task.
- Because different tasks usually take different amounts of time to complete, each task is assigned a separate duration.
- Do not confuse duration with elapsed time or work effort.
- In Manually Scheduled mode (which you will learn more about in the next section), the user can enter either a specified duration or an approximate duration.
- An approximate duration is something like "about two days." This applies to start dates and finish dates as well.

Enter Task Durations

- GET READY. USE the project schedule you created in the previous exercise.

1. Click the first cell in the Duration column, next to task 1, **Develop survey questionnaire**. The Duration field for task 1 is selected.
2. Key 3w and then press **Enter**. The value 3 wks appears in the Duration field.
3. Enter the durations shown on the next slide for the remaining tasks.

(steps continue on next slide)

Enter Task Durations

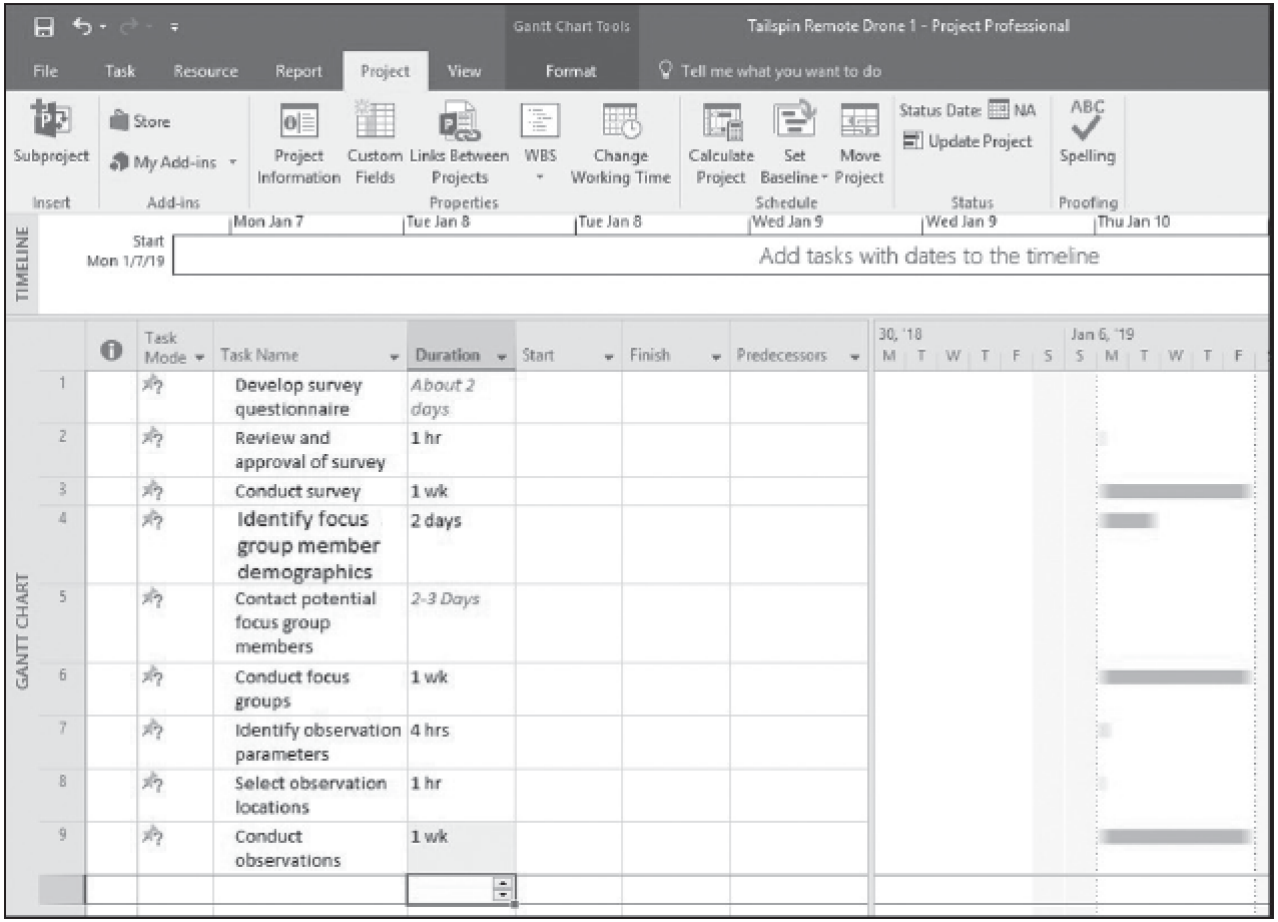
Task ID	Task Name	Duration
2	Review and approval of survey	1h
3	Conduct survey	1w
4	Identify focus group member demographics	2d
5	Contact potential focus group members	2–3 days
6	Conduct focus groups	1w
7	Identify observation parameters	4h
8	Select observation locations	1h
9	Conduct observations	1w

- Your screen should look similar to the figure shown on the next slide.

4. SAVE the project schedule.

- PAUSE. LEAVE the project schedule open to use in the next exercise.

Enter Task Durations



Enter Task Durations

- ***Elapsed duration*** is the total length of working and nonworking time you expect it will take to complete a task.
- Table 1-3 shows abbreviations and meanings for actual and elapsed times in Microsoft Project.

If You Enter This Abbreviation	It Appears Like This	And Means
m	min	minute
h	hr	hour
d	day	day
w	wk	week
mo	mon	month
em	emin	elapsed minute
eh	ehr	elapsed hour
ed	eday	elapsed day
ew	ewk	elapsed week
emo	emon	elapsed month

Understanding Manual Scheduling and Automatic Scheduling

- Microsoft Project 2016 has two scheduling modes, Manual and Automatic.
- In the Manually Scheduled mode (which is the default), Microsoft Project allows the user some flexibility in entering information. However, this mode does not allow the software to schedule tasks in a dynamic manner, meaning it requires more attention to maintain the schedule.
- Automatically Scheduled mode reduces the flexibility of entering approximate durations and dates. This mode does allow the user to create a dynamic schedule, which requires less maintenance.

Switch from Manual Scheduling to Automatic Scheduling

- GET READY. USE the project schedule you created in the previous exercise.

1. Select the Task Name cell for task 1, Develop survey questionnaire.
2. Click the Task tab. Then, in the Tasks command group, click the Auto Schedule button. Notice the change in the Gantt chart bar for task 1.
3. Select the duration cell of task 1, Develop survey questionnaire. Key 3d and press **Enter**. This sets the duration for that task.
4. Note the duration of task 5 is currently "2–3 days." Click once in the Task Name column heading to select all tasks. On the ribbon, select the Auto Schedule button.

Switch from Manual Scheduling to Automatic Scheduling

5. Select the duration cell of task 5, Contact potential focus group members. Key 5d and press **Enter**.
6. Click the File tab and then select Options.
7. In the Project Options dialog box, in the navigation bar on the left side of the dialog box, click Schedule.
8. Look in the *Scheduling options for this project:* section. Change the first option, *New tasks created:* from Manually Scheduled to Auto Scheduled.

- Note that you have only changed the options for this file, not the behavior of the software.

Switch from Manual Scheduling to Automatic Scheduling

9. Click OK to close the Project Options dialog box. Notice that at the bottom of the screen, on the status bar, all new tasks are auto scheduled.
10. SAVE the project schedule.

- PAUSE**.** LEAVE the project schedule open to use in the next exercise.
- In this exercise, you changed the scheduling mode for a single task and then changed it for all entered tasks. You then changed the scheduling mode for all new tasks to be entered into the file.

Creating a Milestone

- A ***milestone*** represents a major event or a significant point in a project.
- Milestones can be either imposed upon the project by the project sponsor or they can be set by the project team to monitor the project's progress.
- In Microsoft Project, milestones are represented as a task with zero duration.
- In the following exercise, you will create a milestone.

Create a Milestone

- GET READY. USE the project schedule you created in the previous exercise.

1. In the Task Name column, click on the empty cell below the name of task 9, Conduct observations.
2. On the Task ribbon, in the Insert command group, click the Milestone button. Notice that a duration of zero days has already been entered.
3. In the Name cell of the newly created milestone, key Research complete and press Enter.
4. In the Task Name column, click on the name of task 1, Develop survey questionnaire.

Create a Milestone

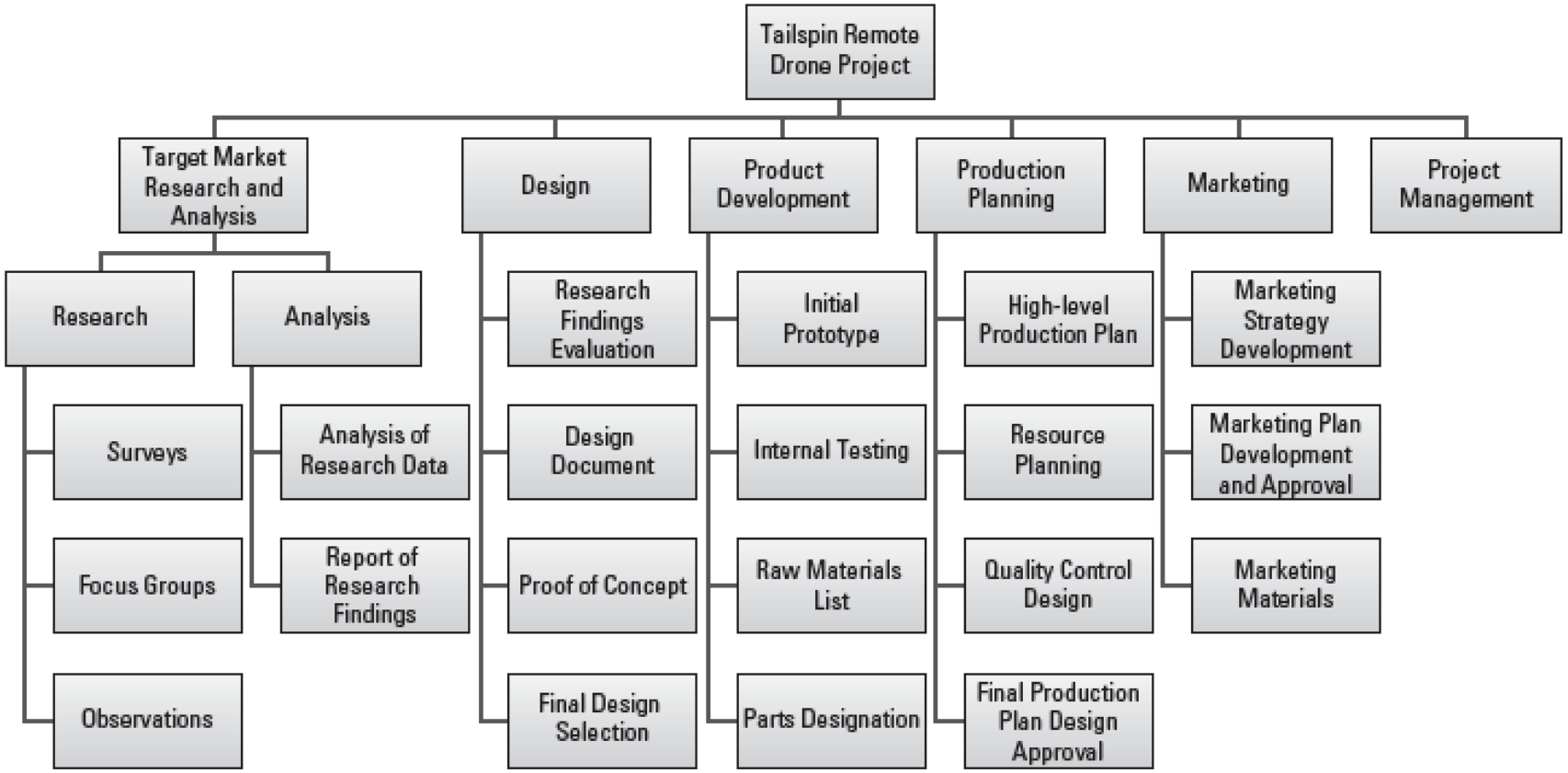
5. On the Task ribbon, in the Insert command group, click the Milestone button. Microsoft Project inserts and numbers the new milestone as ID 1. Notice that the other tasks after this new task insertion point have been renumbered.
6. Key Research begins and press Enter.
7. SAVE the project schedule.

- PAUSE**.** LEAVE the project schedule open to use in the next exercise.

Using Work Breakdown Structure (WBS)

- A ***work breakdown structure*** (WBS) is the hierarchical decomposition of the work to complete the project.
- The next slide depicts a box-type, or graphical WBS for the case study project you are working on in this book.
- Microsoft Project, however, displays the WBS in a format called a tabular WBS.
- There are other WBS formats that can be used, but these are the two most common.
- A sample WBS for this project is shown on the next slide.

Using Work Breakdown Structure (WBS)



Organizing Tasks Into Phases

- After you enter tasks in your project, it can be helpful to organize your project by grouping related tasks into ***phases***, or groups of closely related tasks that encompass a major section of your project.
- The phases, represented by summary tasks, identify the major phases and subphases in your project.
- A ***summary task*** is made up of and summarizes all of the tasks within its hierarchical structure, which could also include other summary tasks, detail tasks, or ***subtasks*** that fall below it.
- You cannot directly edit a summary task's duration, start date, or other calculated values.

Organizing Tasks Into Phases

Most complex projects require a combination of both top-down and bottom-up planning in order to create accurate tasks and phases:

- ***Top-down planning*** develops a project schedule by identifying the highest-level phases or summary tasks before breaking them into lower-level components or subtasks. This approach works from general to specific.
- ***Bottom-up planning*** develops a project schedule by starting with the lowest-level tasks before organizing them into higher-level phases or summary tasks. This approach works from specific to general.

Create Summary Tasks

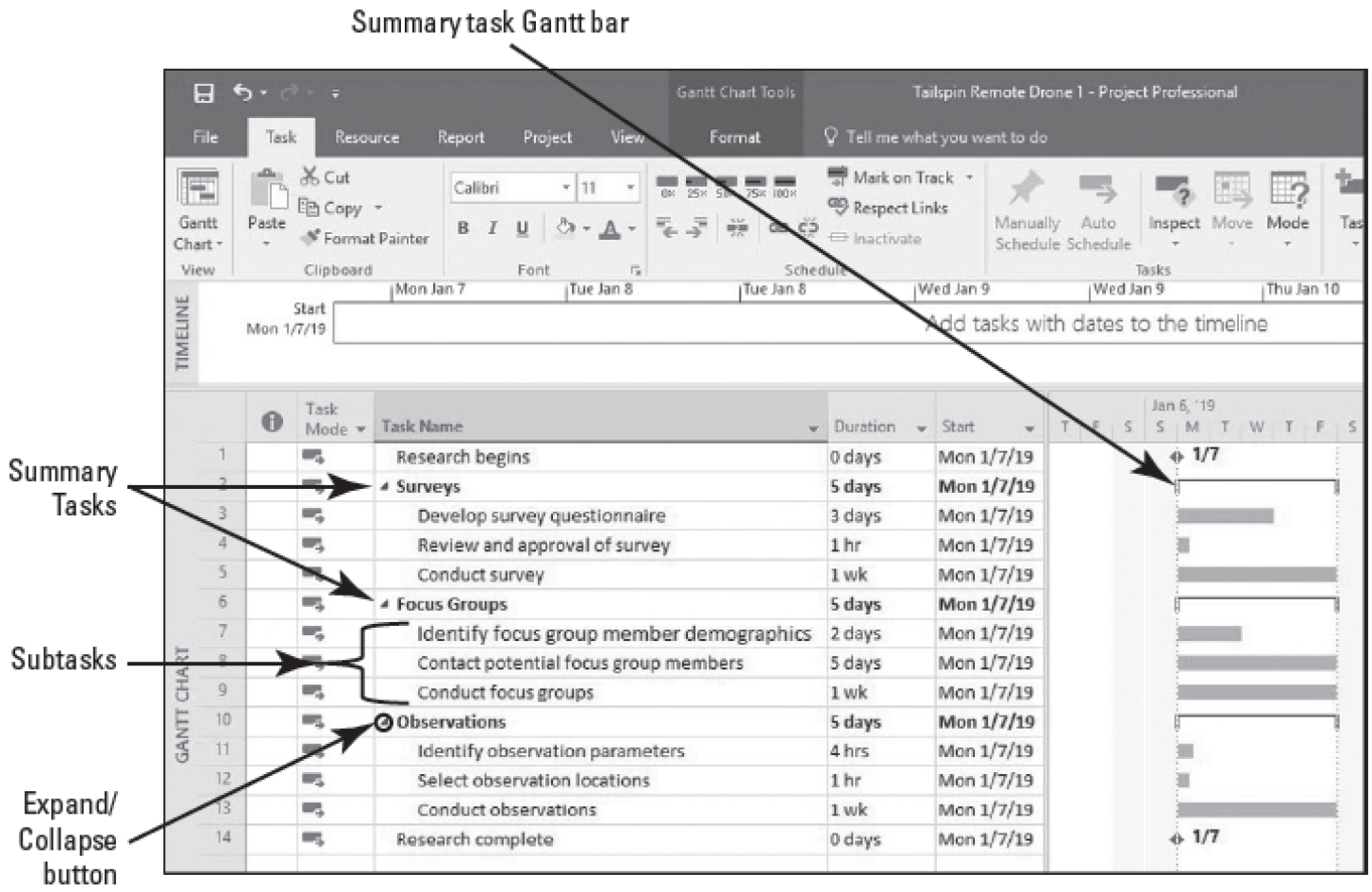
- GET READY. USE the project schedule you created in the previous exercise.

1. Select tasks 2 through 4.
2. On the Task ribbon, in the Insert command group, click the Summary button. A new summary task row is inserted above the selected tasks, all selected tasks are shifted down and renumbered, and they all are now part of this new summary task.
3. In the Task Name field for the new summary task, key Surveys and press Enter.
4. Select tasks 6 through 8.
5. On the Task ribbon, in the Insert command group, click the Summary button.

Create Summary Tasks

6. In the Task Name field for the new summary task, key Focus Groups and press Enter.
7. Select tasks 10 through 12.
8. On the Task ribbon, in the Insert command group, click the Summary button.
9. In the Task Name field for the new summary task, key Observations and press Enter.
10. Auto-fit the Task Name column. You do this by placing your cursor on the right side of the column name and double-clicking.
11. Auto-fit the row-heights. You do this by placing your cursor at the bottom of each row and double-clicking. Your screen should look similar to the next slide.

Create Summary Tasks



Create Summary Tasks

- You can also create higher-level summary tasks by selecting all tasks that belong to a higher WBS element and indenting.

12. Select tasks 1 through 14. On the Task ribbon, in the Insert command group, click the Summary button.
13. In the Task Name field for the new summary task, key Research and press Enter.
14. Click once in the name cell of task 16, then key Analysis and press Enter.
15. Click once on the name cell of task 16, Analysis. Then, on the ribbon, in the Schedule command group, select the Outdent button.

Create Summary Tasks

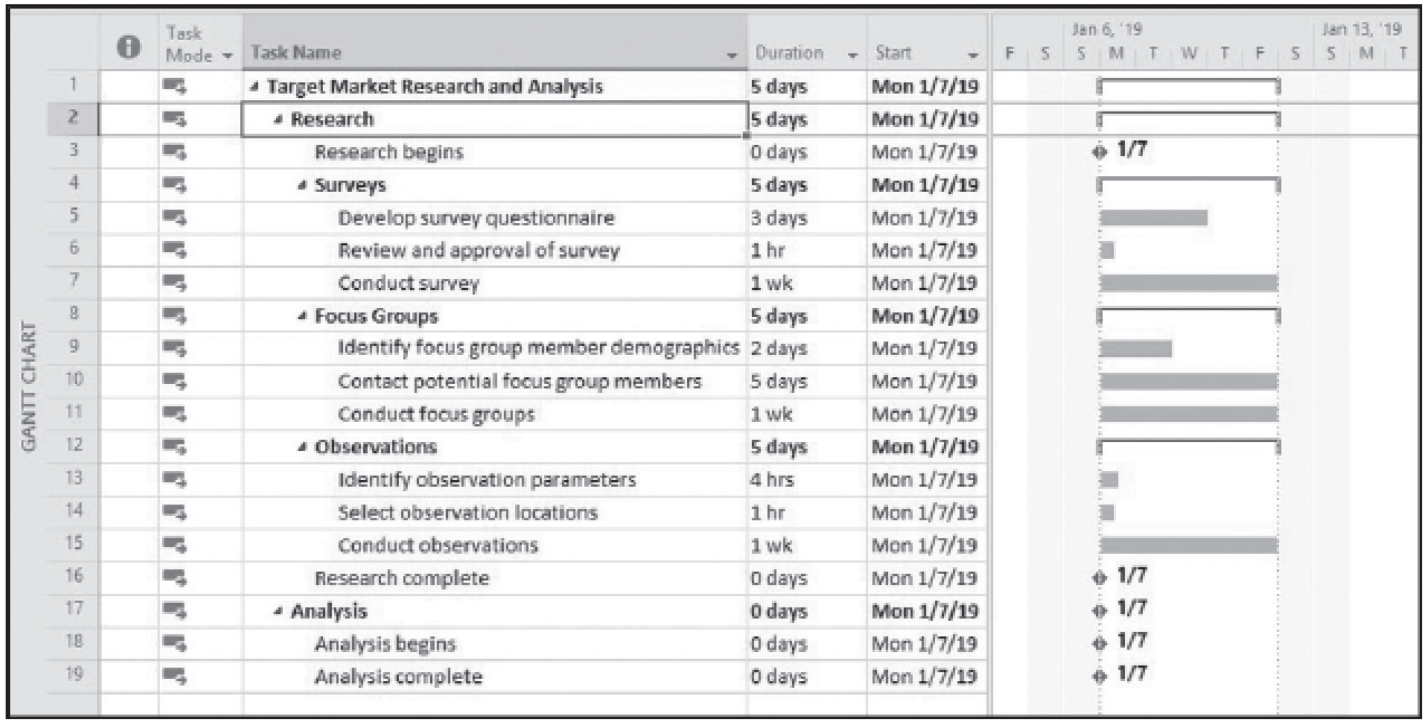
16. Key the following task names and durations below task 16, Analysis:

Task Name	Duration
Analysis begins	0d
Analysis complete	0d

17. Select tasks 17 and 18. On the Task ribbon, in the Schedule group, click the Indent button. Tasks 17 and 18 are indented and task 16 becomes a summary task.
18. Select tasks 1 through 18. On the Task ribbon, in the Insert command group, click the Summary button.

Create Summary Tasks

19. In the Task Name field for the new summary task, key Target Market Research and Analysis and press Enter. Your screen should look similar to this:



	Task Mode	Task Name	Duration	Start
1		**Target Market Research and Analysis**	**5 days**	**Mon 1/7/19**
2		**Research**	**5 days**	**Mon 1/7/19**
3		Research begins	0 days	Mon 1/7/19
4		**Surveys**	**5 days**	**Mon 1/7/19**
5		Develop survey questionnaire	3 days	Mon 1/7/19
6		Review and approval of survey	1 hr	Mon 1/7/19
7		Conduct survey	1 wk	Mon 1/7/19
8		**Focus Groups**	**5 days**	**Mon 1/7/19**
9		Identify focus group member demographics	2 days	Mon 1/7/19
10		Contact potential focus group members	5 days	Mon 1/7/19
11		Conduct focus groups	1 wk	Mon 1/7/19
12		**Observations**	**5 days**	**Mon 1/7/19**
13		Identify observation parameters	4 hrs	Mon 1/7/19
14		Select observation locations	1 hr	Mon 1/7/19
15		Conduct observations	1 wk	Mon 1/7/19
16		Research complete	0 days	Mon 1/7/19
17		**Analysis**	**0 days**	**Mon 1/7/19**
18		Analysis begins	0 days	Mon 1/7/19
19		Analysis complete	0 days	Mon 1/7/19

Create Summary Tasks

20. SAVE the project schedule.

- PAUSE**.** LEAVE the project schedule open to use in the next exercise.
- You have just organized your tasks into phases.
- Working with phases and tasks in Microsoft Project is similar to working with an outline in Microsoft Word.
- You can create phases by indenting and outdenting tasks, and you can collapse an entire task list into its phase components.

Linking Tasks

- A ***link*** is a logical connection between tasks that controls sequence and defines the ***relationship*** between two or more tasks. These two tasks have a finish-to-start relationship.
- The first task is called the ***predecessor,*** a task whose start or end date determines the start or finish of another task or tasks.
- Any task can be a predecessor for one or more tasks. The second task is called the ***successor***, a task whose start or finish is driven by another task or tasks.
- The second task generally occurs after the first task. This is called a ***sequence***, or the chronological order in which tasks occur.

Link Two Tasks

- GET READY. USE the project schedule you created in the previous exercise.

1. Select task 3 and then hold down the CTRL key and select task 5.
2. On the Task ribbon, in the Schedule group, click the Link the Selected Tasks button.
3. Tasks 3 and 5 are now linked with a finish-to-start relationship.
4. Select the name cells of tasks 5 and 6.
5. Press CTRL + F2.
6. Select the name cells of tasks 6 and 7.

Link Two Tasks

7. Move the center-divider between the table area and the chart area to the right until you can see the Predecessors column.
8. Click once in the Predecessors cell for task 7. Key a 6 and press Enter.
9. SAVE the project schedule.

- PAUSE. LEAVE the project schedule open to use in the next exercise.

Link Two Tasks

- A relationship between any two specific tasks can only be one of four types of task relationships, that is, a relationship between two tasks cannot be both a start-to-start *and* a finish-to-start.
- The table shown on the next slide shows the four relationship types.

Link Two Tasks

This Task Relationship	Means	Looks Like This in the Gantt Chart	Example
Finish-to-start (FS)	The finish date of the predecessor task determines the start date of the successor task.		The design of a product must be approved before the product goes into production.
Start-to-start (SS)	The start date of the predecessor task determines the start date of the successor task.		The design must start, but does not need to be finished before the prototype can begin.
Finish-to-finish (FF)	The finish date of the predecessor task determines the finish date of the successor task.		Testing can be ongoing while production is ongoing, but testing must be finished before production is finished.
Start-to-finish (SF) (This relationship type is rarely used.)	The start date of the predecessor task determines the finish date of the successor task.		Federal safety guidelines dictate that safety testing must start before the final design is complete.

Link Two Tasks

- Do not get task relationships in Microsoft Project confused with task dependencies in project management.
- A ***dependency*** is a need or a condition that exists between two tasks or work elements.
- Knowing the dependency is an important factor in defining the task relationships.
- Dependencies come in two main categories: Mandatory and discretionary.

Link Two Tasks

- **Mandatory:** Also known as a hard logic dependency. The first task *must* be done before the second task, that is, you must construct the walls of a house before you install the sheetrock. Dependencies of this type usually have relationships of FS, but can be SS with a lag applied. Lags will be discussed in a later lesson.
- **Discretionary:** Also known as a soft logic or preferred dependency. The first task does not necessarily have to be done in order to complete the second task, that is, you do not have to paint the walls before you install the carpet. It is preferred, but not absolutely necessary. Dependencies of this type can have any one of the relationships.

Link Two Tasks

Dependencies can be further divided into two subcategories:

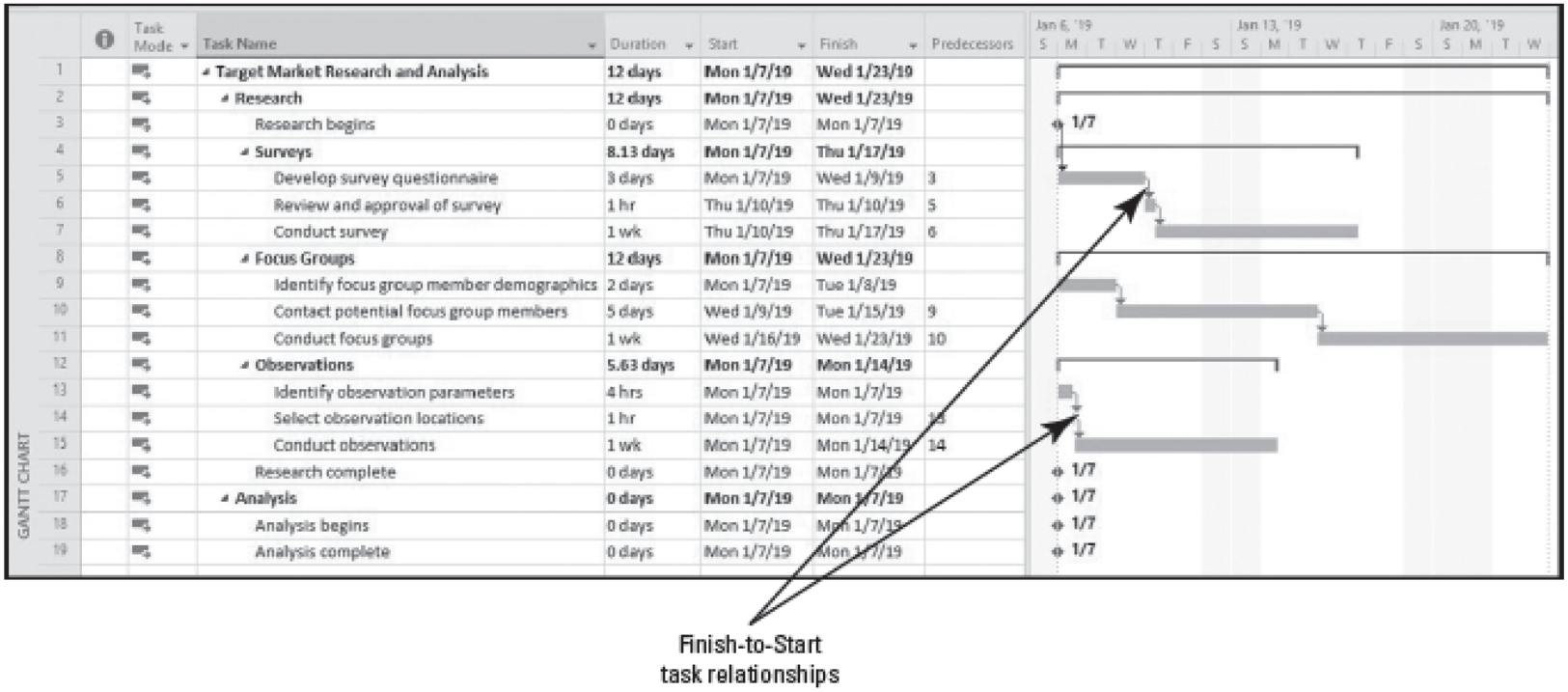
- **External:** Something from outside the project is driving the task and it is outside the project team's control. For example, the walls cannot be painted until the vendor delivers the paint. Dependencies of this type can have any one of the relationships but are generally also classified as mandatory.
- **Internal:** Something from inside the project is driving the task and it is within the project team's control. For example, the project team decides to schedule all phase-end meetings for Friday. Dependencies of this type can have any one of the relationships.

Link Several Tasks at Once

- GET READY. USE the project schedule you created in the previous exercise.

1. Select the names of tasks 9 through 11. Note when you select a single task, the row height indicators extend out into the Gantt chart area. This makes locating the task's Gantt chart bar much easier.
2. On the Task ribbon, in the Schedule group, click the Link the Selected Tasks button. Tasks 9-11 are now linked with a finish-to-start relationship.
3. Select the names of tasks 13-15 and click the Link the Selected Tasks button again.
4. Select the View tab. In the Zoom group, click the Entire Project button. Your screen should look like the next slide.

Link Several Tasks at Once



5. SAVE the project schedule.
   - PAUSE. LEAVE the project schedule open to use in the next exercise.

Link Phases and Milestone Tasks

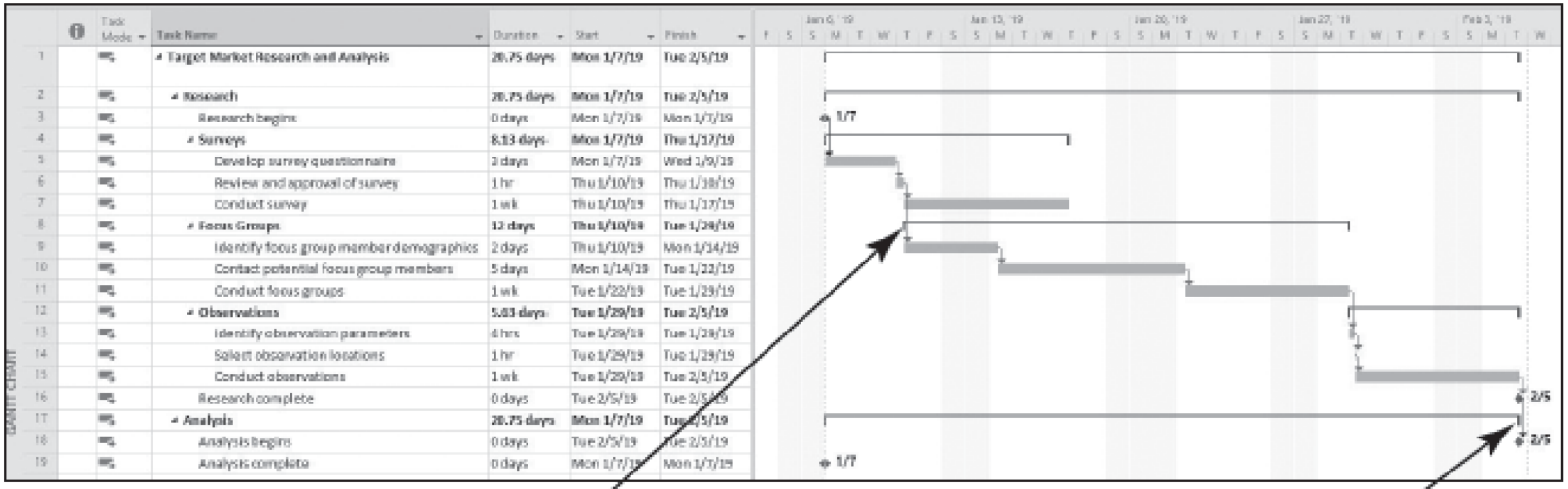
- GET READY. USE the project schedule you created in the previous exercise.
- It has been determined that once the survey is reviewed and approved, the task of identifying focus group members can begin.

1. Select task 6, Review and approval of survey, and, while holding down the CTRL key, select the name of task 9, Identify focus group member demographics.
2. On the Task ribbon, in the Schedule group, click the Link the Selected Tasks button.
3. Select task 11, Conduct focus groups, and, while holding down the CTRL key, select the name of task 13, Identify observation parameters.

Link Phases and Milestone Tasks

4. On the Task ribbon, in the Schedule group, click the Link the Selected Tasks button.
5. Select task 15, Conduct observations, and while holding down the CTRL key, also select the name of task 16, Research complete.
6. On the Task ribbon, in the Schedule group, click the Link the Selected Tasks button.
7. Select the name of task 16, Research complete, and, while holding down the CTRL key, select the name of task 18, Analysis begins.
8. On the Task ribbon, in the Schedule group, click the Link the Selected Tasks button. Tasks 16 and 18 are linked with a finish-to-start relationship. See the next slide.

Link Phases and Milestone Tasks



9. SAVE the project schedule.

- PAUSE. LEAVE the project schedule open to use in the next exercise.

Documenting Tasks

- You should keep the task names in a project schedule simple and specific.
- Additional task information that is important to the project can be recorded in a note.
- You can also provide more information about a task by linking it to another file, an intranet page, or an Internet page through a hyperlink.
- A ***note*** is supplemental text that you can attach to a task, resource, or assignment.
- Attaching a note to a task in a project schedule allows you to document important information while keeping your project schedule succinct.

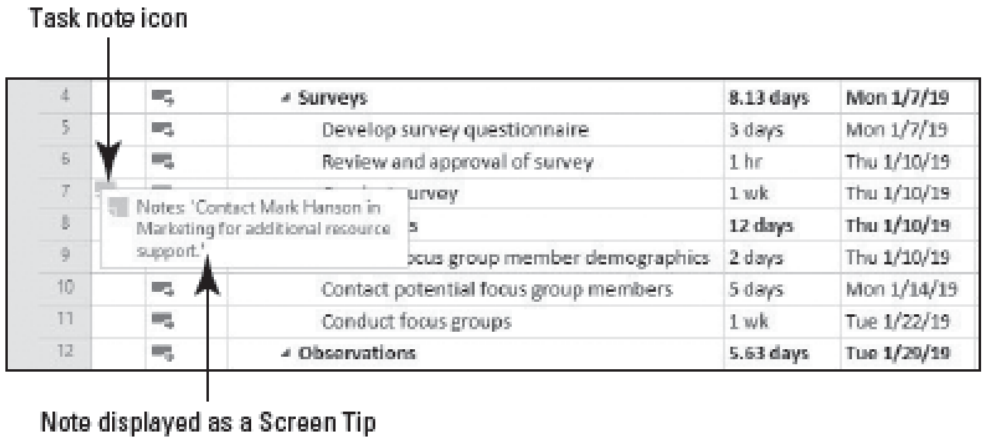
Enter a Task Note

- GET READY. USE the project schedule you created in the previous exercise.

1. Select task 7, Conduct survey, by clicking on the task number (7).
2. On the Task ribbon, in the Properties group, click the Task Notes icon. The Task Information dialog box appears with the Notes tab displayed.
3. In the Notes text box, key Contact Mark Hanson in Marketing for additional resource support. and then click OK. A note icon appears in the Indicators column for task 7. The Indicators column is the first column to the right of the Task ID column.

Enter a Task Note

4. Point to the note icon. The note appears in a ScreenTip. For longer notes, or to see other task information, you can double-click the note icon and the Task Information dialog box will display the full text of the note.



4		Surveys	8.13 days	Mon 1/7/19
5		Develop survey questionnaire	3 days	Mon 1/7/19
6		Review and approval of survey	1 hr	Thu 1/10/19
7		urvey	1 wk	Thu 1/10/19
8		s	12 days	Thu 1/10/19
9		ocus group member demographics	2 days	Thu 1/10/19
10		Contact potential focus group members	5 days	Mon 1/14/19
11		Conduct focus groups	1 wk	Tue 1/22/19
12		Observations	5.63 days	Tue 1/29/19

5. SAVE the project schedule.

- PAUSE. LEAVE the project schedule open for the next exercise.

Enter a Task Note

- As you learned in this exercise, you enter and review task notes on the Notes tab in the Task Information dialog box.
- You can enter a wide variety of additional information to help clarify or enhance your project schedule.
- You can also attach a file; paste text and graphics from other Microsoft programs; insert sound or video files; and add photos (to link faces with resource names), company logos, PowerPoint slides or presentations, and organizational charts. Do not worry about filling this field up—it can hold 64,000 characters.

Reviewing the Project Schedule's Duration

- Microsoft Project calculates both the current project duration and the scheduled finish date based on the task durations and relationships you entered.
- You can view both the project statistics and the Gantt chart for the entire project.
- In the following exercise, you will practice using the Project Information dialog box to view and check the project's duration.
- Knowing the duration of a project as you develop the schedule is helpful when making decisions later during planning, such as selection and assignment of resources, scheduling of particular activities, and so on.

Check the Project's Duration

- GET READY. USE the project schedule you created in the last exercise.

1. Click the Project tab, and then click Project Information in the Properties group.
2. Click the Statistics button. The Project Statistics dialog box appears and displays information such as the project start and finish dates and duration.
3. Note that based on the current information entered, this project is slated for 20.75 days of duration, starting on January 7 and ending on February 5, 2019. Click the Close button to close the Project Statistics dialog box.
4. SAVE and CLOSE the *Tailspin Remote Drone 1* file.

Skill Summary

Skill	Exercise
Navigating in Microsoft Project	
• Starting Microsoft Project 2016 and Opening a Template	Navigate in Microsoft Project Start Microsoft Project
• Using Backstage	Open a template
Creating a Project Schedule	
• Opening a New Blank Project Schedule	Open a new blank project schedule
• Specifying the Project's Start Date	Specify a start date
• Saving the Newly Created Project Schedule	Save the project schedule
Using Project Calendars	
• Defining Project Calendars	Define the project calendar
Entering Tasks and Task Details	
• Entering Tasks	Enter tasks
• Entering Task Durations	Enter task durations
• Understanding Manual Scheduling and Automatic Scheduling	Switch from Manual to Automatic scheduling
• Creating a Milestone	Create a milestone
Using Work Breakdown Structure (WBS)	
• Organizing Tasks into Phases	Create summary tasks
Linking Tasks	
• Linking Two Tasks	Link two tasks
• Linking Several Tasks	Link several tasks at once
• Linking Phases	Link phase and milestone tasks
Documenting Tasks	
• Entering Task Notes	Enter a task note
Reviewing the Project Schedule's Duration	
• Checking Project Duration	Check the project's duration