



Diyala University  
College of Engineering  
Department of Computer Engineering



*Drawing by using Computer*  
**AutoCAD**  
**First Year**

***LECTURE 2.***

By

Lecturer. Abdullah Thair Abdulsattar

Eng. Sabreen abdellmajeed

2020-2021



## ***LECTURE 2***

### **In This lecture**

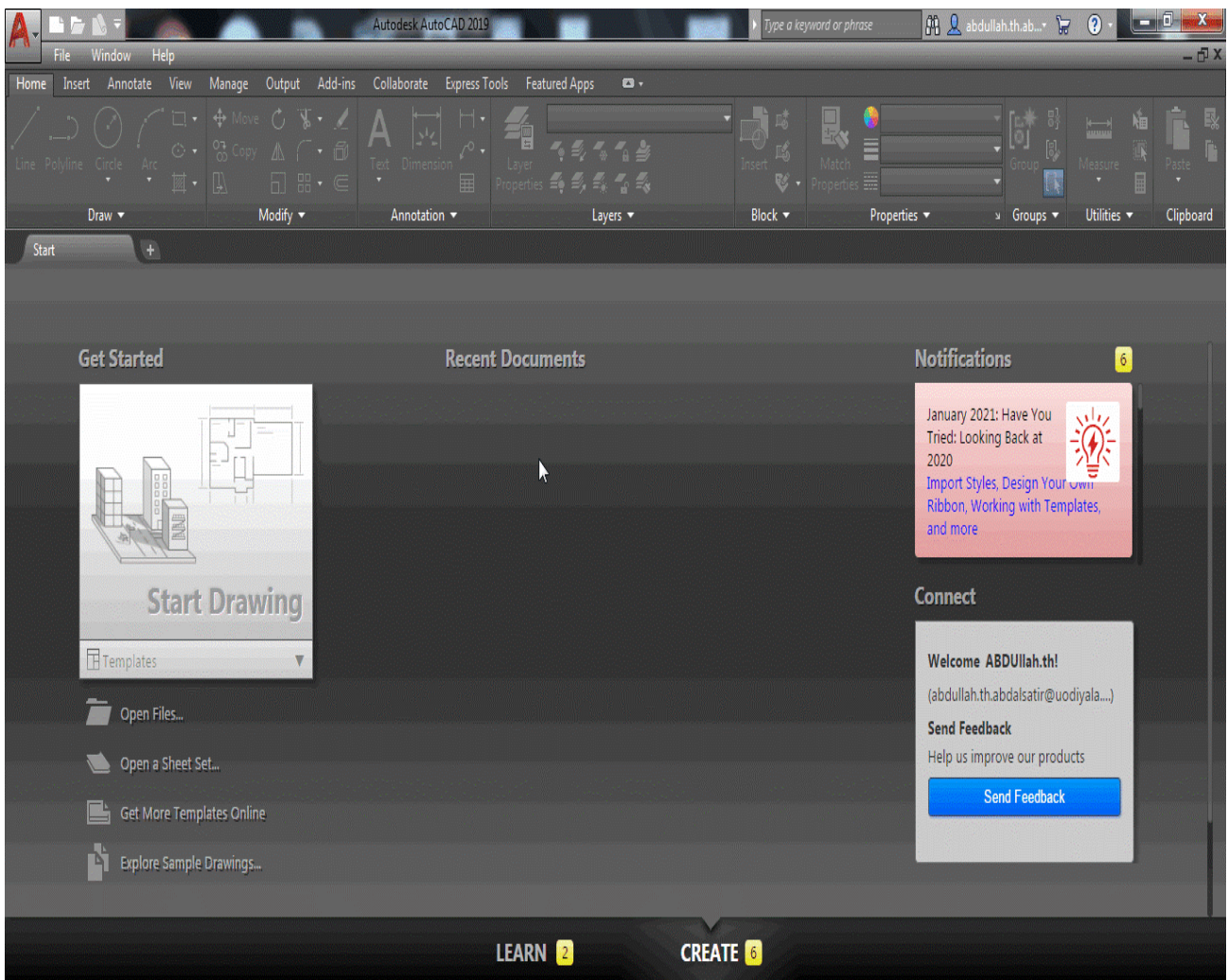
- Starting AutoCAD
- Dealing with the AutoCAD interface
- AutoCAD defaults and drawing units
- Dealing with file-oriented commands
- Undo and Redo commands



## 2.1 STARTING AUTOCAD

AutoCAD was released in 1982 by Autodesk, Inc., which was a small company at that time. It was designed to be used for PCs only. Since then AutoCAD has enjoyed the biggest user base in the world in the CAD business. Users can use AutoCAD for both 2D and 3D drafting and designing. AutoCAD can be used for architectural, structural, mechanical, electrical, environmental, and manufacturing drawings and for road and highway designs. Though the focus these days is BIM (Building Information Modeling),

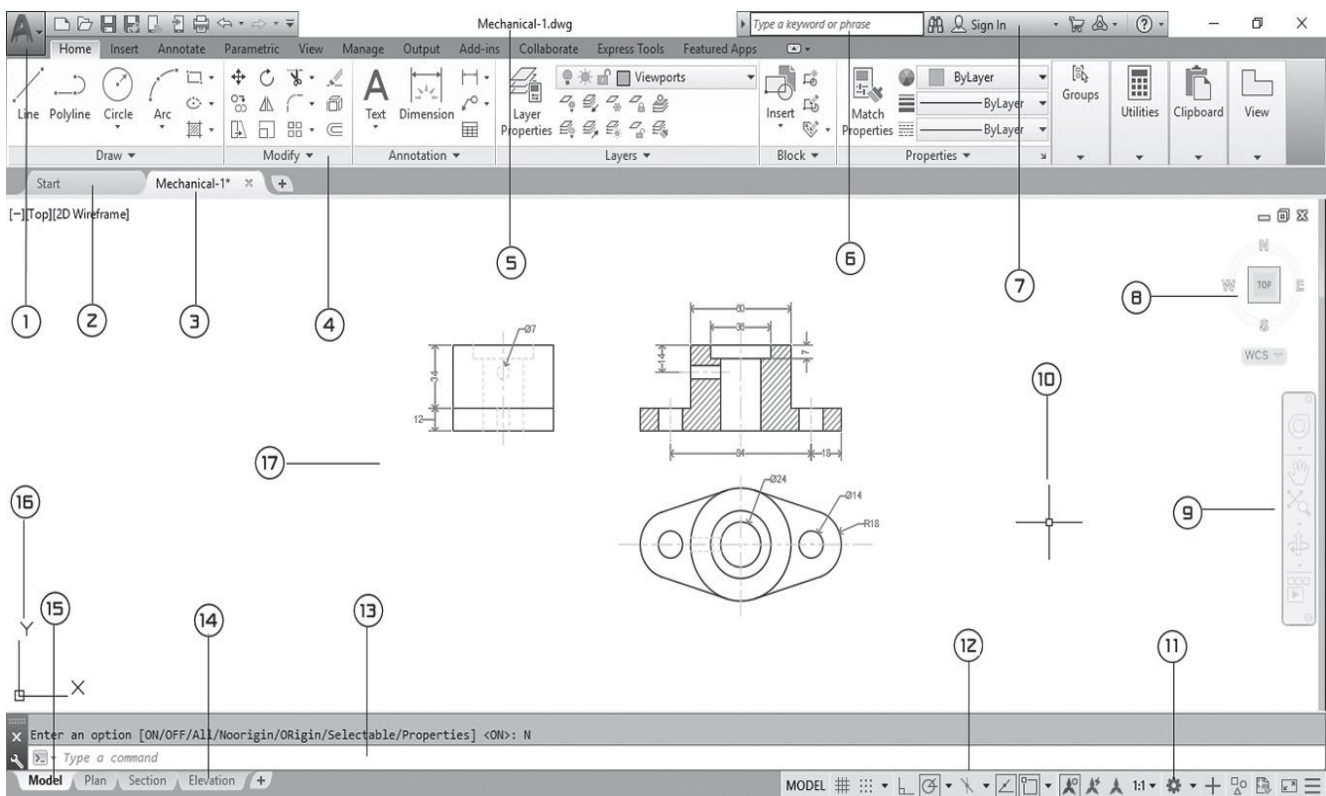
AutoCAD is still the most profitable software for Autodesk, Inc. due to its ease of use and comprehensiveness, which address all user needs. Another version of AutoCAD, called AutoCAD LT, is used for 2D drafting only. To start AutoCAD 2019, double-click the shortcut on your desktop that was created in the installation process. AutoCAD will show the **Welcome** window, which looks like the following:



While you are in this part you can:

- Start a new drawing
- Open an existing file
- Open a Sheet Set
- Download more templates accessed online
- Explore the sample files that come with the Software
- See the recent files you opened
- Check if AutoCAD has a notification for you concerning your software/ hardware
- Connect to Autodesk 360 (Autodesk Cloud)
- Send your feedback to Autodesk

Starting a new file or opening an existing file will show you the interface of AutoCAD 2019, which will look like the following:



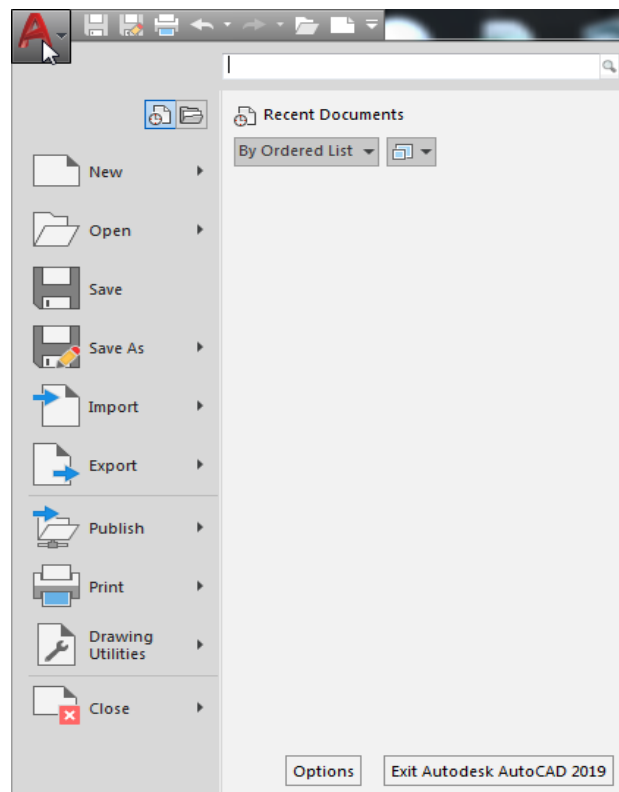
- |                     |                      |                   |
|---------------------|----------------------|-------------------|
| 1. Application Menu | 2. Start tab         | 3. File tab       |
| 4. Ribbon           | 5. Current File Name | 6. Info Center    |
| 7. Autodesk 360     | 8. View Cube         | 9. Navigation Bar |
| 10. Cross Hairs     | 11. Workspace        | 12. Status Bar    |
| 13. Command Window  | 14. Layout tab       | 15. Model tab     |
| 16. UCS Icon        | 17. Graphical Area   |                   |

## 2.2 AUTOCAD 2019 INTERFACE

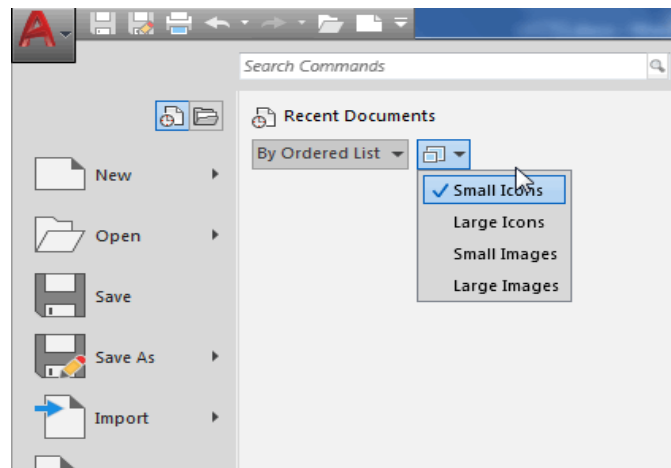
The AutoCAD interface is based on Ribbons and Application Menu. The most important feature of this interface is that the size of the **Graphical Area** will be bigger.

### 2.2.1 Application Menu

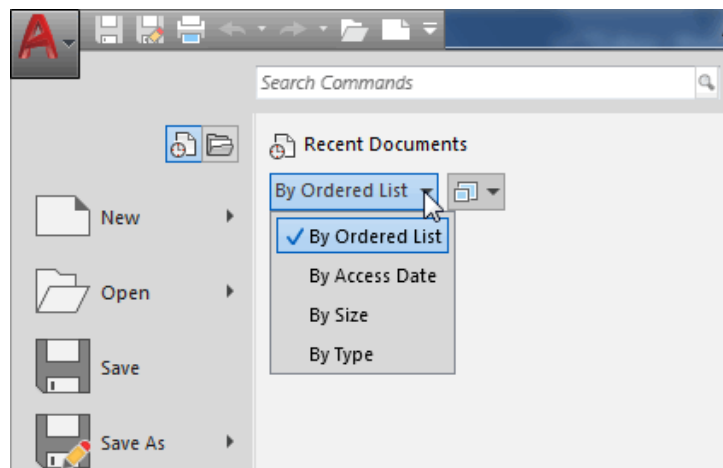
The Application menu contains file-related commands:



Included are commands such as creating a new file, opening an existing file, saving the current file, saving the current file under a new name and in a different folder, exporting the current file to a different file format, printing and publishing the current file, etc. We will discuss almost all of these commands in different places in this book. By default, you will see the recent files. You can choose how to display the recent files in the Application Menu using this control:



Also, you can choose how to sort the recent files using this control:



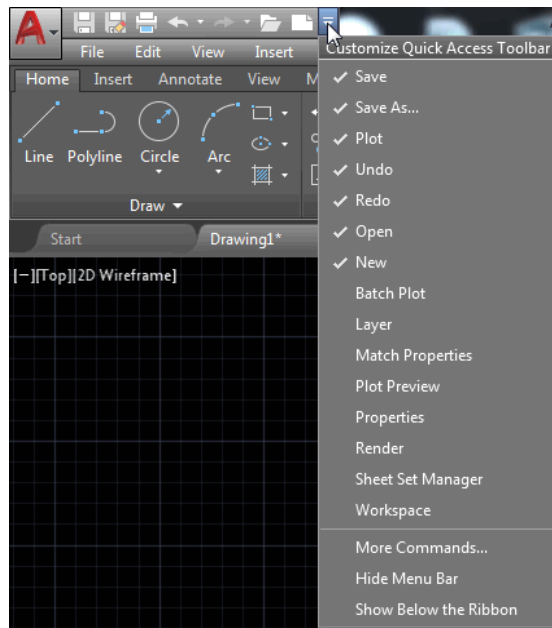
## 2.2.2 Quick Access Toolbar

This toolbar contains all File commands mentioned in the Application Menu along with Workspace and Undo/Redo.





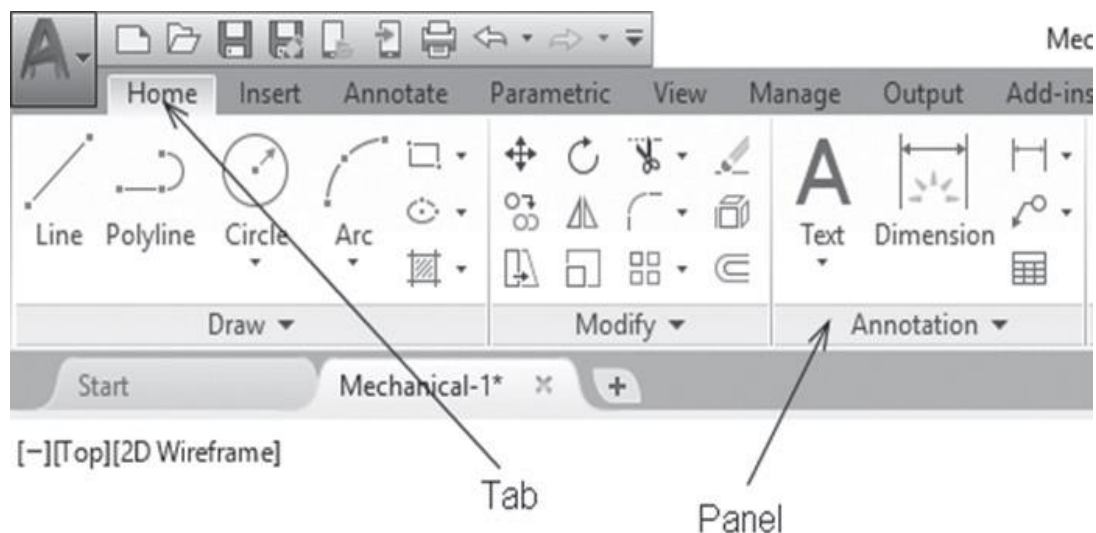
The user can customize this toolbar by clicking the arrow at the end, which will bring up the following:



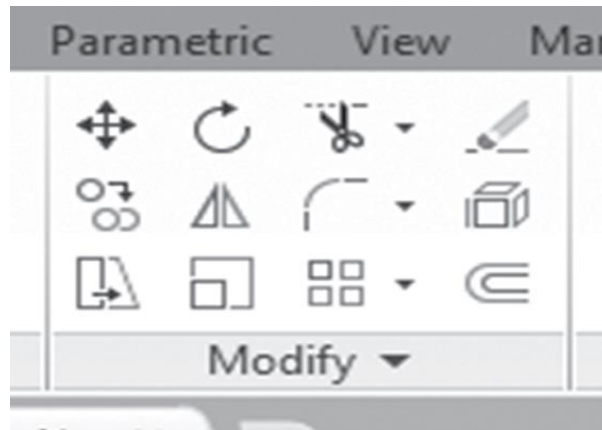
As you can see, the user can add or remove commands; clicking Show Menu Bar may also be useful because the ribbon doesn't include all Auto- CAD commands.

### 2.2.3 Ribbons

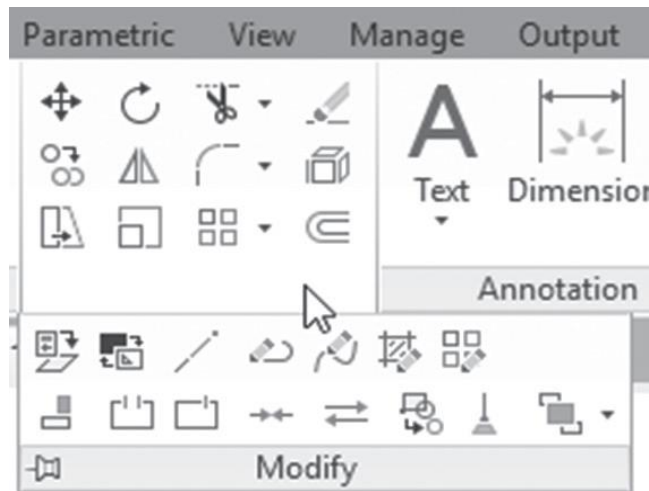
Ribbons consist of two parts: tabs and panels, as shown below:



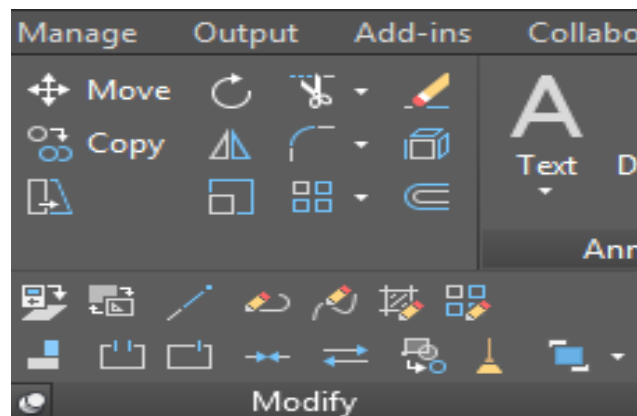
Some panels have more buttons than shown: the following is the **Modify** panel:



Click the small triangle near the title and you will get the following:



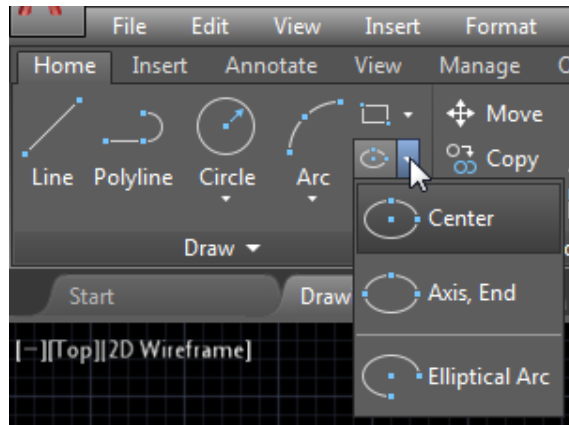
If you move away from the panel, buttons will disappear. To make them visible always, click the push pin. The new view will be as follows:



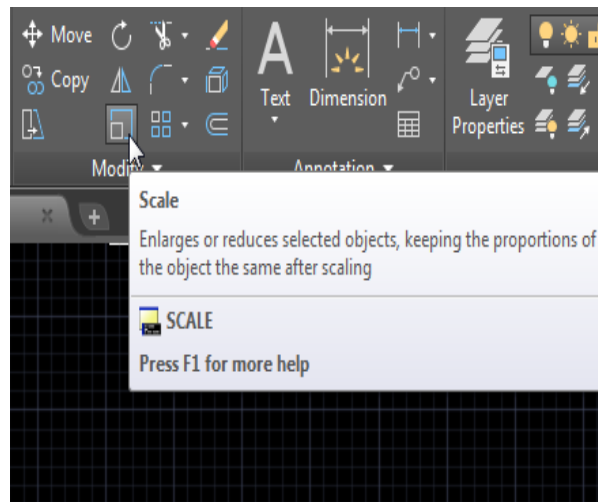




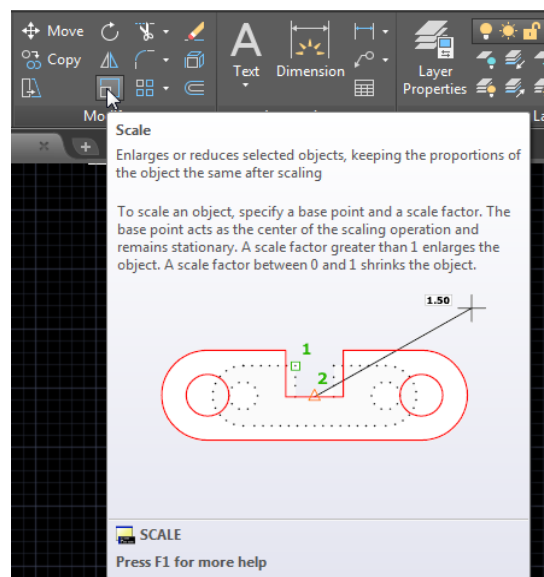
For some commands, there are many options. To make the user's life easier, AutoCAD put all the options in the same button. Check the following illustration:



The ribbons have a very simple help feature. If you hover the mouse over a button, a small help screen comes up.



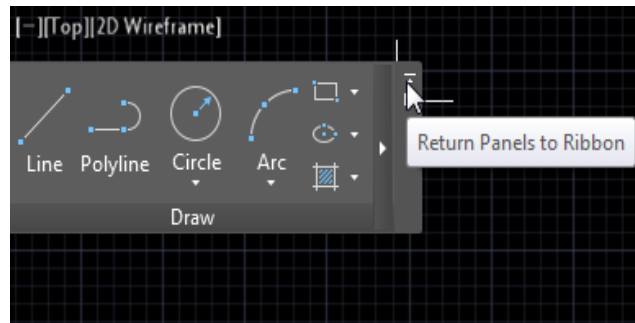
If the user leaves the mouse over the button for a longer period of time, AutoCAD will show more detailed help:



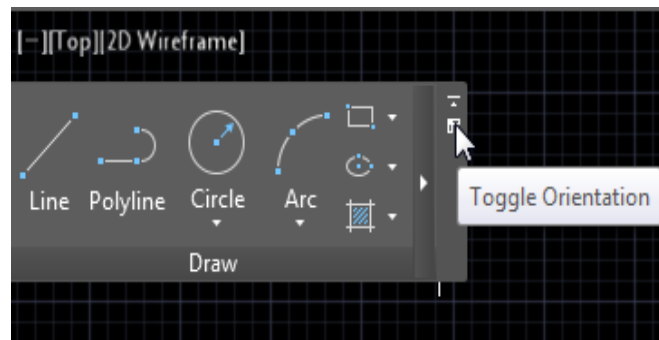


Panels have two states—either *docked* or *floating*. By default, all panels are docked in their respective tab. Drag and drop the panel in the graphical area to make it floating. One important feature of making the panel floating is you will be able to see it while other tabs are active.

You can send the panel back to its respective tab by clicking the small button at the top right side:



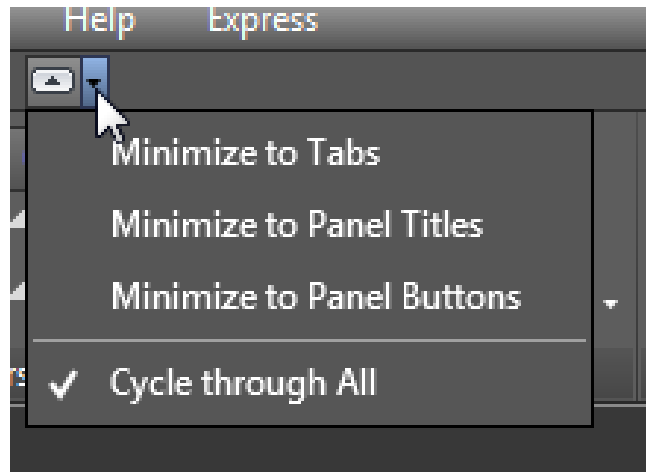
While the panel is floating you can toggle the orientation:



It will either extend to the right:



The button at the end of the tab names allows you to cycle through the different states of the ribbons. The main objective of this new feature is to give you yet more graphical area. Clicking the small button will bring up the following:



#### 2.2.4 Info Center

Info Center is the place to access help topics online and offline, along with some other tools:



For instance, if you type a word or phrase in the field shown below, AutoCAD opens the Autodesk Exchange window and finds all the related topics online and offline. Online means all Autodesk web sites along with some popular blogs.

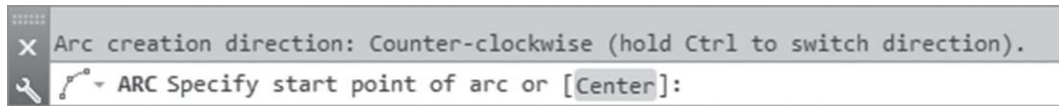
Use Sign In to access Autodesk Online Services. The X at the right will activate the Autodesk Exchange Apps web site.

#### 2.2.5 Command Window

By default, the command window is floating, but you can dock it at the bottom or the top of the screen. Reading the command window all the time will save lots of wasted time trying to



figure out what AutoCAD wants. AutoCAD will show two things at the command window: your commands and AutoCAD prompts asking you to perform a particular action (e.g., specify a point, input an angle, etc.). Check the following illustration:



### 2.2.6 Graphical Area

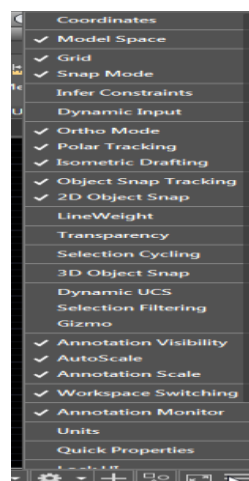
The graphical area is your drafting area. This is where you will draw all your lines, arcs, and circles. It is a precise environment with an XYZ space for 3D and an XY plane for 2D. You can monitor coordinates in the left part of the status bar.

### 2.2.7 Status Bar

The status bar in AutoCAD contains coordinates along with important functions; some of them are for precise drafting in 2D, and some of them are for 3D.



The buttons you will see on the status bar are not necessarily all that are available. To customize this, click on the last button at the right (the one with three horizontal lines) and you will see the following list (showing some of the options):



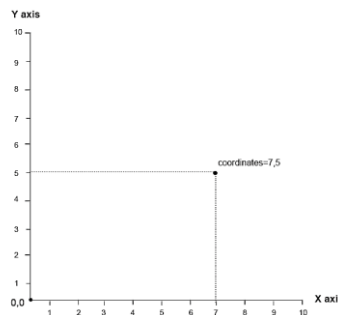
## 2.2.8 Start Tab

When you click the Start tab at any moment, you will get the welcome screen again. Hence you can start a new drawing, open an existing drawing, etc.

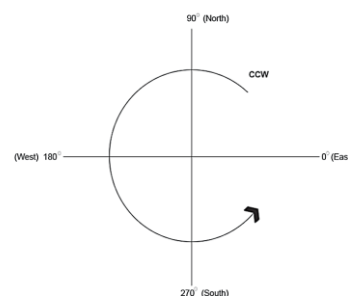
## 2.3 AUTOCAD DEFAULTS

Before using the AutoCAD environment, you should be aware of the following AutoCAD settings:

- AutoCAD saves points as Cartesian coordinates (X,Y) whether metric or imperial numbers were used. This is the first method of precise input in AutoCAD to type the coordinates using the keyboard



- To specify angles in AutoCAD, assume east (to your right) is your 0° and then go counterclockwise. (This is applicable only for the northern hemisphere; we will learn in Chapter 10 how we can change this setting for the southern hemisphere)

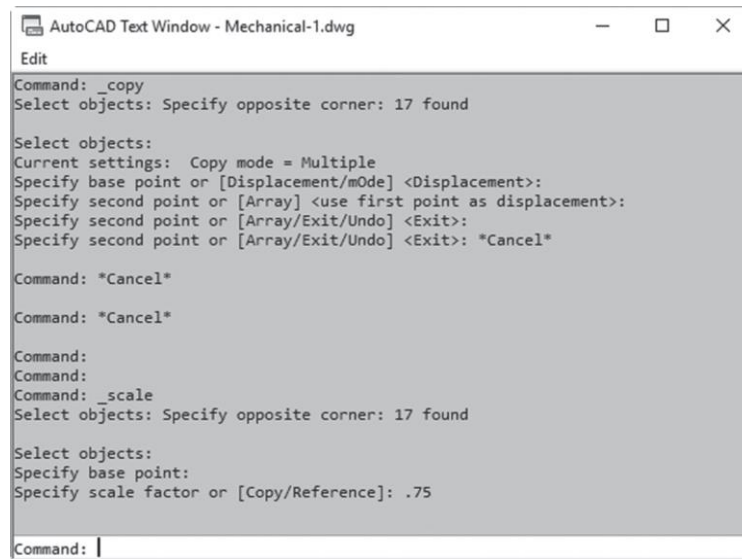


The wheel in the mouse has four zooming functions: Zoom In (move wheel forward), Zoom Out (move wheel backward), Panning (press and hold the wheel), and Zooming Extents (double-click the wheel)

- Pressing [Enter] or [Spacebar] is equal in AutoCAD
- When pressing [Enter] without typing any command, AutoCAD will repeat the last command. If it is the first thing you do in the current session, it will start Help
- Pressing [Esc] will cancel the current command

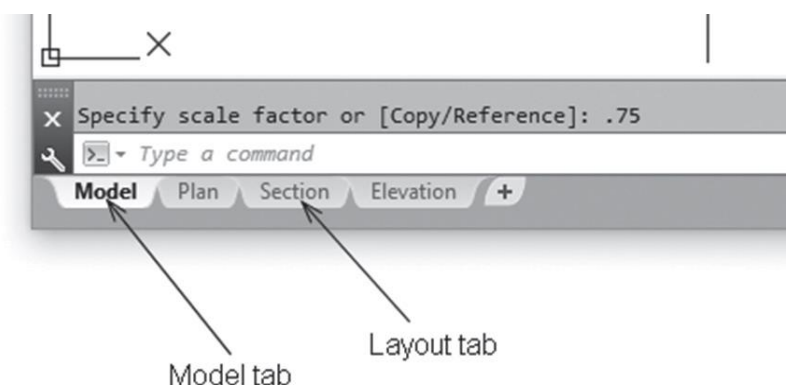


- Pressing [F2] will show the Text Window—check the following:



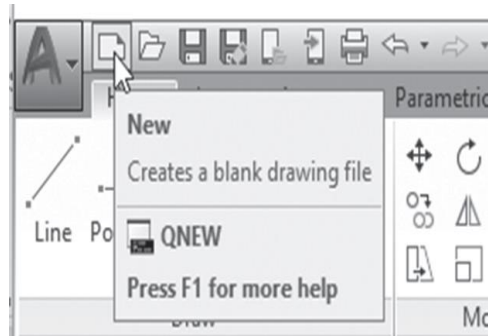
## 2.4 What Is My Drawing Unit?

If you draw a 6-units line in AutoCAD, what does AutoCAD really mean by 6 units? Is it 6 m, 6 ft, or neither? AutoCAD deals with whatever units you choose; if you mean 6 m, so let it be! If you mean 6 ft, AutoCAD will go with this assumption as well. What is important is that you be consistent throughout your file. This is true for the Model Space, where you will do your drafting, but when it comes to printing, you have to recall your assumption and set your drawing scale accordingly. In Chapter 9, we will discuss printing. At the bottom left of the screen you can see the model tab and the layouts, just like the following:



## 2.5 Create A New AutoCAD Drawing

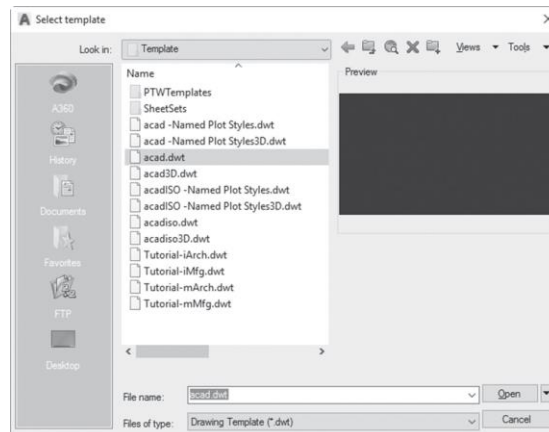
This command will create a new drawing based on a premade template. Use the **Quick Access Toolbar** and click the **New** button:



Or you can click the (+) sign in the File tab:



You will see the following dialog box:



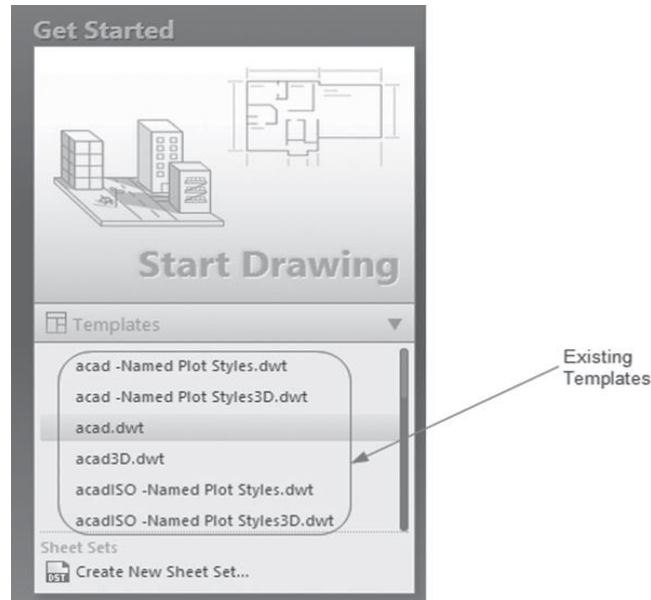
Do the following steps:

- Select the desired template file (AutoCAD template files have the extension \*.dwt). AutoCAD 2019 comes with lots of premade templates that you can use (it is preferable for the companies to create their own template files).
- Once you are done, click the **Open** button
- AutoCAD drawing files have a file extension of \*.dwg
- AutoCAD will start with a new file (which has a temporary name like *Drawing1.dwg*; you should rename it to something meaningful)



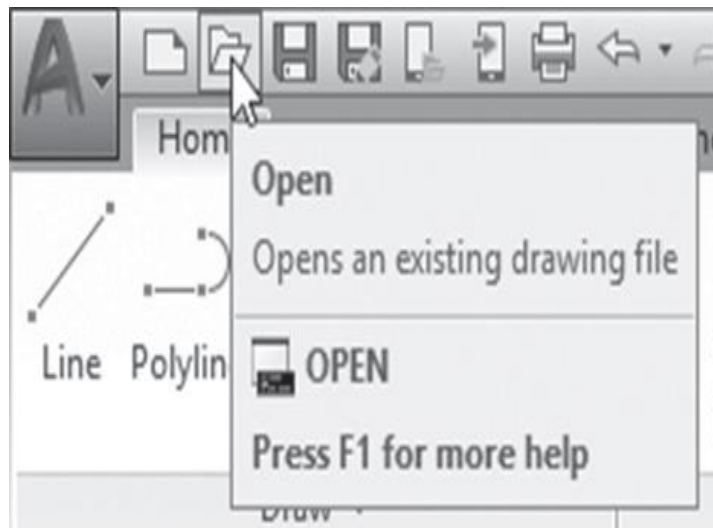
❖ NOTE

In the Start tab under the Start Drawing section, you can use the Template drop-down list to choose from the existing templates to start a new file, just like the following:

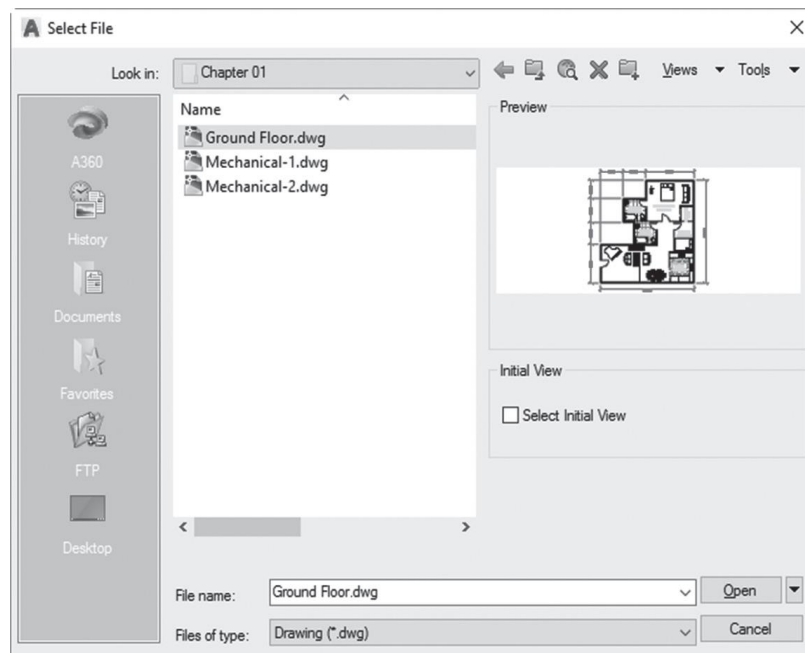


## 2.6 OPEN AN EXISTING AUTOCAD DRAWING

This command will open an existing drawing file for additional modifications. From the **Quick Access Toolbar**, click the **Open** button:



You will see the following dialog box:

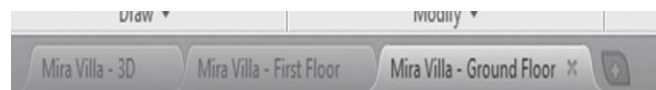


Take the following steps:

- Specify your desired drive and folder
- You can open a single file by selecting its name from the list and clicking the **Open** button, or you can double-click on the file's name. Or, you can open more than one file by selecting the first file name, holding the [Ctrl] key, clicking the other file names in the list (which is a common MS Windows skill), and then clicking the **Open** button.

## 2.2.9 File Tab

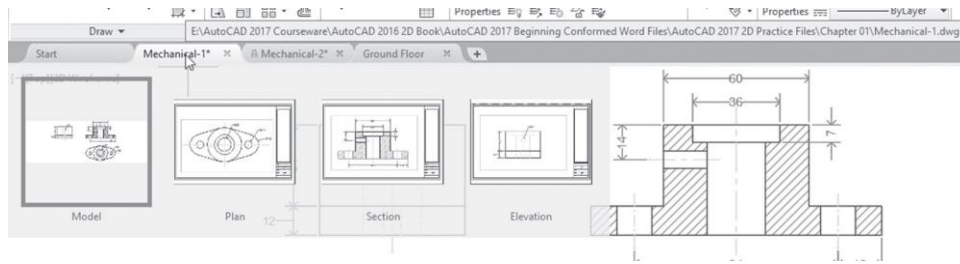
Using the File tab beneath the ribbon, you will see a tab for each opened file, as in the following:



The color used is gray. The current file (tab) will appear in a lighter gray, and the other tabs will appear in a darker gray. If you hover over one of the tabs, two things will take place:

- The path of this file will appear above the tab
- The model space and the layouts of this file will appear beneath

Check the following:



There will be a blue frame around the model space view. Moving your mouse to the right will show the layouts in the graphical area; if you find what you are looking for, click the layout view to move to it.

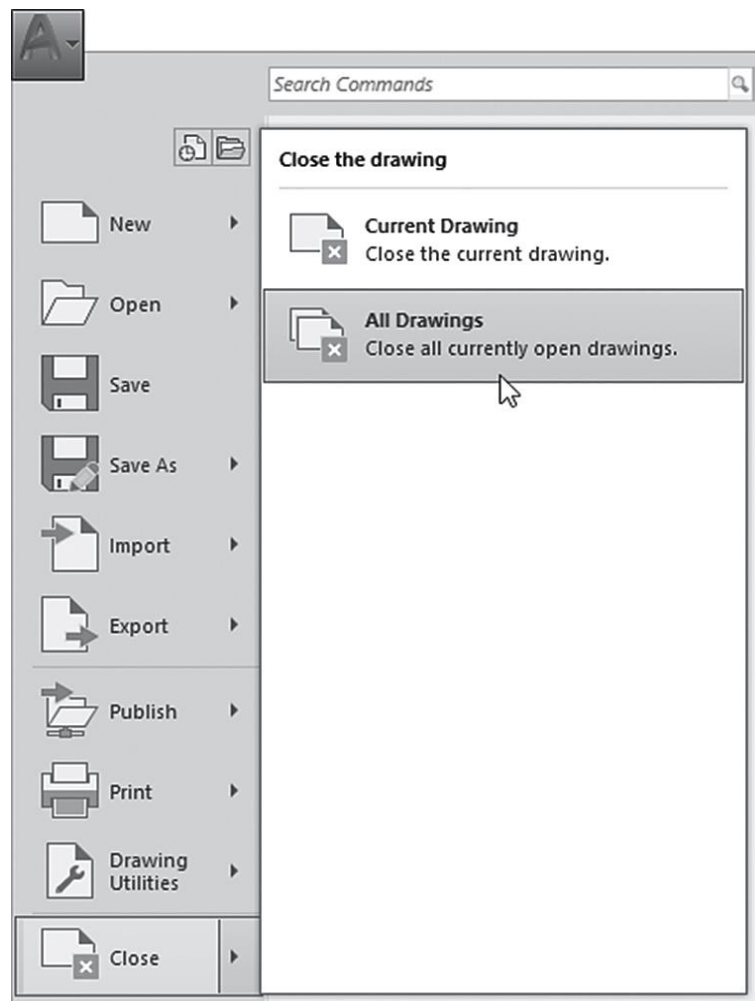
❖ NOTE

- *A star beside the name of the file in the file tab means this file was modified and you need to save changes*
- *Click (x) beside the name to close the file, hence closing the tab*
- *The user can customize the File tabs and the Layout tabs by switching them off; all you have to do is to go to the **View** tab and locate the **Interface** panel; the two buttons will be blue if the tabs are on, but if you want to turn them off, click once on each button*

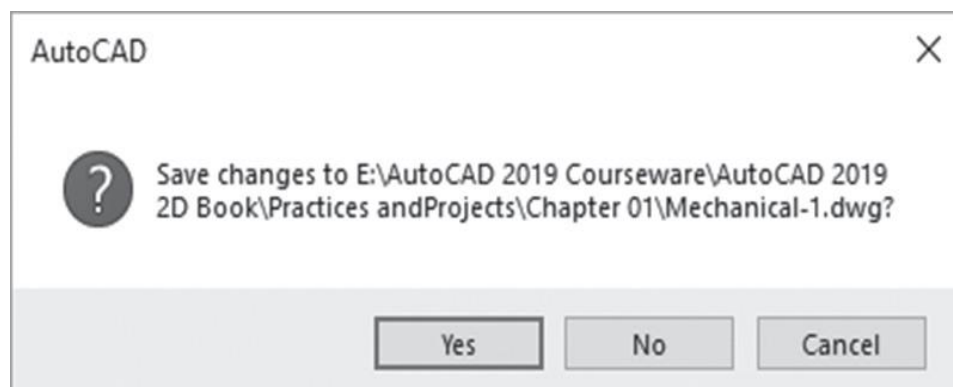


## 2.7 CLOSING DRAWING FILES

This command will close the current opened files or all opened files, depending on the command you choose. Use the **Application Menu**, move your mouse to the Close button, then select either **Current Drawing** to close the current file, or **All Drawings** to close all the opened files in single command



If any of the open files were modified, AutoCAD will ask if you want to save or close without saving, as in the following dialog box:

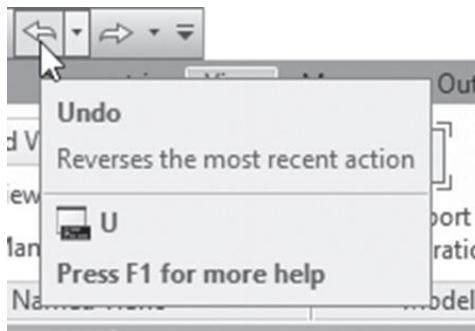


## 2.8 UNDO AND REDO COMMANDS

Undo and Redo are to help you to correct mistakes. They can be used in the current session only.

### 2.8.1 Undo Command

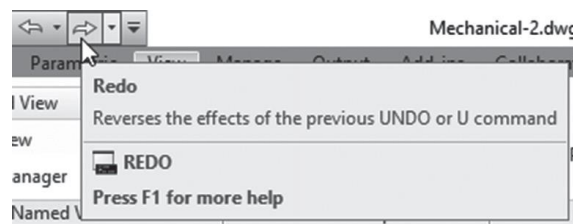
This command will undo the effects of the last command. You can reach this command by going to the **Quick Access toolbar** and clicking the **Undo** button. If you want to undo several commands, click the small arrow at the right. You will see a list of the commands; select the group and undo them:



Also, you can type **u** at the command window (don't type **undo**, because it has a different meaning), or press **Ctrl + Z** at the keyboard.

### 2.8.2 Redo Command

This command will undo the undo command. You can reach this command by going to the **Quick Access toolbar** and clicking the **Redo** button. If you want to redo several commands, click the small arrow at the right. You will see a list of the commands; select the group and redo them:



Also, you can type **redo** at the command window or press **Ctrl + Y**.



## **PRACTICE LECTURE 2**

**1-Start AutoCAD 2019**

**2-Open the following files**

- a) Ground Floor
- b) Mechanical-1
- c) Mechanical-2

**3-Using the File tab, check the three files and their layouts**

**4-Use the different zoom techniques with the mouse wheel**

**5-Using the Application menu, close all files without saving**