

GE-161L

Introduction to Information and Communication Technologies

Laboratory 08

Introduction to Microsoft ® PowerPoint & Scratch Programming

Version: 1.0.0

Release Date: 26-02-2022

Department of Information Technology

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Lahore, Pakistan

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Learning Objectives:

- Knowledge about **Microsoft ® PowerPoint** essentials and presentation basics
- Working with Text and Designing a Presentation
- Adding Tables to Slides and Using Charts in a Presentation
- Creating SmartArt Graphics
- Creating Graphics and Adding to a Presentation
- Using Animation and Multimedia
- Securing and Sharing a Presentation
- Learn **Scratch Programing**
- Develop a Game by using Scratch

Required Resources:

- Working Computer / Laptop
- Microsoft ® PowerPoint
- Internet

General Instructions:

- This is an individual lab, you are **NOT** allowed to discuss your solution with your colleagues, not even allowed to ask how is he/she doing, this may result into negative marking. You can **ONLY** discuss with your TAs or with course instructor.
- Your TAs will be available in the lab for your help. Alternatively, you can send your queries via email.

Lab Instructors:	
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Background and Overview:

What is Microsoft ® PowerPoint?

Microsoft ® PowerPoint is a powerful presentation software developed by Microsoft. It is a standard component of the company's Microsoft Office suite software, and is bundled together with Word, Excel and other Office productivity tools.

The program uses slides to convey information rich in multimedia and is used to create complex business presentations, simple educational outlines and much more.

Microsoft ® PowerPoint Interface:

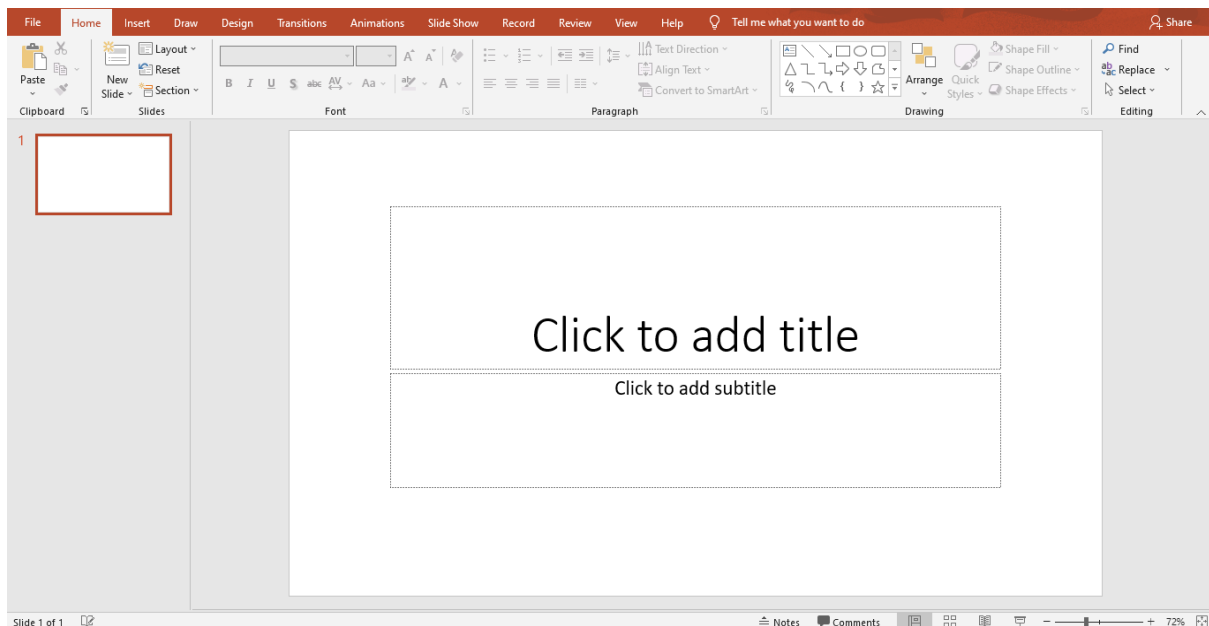


Fig. 1 (Microsoft ® PowerPoint Interface)

Explore Windows in Microsoft ® PowerPoint:

Now let us discuss the features or components of the Microsoft ® PowerPoint. Using these features, you can perform different types of operations on your documents, like you can create, delete, style, modify, or view the content of your document.

1. File Tab

It contains options related to the file, like New (used to create a new Presentation), Open (used to open an existing Presentations), Save (used to save Presentations), Save As (used to save Presentations), History, Print, Share, Export, Info, etc.

2. Home:

It is the default tab of Microsoft ® PowerPoint and it is generally divided into five groups, i.e., Clipboard, Slides, Font, Paragraph and Drawing. It allows you to add and select the slides, font, emphasis, bullets, position of your text in slides. It also contains options like cut, copy, and paste.

3. Insert:

It is the third tab present on the menu bar or ribbon. It contains various items that you may want to insert into a Presentation. It includes options like tables, images, illustration, comments, text, symbols and media to the Presentation.

4. Draw:

It is the fourth tab present in the menu bar or ribbon. It is used for freehand drawing in Microsoft ® PowerPoint.

5. Design:

It is the fifth tab present in the menu bar or ribbon. The design tab contains slide designs that you can select, such as slide with centered titles, offset headings, left-justified text, slide borders, watermarks, slide color, etc.

6. Layout

It is the sixth tab present on the menu bar or ribbon. It holds all the options that allow you to arrange your Microsoft ® Word document pages just the way you want them. It includes options like set margins, display line numbers, set paragraph indentation, and lines apply themes, control page orientation and size, line breaks, etc.

7. Transitions:

It is the seventh tab present in the menu bar or ribbon. The Transitions tab lets you add transition to a Presentation. This tab gives you access to preview the slide transitions for the active slide, explore transition gallery and to add times to transitions.

8. Animations:

It is the eighth tab present in the menu bar or ribbon. Animation tab lets you add animations to a Presentation. This tab gives you access to preview the slide animations for the active slide, explore animation gallery and to add times to animations.

9. Slide Show:

It is the ninth tab present in the menu bar or ribbon. Slide Show tab lets you add slide show to a Presentation. This tab gives you access to start, set up and monitor slide show.

10. Records:

It is the tenth tab present in the menu bar or ribbon. Records tab lets you record a Presentation. You can also play and save recorded media.

11. Review

It is the eleventh tab present in the menu bar or ribbon. The review tab contains, commenting, language, translation, spell check, word count tools. It is good for quickly locating and editing comments.

10. View

It is the ninth tab present in the menu bar or ribbon. View tab allows you to switch between single slide or double slide and also allows you to control the layout tools. It includes print layout, outline, web layout, task pane, toolbars, ruler, header and footer, footnotes, full-screen view, zoom, etc.

Activities:

Pre-Lab Activities:

Explore Microsoft ® PowerPoint:

Open Microsoft ® PowerPoint

Step 1 – Type “powerpoint” in the search bar.

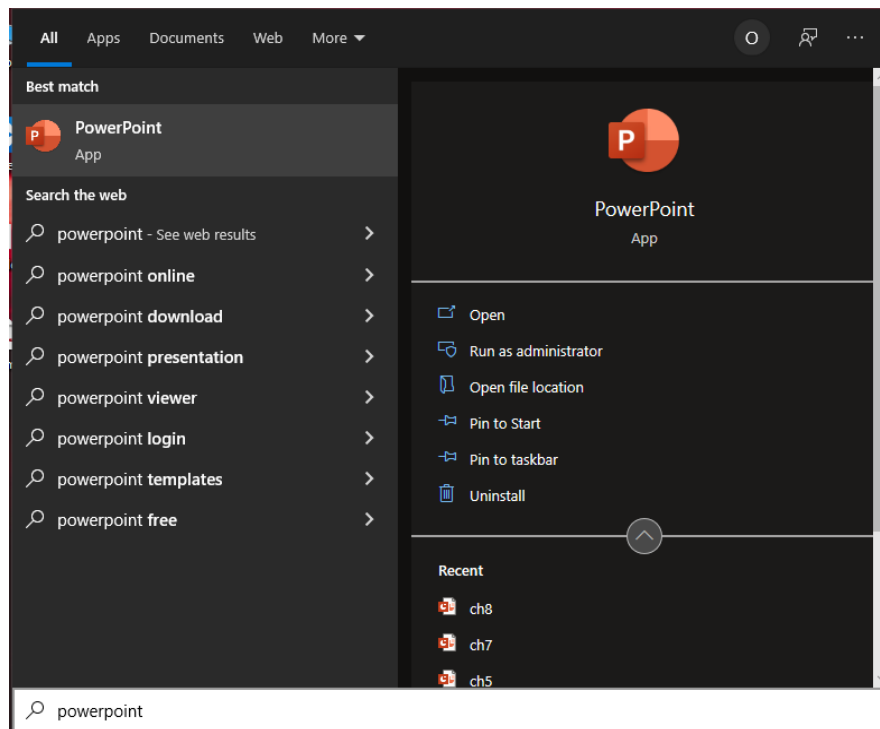


Fig. 2 (Searching Microsoft ® PowerPoint)

Step 2 – Select “PowerPoint” application. The following screen will appear.

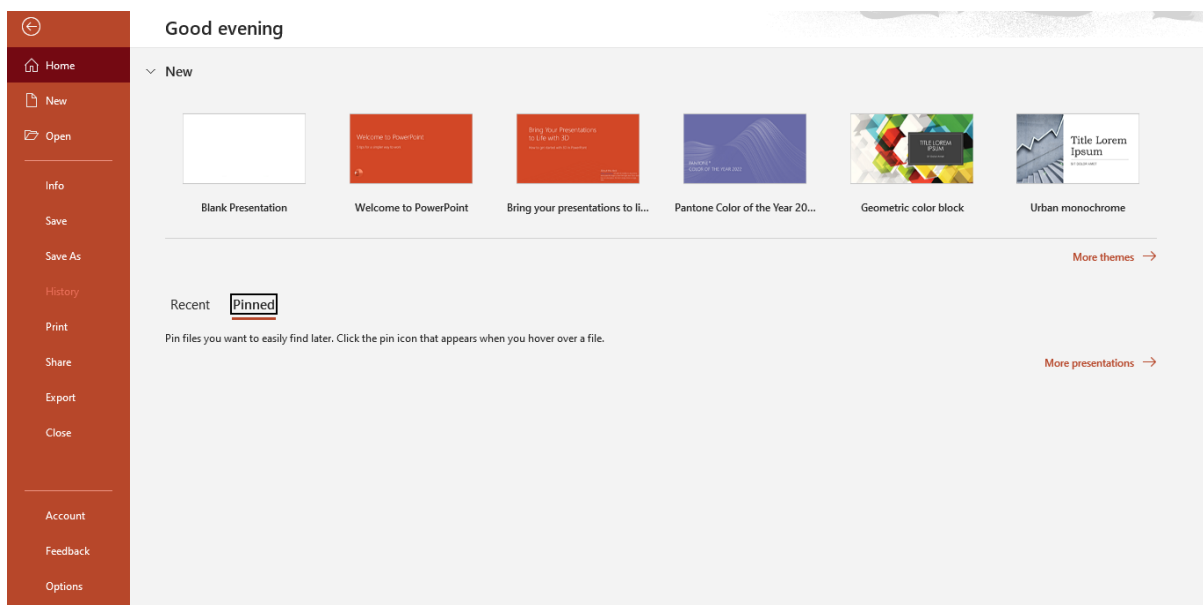


Fig. 3 (Start Page of Microsoft ® PowerPoint)

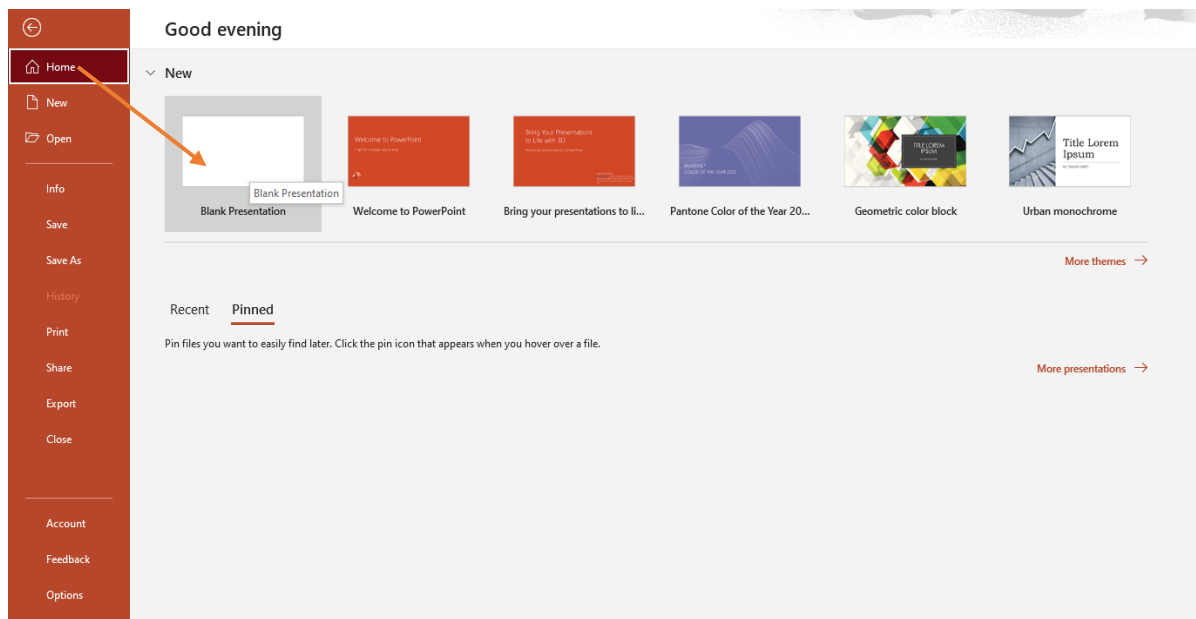
Step 3 – Select a blank Presentation.

Fig. 4 (Open Blank Presentation)

Then you will get a window like in the image below where you can write your content Presentation and perform different types of operations like add, drop and style slides, can perform operations on content of slides. You can also add images, tables, charts to your Presentation.

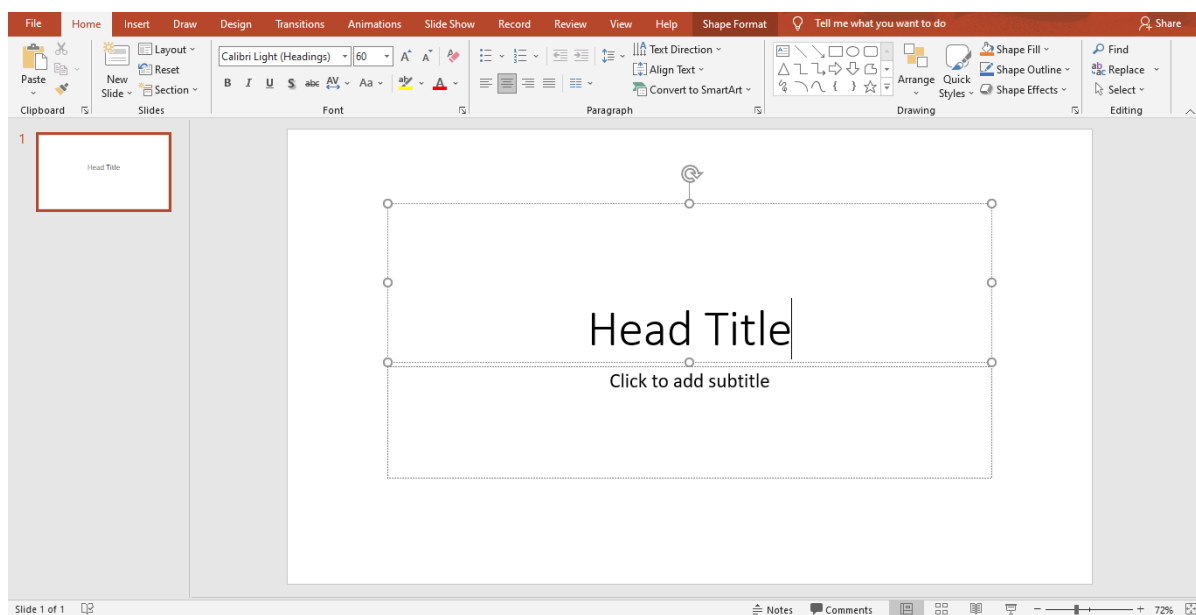


Fig. 5 (Blank Presentation)

Explore top navigation bar:

On the top navigation bar has ten tabs. Following are tabs in list.

- File Tab
- Home
- Insert
- Draw

- Design
- Layout
- Transitions
- Animations
- Slide Show
- Records
- Review
- View

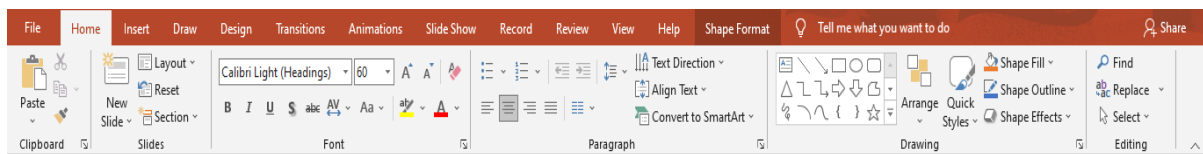


Fig. 6 (Ribbon in Microsoft ® PowerPoint)

Each tab has own ribbon. The bar below the tabs is Ribbon. Each tab contains several **groups**, or collections of related PowerPoint commands, it is called Ribbon. For example, in the “**Home**” tab, the groups are labeled Clipboard, Slides, Font, Paragraph, Styles, and Editing. Each group contains one or more command icons, some of which have a drop-down menu or a list of options associated with them; you click the drop-down arrow to display the menu.

Let’s make “**Hello World**” slide to get start with Microsoft ® PowerPoint.

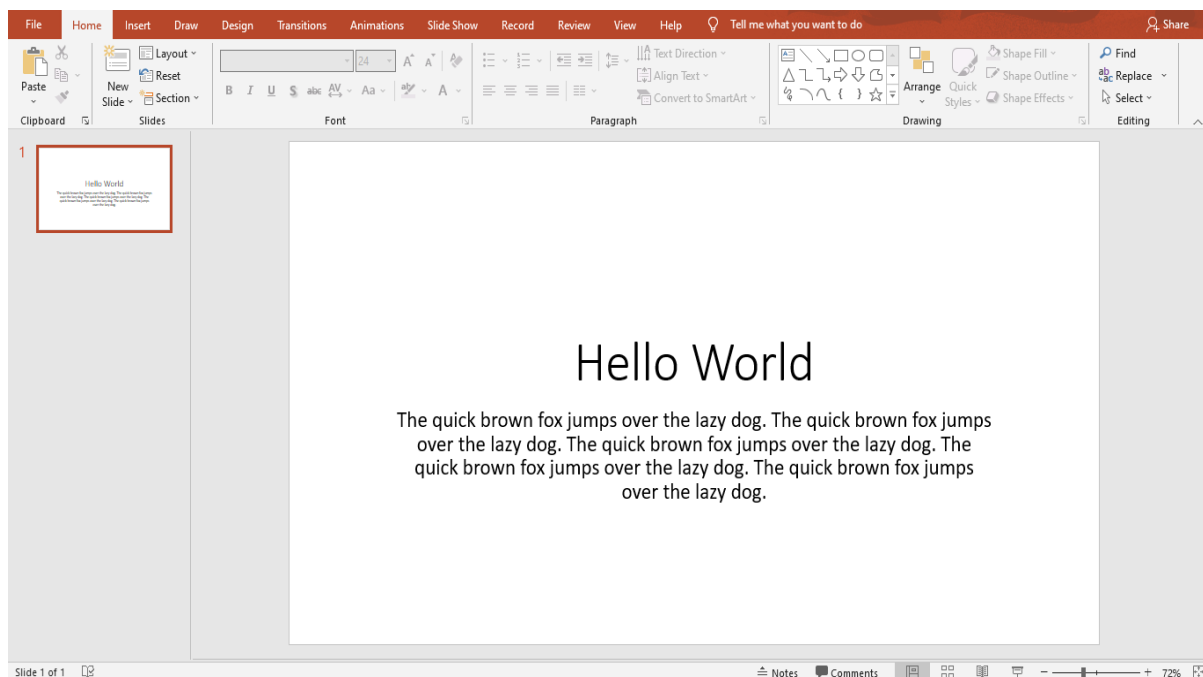


Fig. 7 (Hello World Presentation)

Add New Slides in Presentation:

Let’s learn how to add new slides in an existing presentation. Here are the steps that allow you to insert a new slide in the Presentation.

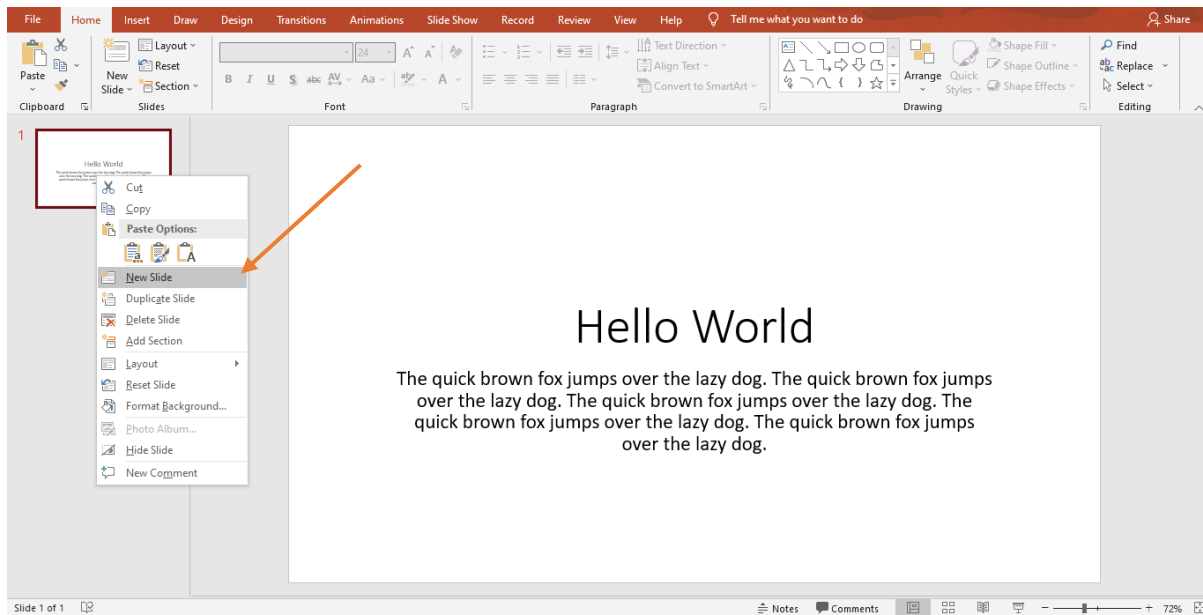


Fig. 8 (Hello World Slide)

Step 1 – Right Click on the icon view of the slide, and click the **New Slide**.

Step 2 – The new slide is inserted. Right Click on the icon view of the newly inserted slide. You can now change the layout of this slide to suit your design requirements.

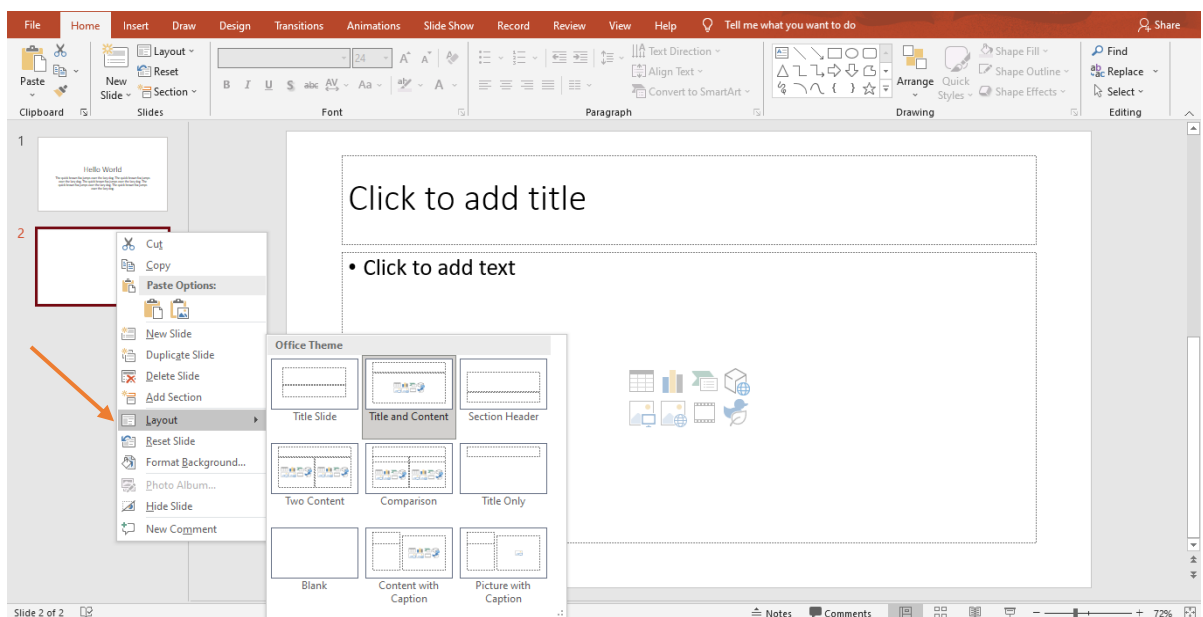


Fig. 9 (Slide Layouts)

You can follow the same steps to insert a new slide in between existing slides or at the end on the slide list.

When we insert a new slide, it inherits the layout of its previous slide with one exception. If you are inserting a new slide after the first slide (**Title slide**), the subsequent slide will have the **“Title and Content”** layout.

You will also notice that if you right-click in the first step without selecting any slide the menu options you get are different, although you can insert a new slide from this menu too.

Deleting Existing Slide from Presentation:

There are times while building a slide deck, you may need to delete some slides. This can be done easily from PowerPoint. You can delete the slides from the Normal view as well as the Slide Sorter view. In each view, you can delete the slides in two ways.

Deleting from Normal View:

Step 1 – Go to the Normal view.

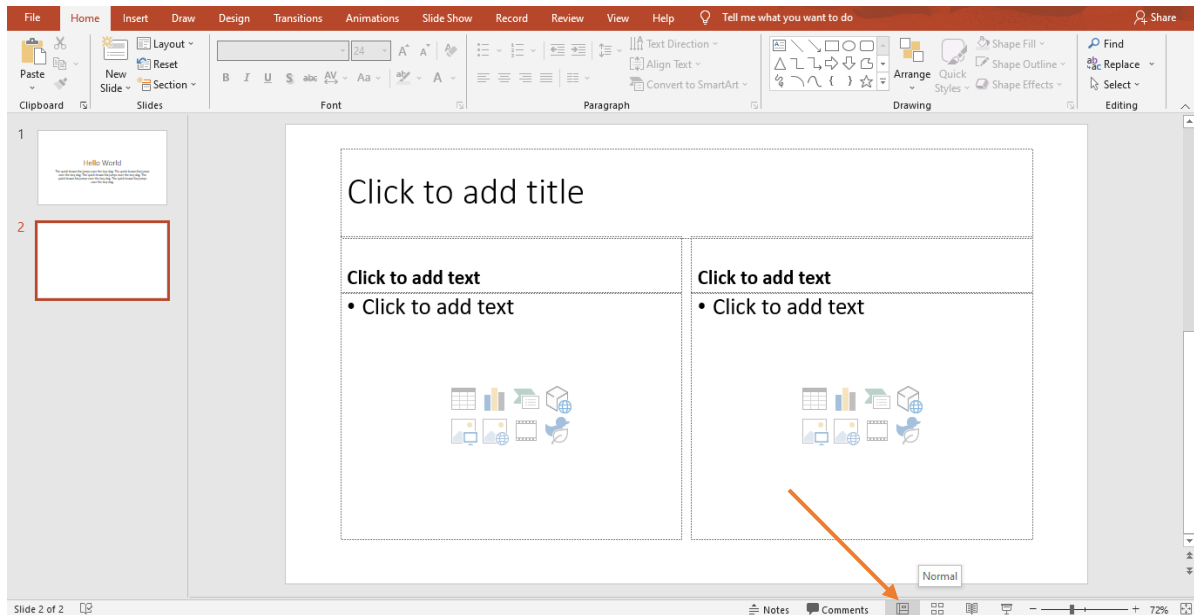


Fig. 10 (Slide Views)

Step 2 – Right-click on the slide to be deleted and select the “Delete Slide” option.

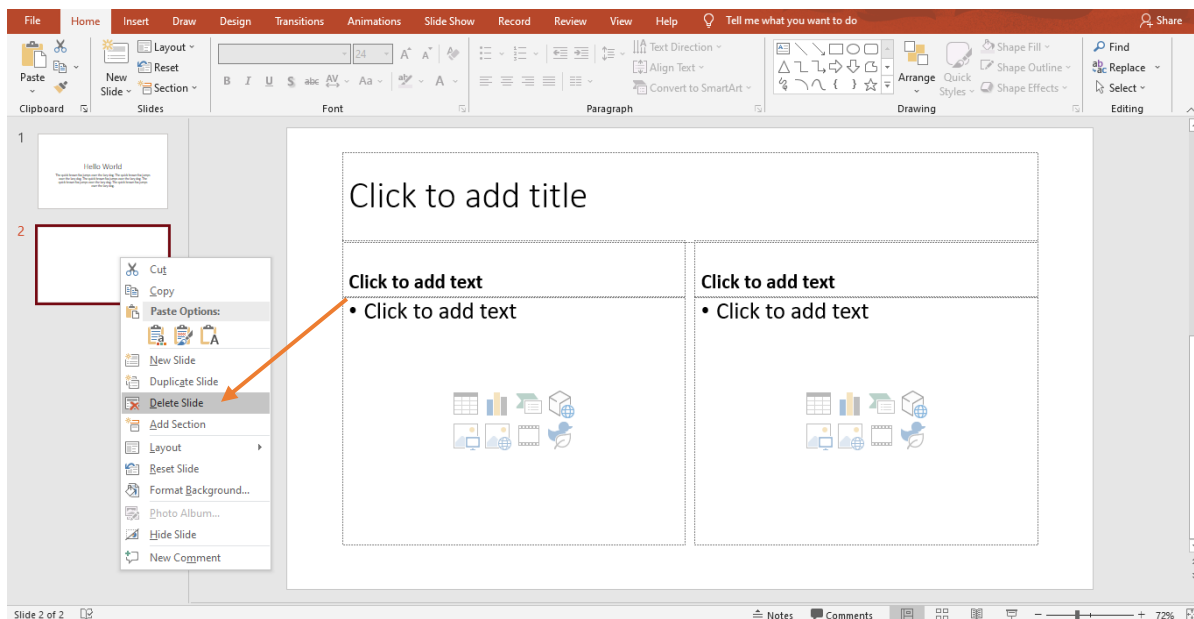


Fig. 11 (Delete a Slide)

Alternately, you can select the slide and press the “Delete” button on your key board.

Deleting from Slide Sorter View:

Let us now understand how to delete slides from the “Slide Sorter View”.

Step 1 – Go to the Slide Sorter view.

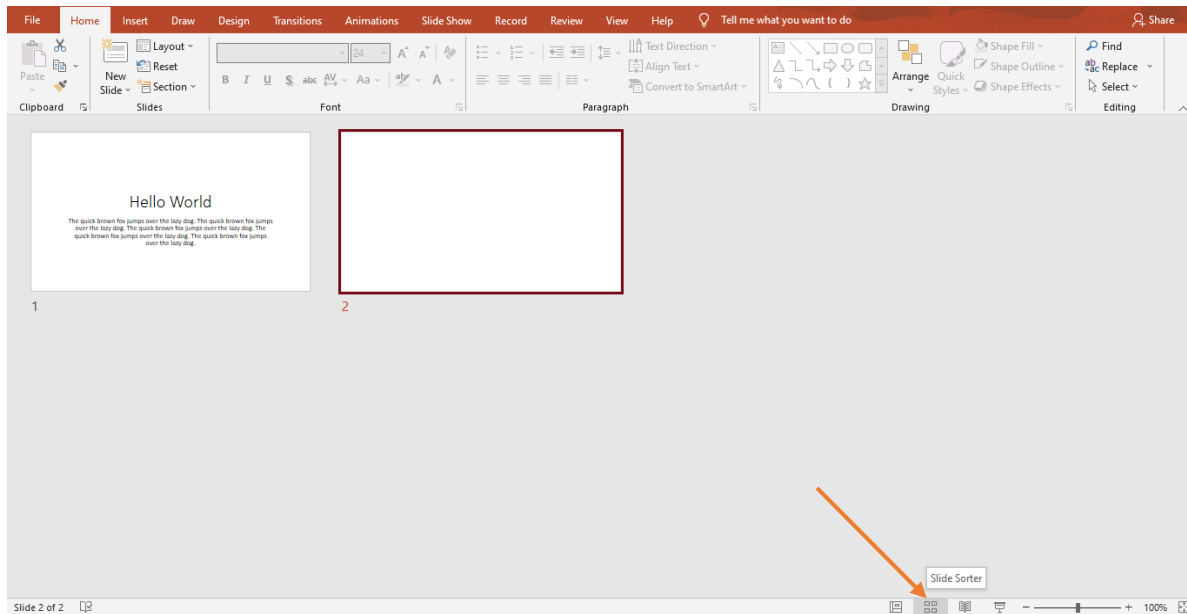


Fig. 12 (Slide Sorter)

Step 2 – Right-click on the slide to be deleted and select the “Delete Slide” option.

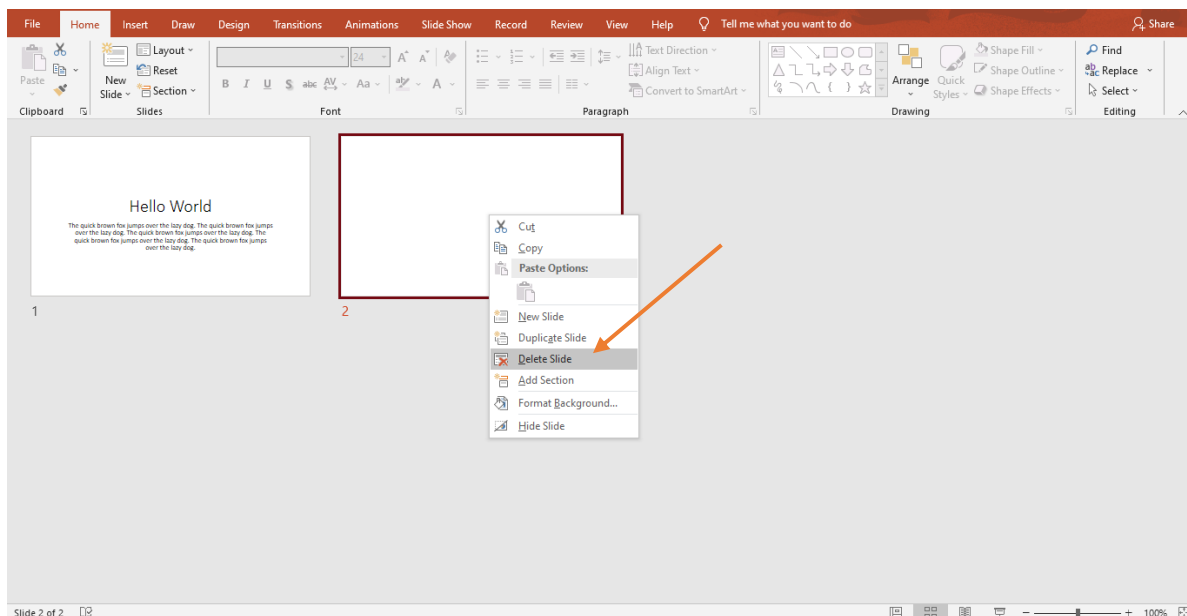


Fig. 13 (Delete a Slide)

Rearranging Slides in Powerpoint:

Rearranging slides is important when it comes to organizing the overall presentation flow. While it is vital that you get the right content in every slide, it is equally important that you are able to present them

in a format that makes it easier for the audience to understand the content too; most times this will require rearranging the slides.

Step 1 – Select the slide to be moved.

Step 2 – Left click on the slide and drag it to the position in the sequence where you want to place it. PowerPoint will indicate the insert position with a line in-between existing slide.

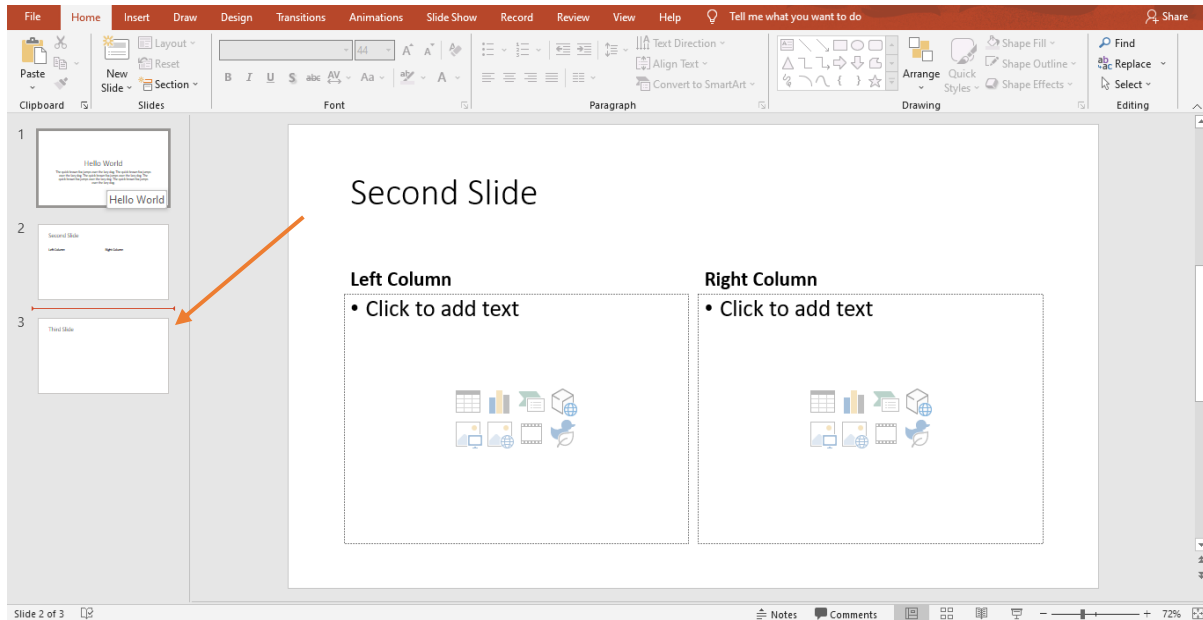


Fig. 14 (Arrange Slides)

Step 3 – When you get to the right position release the left click button to insert the slide. Alternately you can also cut the selected slide and paste it back in the sequence as shown below.

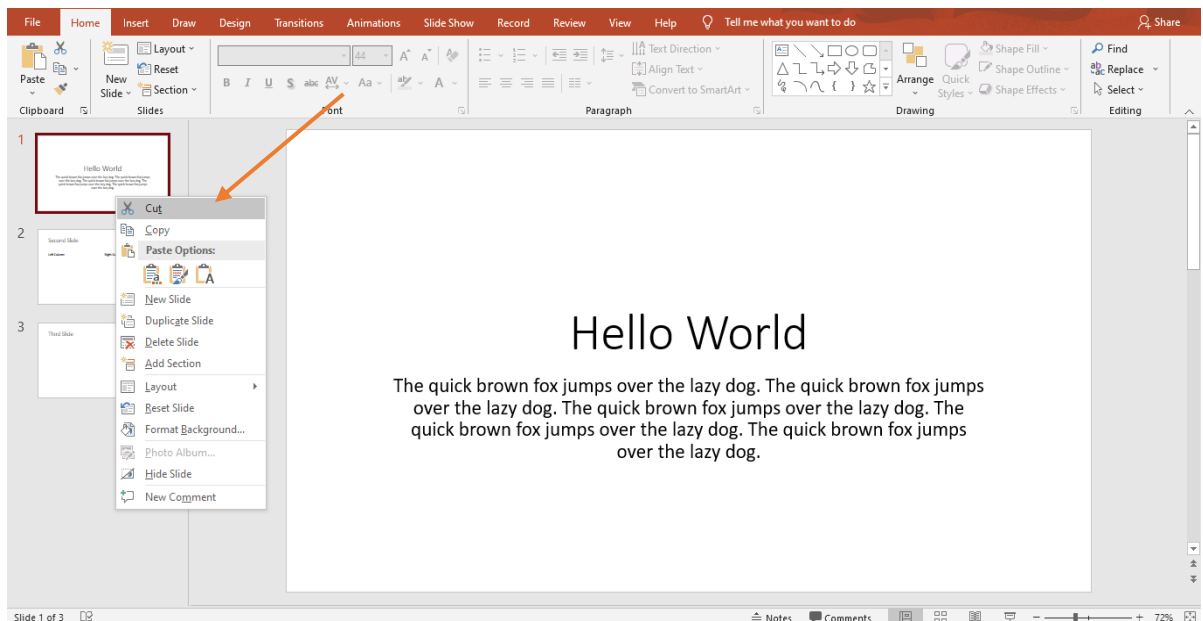


Fig. 15 (Cut & Paste a Slide)

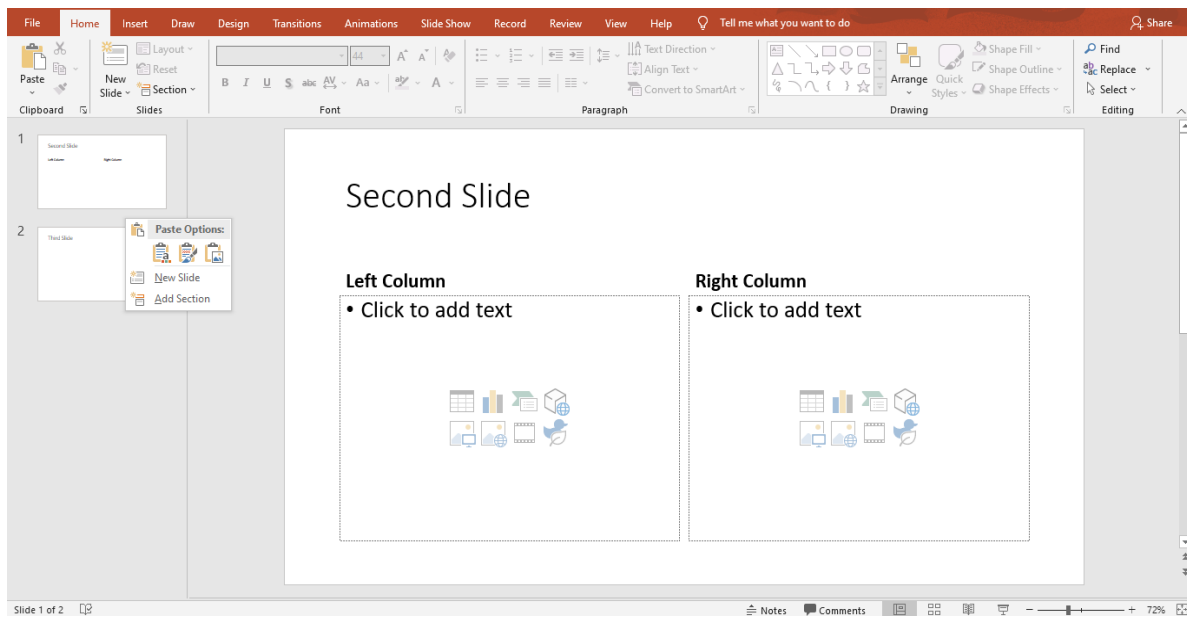


Fig. 16 (Rearrange Slides)

Adding Slide Notes Presentation:

Slide notes can be very useful tools for presentation. These notes are not displayed on the screen in the Slideshow mode, but the presenter can see them so they can prepare well to present the slides. Depending on your Print settings, you can also print the slide notes along with the slides.

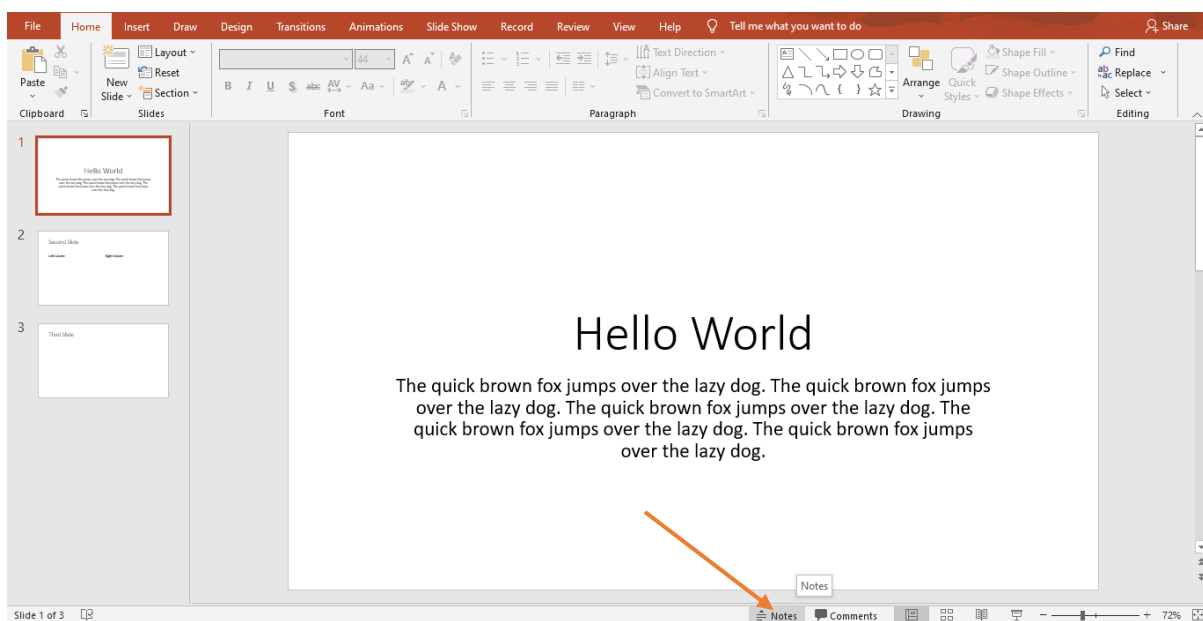


Fig. 17 (Add Note to Slides)

Step 1 – To locate the slide notes.

Step 2 – The Slide Notes section is indicated by "Click to add notes".

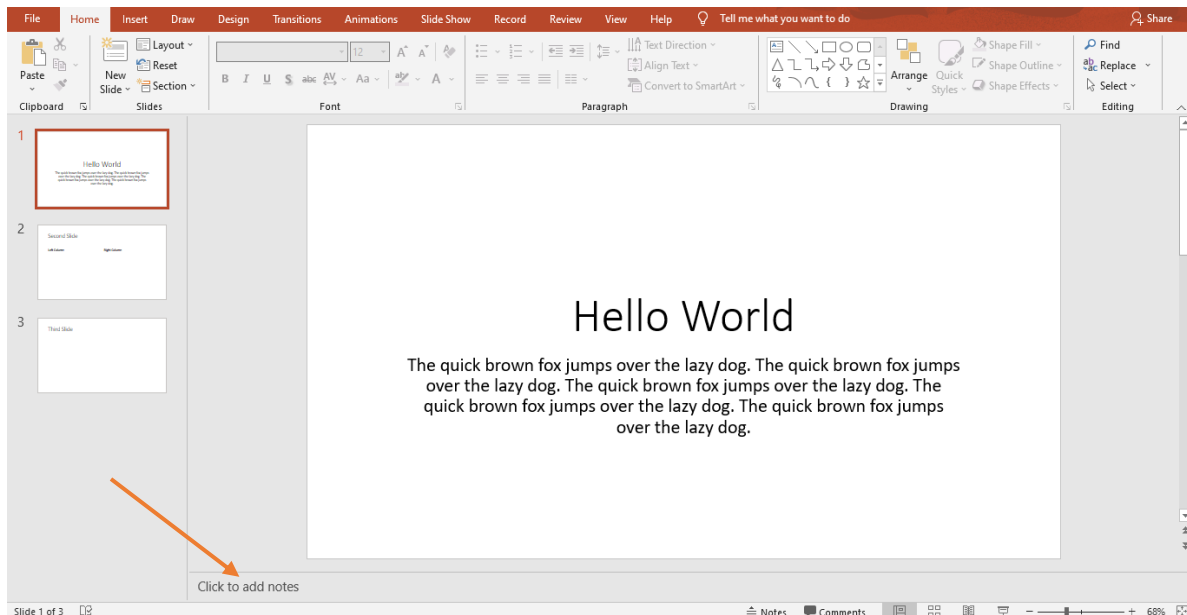


Fig. 18 (Add Note to a Slides)

Formatting a slide in Presentation:

To Select Text in a Text Box:

- Position your cursor inside the text box by clicking once
- Click and drag your mouse to select the desired text

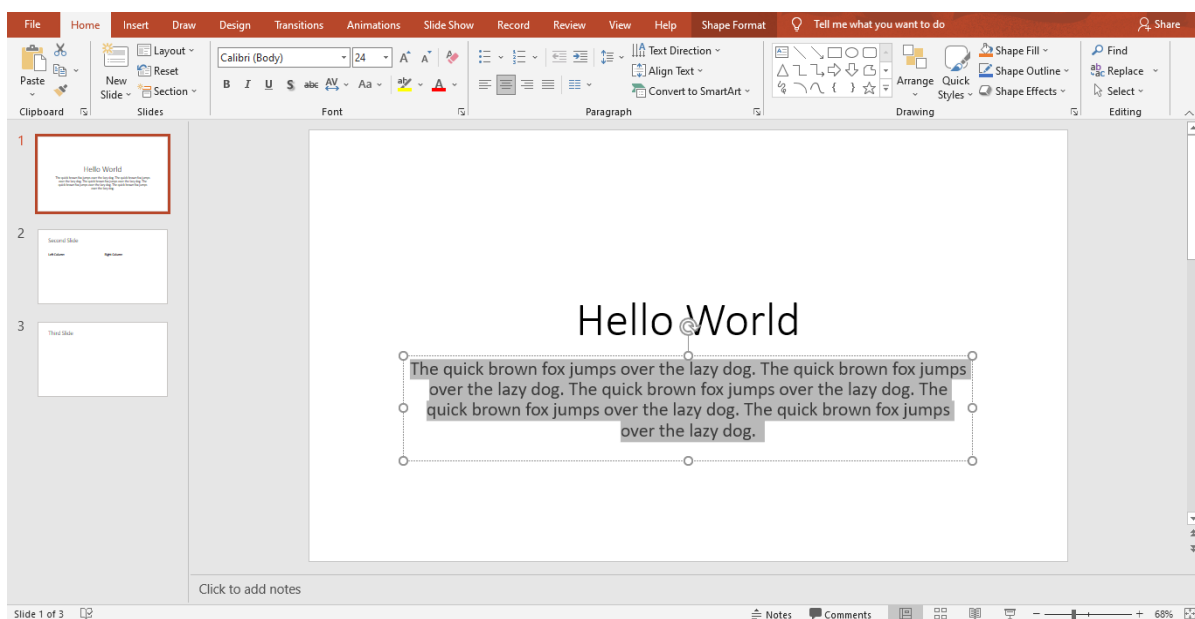


Fig. 19 (Format Text in Slide)

To Bold Text on a Slide: Select the text and Click the Bold Icon on the Formatting Toolbar

To Italicize Text on a Slide: Select the text and Click the Italic Icon on the Formatting Toolbar

To Underline Text on a Slide: Select the text and Click the Underline Icon on the Formatting Toolbar

To Select a Different Font: Select the text and Click the drop-down arrow for Font on the Formatting Toolbar and select a font

To Select a Different Font Size: Select the text and Click the Font Size Icon on the Formatting Toolbar and pick a different font size (The larger the number the larger the lettering)

To Change the Font Color: Select the text and Click the Font Color drop down arrow on the Formatting Toolbar and select a different font color

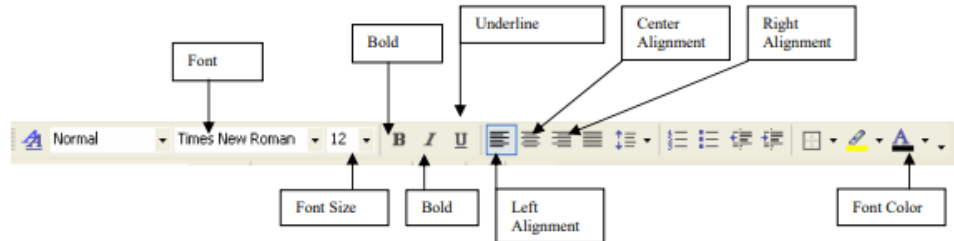


Fig. 20 (Text Formatting in PowerPoint)

Task 01: Formatting a Presentation

[Estimated 30 minutes / 30 marks]

1. Open a **“Blank Presentation”**
2. Save the presentation as **“PowerPoint.pptx”**
3. Add a **Title** to the first slide: **“name of department and university”**
4. Type your first name and last name in the **“Subtitle”** section
5. Add a **“New Slide”** which has a **“Title and Content”**
6. Add a title to the second slide **“My Future Goals”**
7. In the Content section of the second slide, add at least three Personal Goals
8. Right click on the second slide from the left panel, then choose **“Duplicate Slide”**
9. Highlight the text in the Content area of the third slide. Under the Home tab, click **“Convert to SmartArt”**, then choose **“Basic Cycle”**
10. Change the SmartArt Colors to **“Colorful—Accent Colors”**
11. Change the SmartArt Styles to **“3D Polished”**
12. From the left panel, **drag** the third slide between the first and second slide
13. Change the **layout** of the third slide, the slide that does not have the SmartArt, to **“Comparison”**
14. Leave the title **“My Future Goals”**
15. In the head of the first column, type **“Goals in University”** then center the heading
16. In the head of the second column, type **“Goals after University”** then center the heading
17. Add at least **three goals** in each section
18. Make sure that **slide #3** is selected from the left panel, then add a **“New Slide”**
19. Change the layout of the new slide to **“Blank”**
20. Change the ClipArt **size to 3” X 3”** and position it in the middle of the slide
21. Apply the **Wisp Design Theme**
22. Save **“Rollno_PowerPoint.pptx”**.

Email a zipped folder named Rollno_pre-lab08.zip containing pptx file to your respective TA.

In-Lab Activities:

Working with Multimedia:

Every PowerPoint slide is a blank canvas, waiting for your content to reinforce your speaking points or guide the presentation. Multimedia brings variety to your slides and helps visual learners understand your content better.

If we were bound to using only text and shapes, it would be much harder to hold an audience's attention during a presentation.

Multimedia exists to help reinforce our key speaking points. Some ideas for working with images, audio, and video to make your presentation more interesting.

Add Pictures to Slide:

PowerPoint supports multiple content types including images or pictures. With regards to pictures PowerPoint classifies them into two categories –

- **Picture** – Images and photos that are available on your computer or hard drive
- **Clip Art** – Online picture collection that you can search from the clip art sidebar

Although their sources are different, both these types can be added and edited in similar fashion. Given below are the steps to add picture to a slide.

Step 1 – Go to the “**Images**” group in the “**Insert**” ribbon.

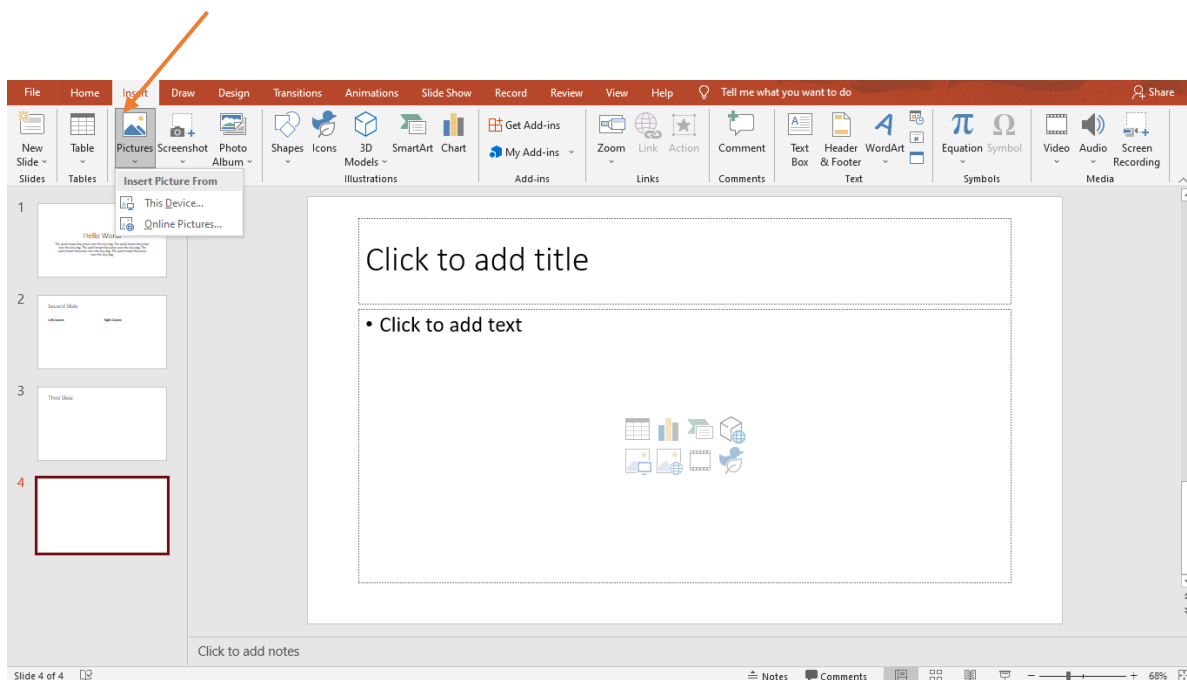


Fig. 21 (Add Picture to a Slide)

Step 2 – Click on Picture to open the “**Insert Picture**” dialog and add a picture to the slide. After adding picture to a slide.

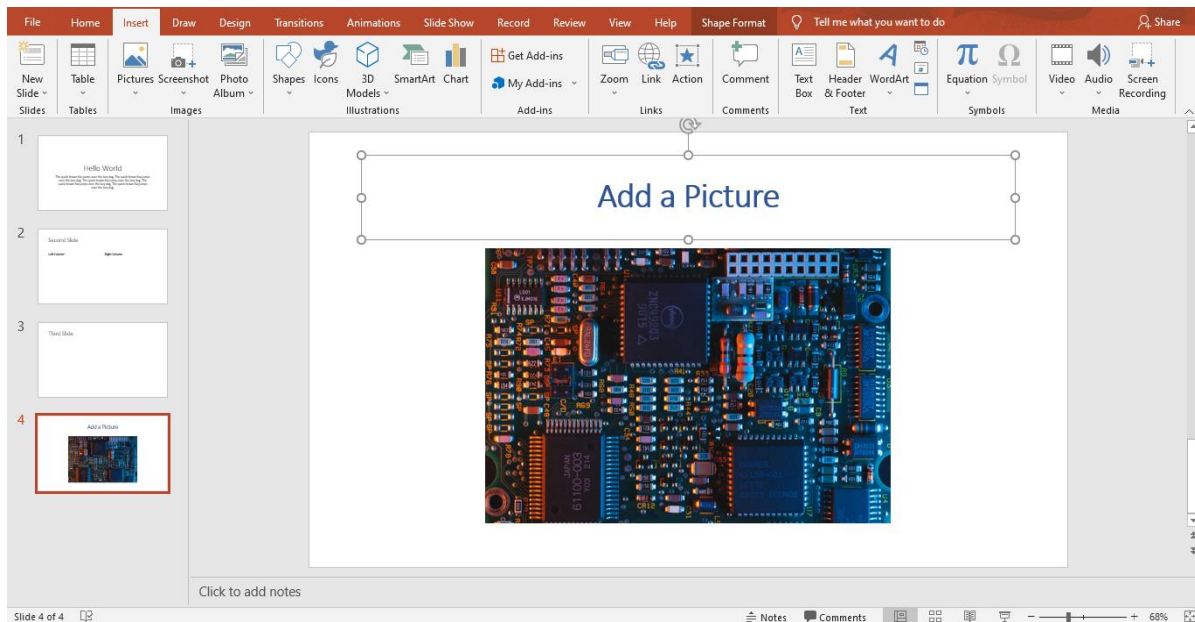


Fig. 22 (Add Picture to a Slide)

Editing Added Pictures in slides:

PowerPoint supports images or pictures as content and offers some standard image editing features. The picture editing features in PowerPoint can be accessed from the Format ribbon once the picture is selected. The editing features are grouped under the “**Adjust and Picture Styles**” section in the “**Format**” ribbon.

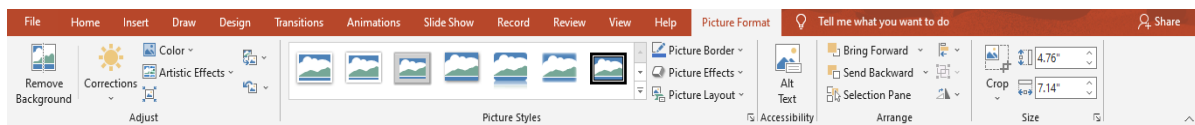


Fig. 23 (Edit Picture in PowerPoint)

Image Adjustments:

- **Change Picture** - Replaces the current picture with a different one.
- **Reset Picture** - Removes all the adjustments done on the image.
- **Artistic Effects** - Adds artistic effects to the image like plastic wrap, glowing edges, etc.
- **Correction** - Allows you to change the brightness and contrast on the image and also change the image sharpness.
- **Picture Styles:**
- **Picture Border** - Manages the picture border - color, weight and style.
- **Picture Effects** - Adds effects to the picture like reflection, shadow, etc.
- **Convert to SmartArt Graphic** - Transforms the picture into the selected SmartArt.
- **Quick Styles** - Pre-defined styles with different picture borders and effects.

Adding Shapes to Slide:

PowerPoint supports the addition of shapes in presentations. It also includes Shapes like basic geometric shapes, flowchart components, arrows, callouts, lines and other predefined special shapes. These shapes also double up as text boxes as they support adding text to them directly. Besides, you can also use this shape to crop pictures to shape. Given below are the steps to add a shape in PowerPoint.

Step 1 – Go to the “**Illustrations**” group under the “**Insert**” Tab.

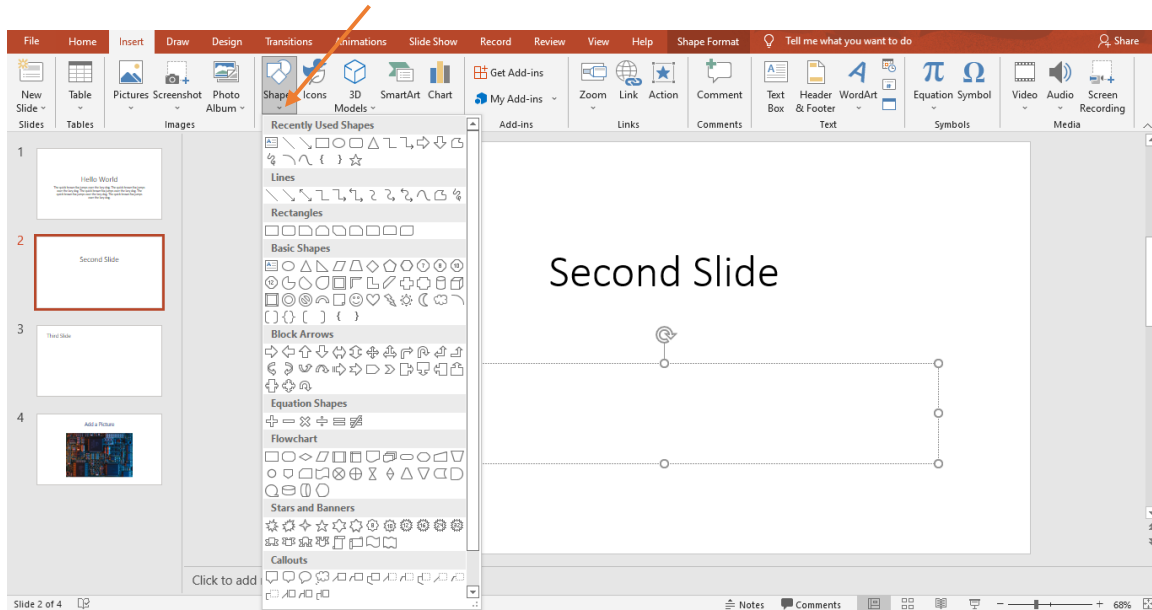


Fig. 24 (Add Shapes in a Slide)

Step 2 – Click on the Shapes dropdown to view the available shapes.

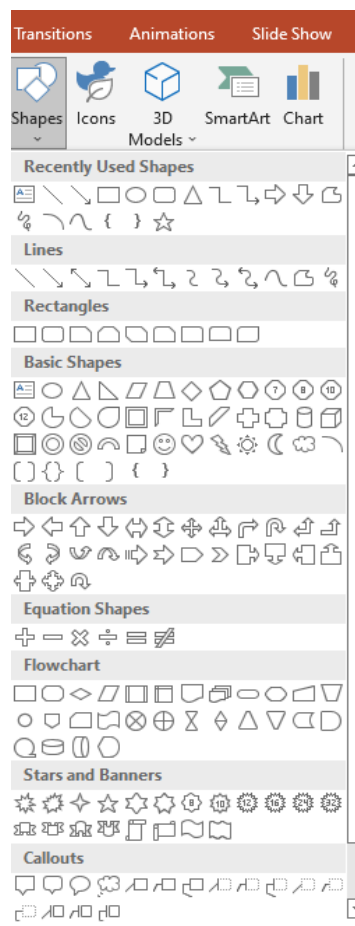


Fig. 25 (Shapes in PowerPoint)

Step 3 – Select the shape you want to insert. This will change the cursor to a “+” sign.

Step 4 – Click and drag on the slide to create the shape. As you drag, the shape will show up on the slide. Continue to drag and adjust the size and the symmetry of the shape.

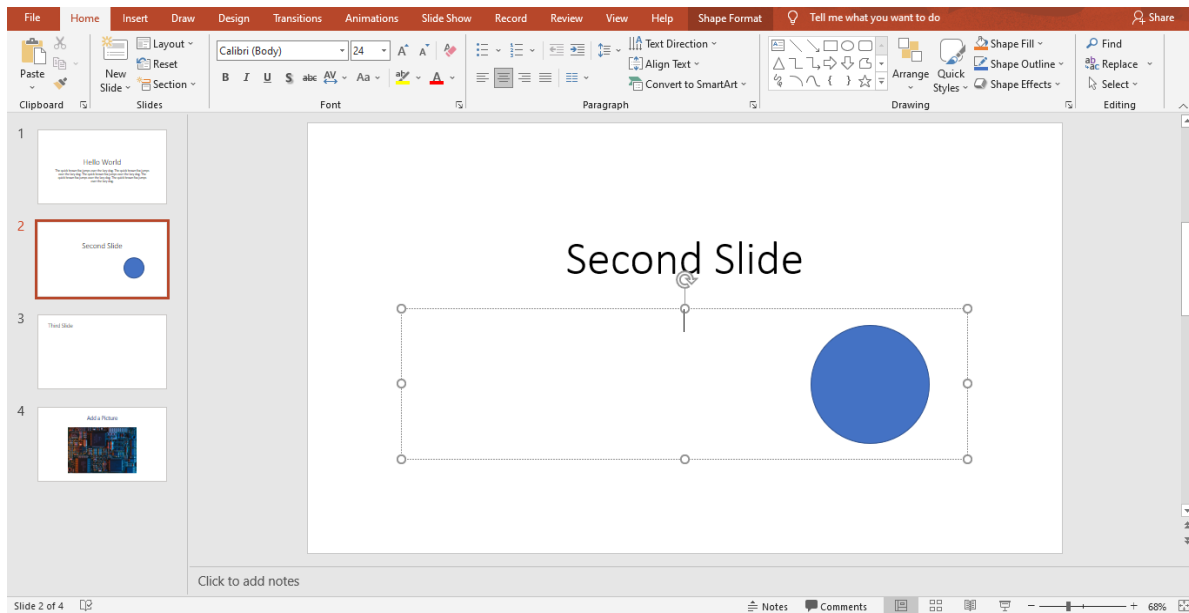


Fig. 26 (Shapes in PowerPoint)

Adding Audio & Video in Presentation:

PowerPoint supports multimedia in the slides. You can add audio or video clips to the slides which can be played during the presentation. The following steps will help you add audio or video file to the slides.

Step 1 – Go to the Media group under the “Insert” ribbon.

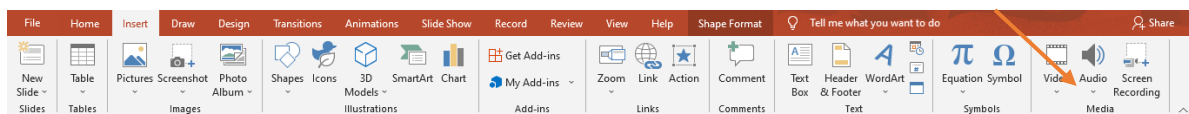


Fig. 27 (Working with Media in PowerPoint)

Step 2 – To insert video file select Video as media type and Video from File to insert a video from your computer or hard drive.

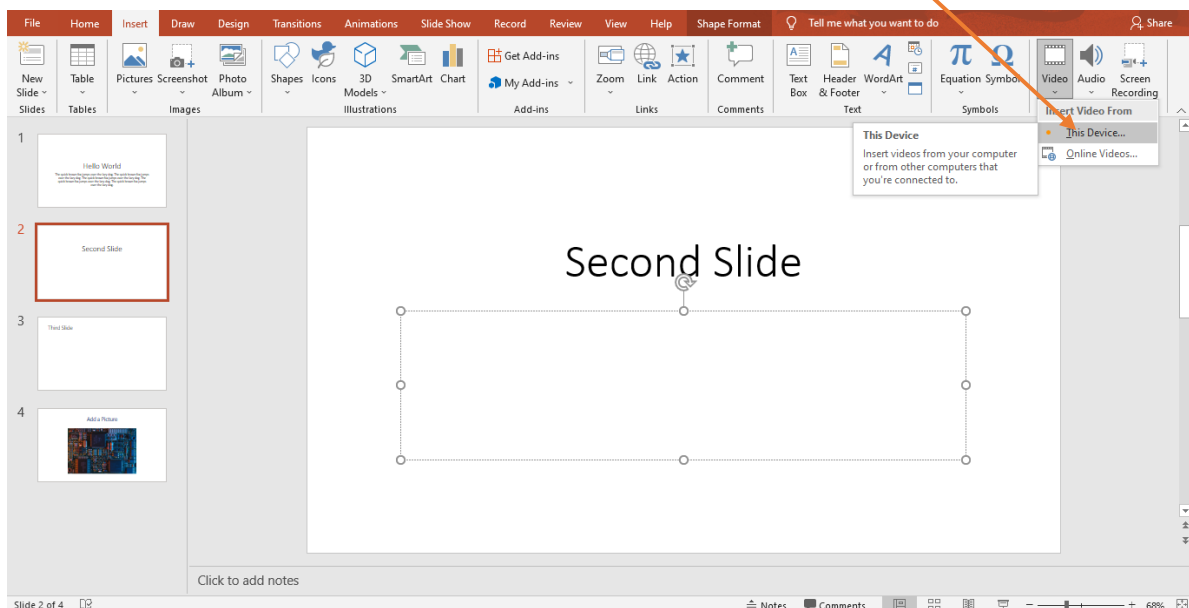


Fig. 28 (Add Video to a Slide)

Step 3 – In the “Insert Video” dialog, browse for a video file and click Insert. You will now see that a Video file is added to the slide.

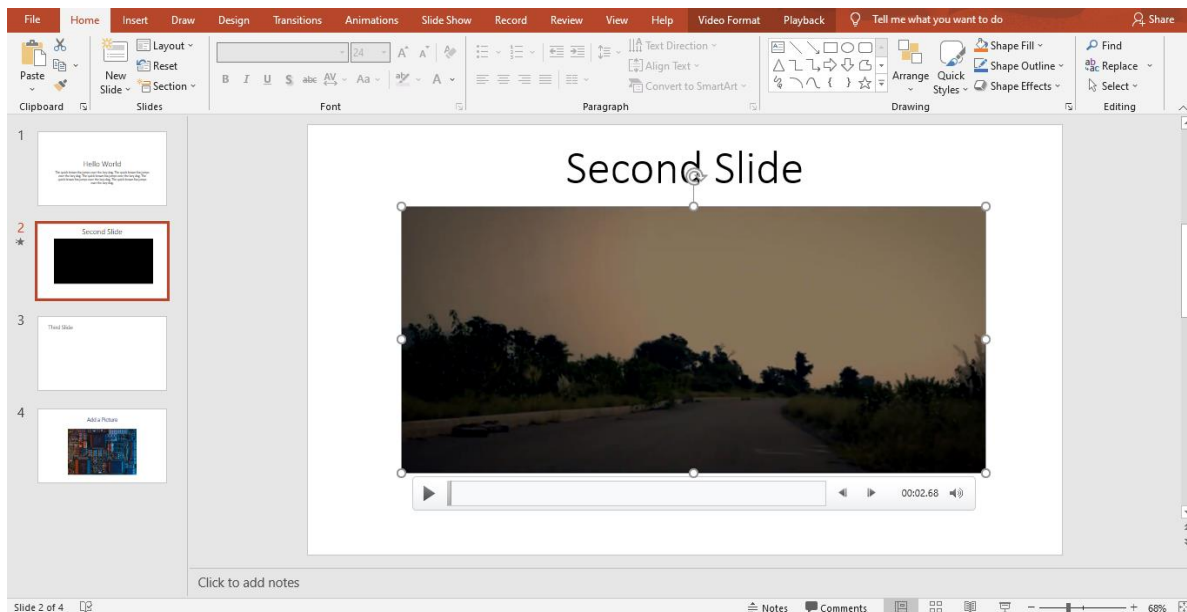


Fig. 29 (Add Video to a Slide)

Using the similar procedure you can add audio in presentation slides.

Add & Format Tables PowerPoint:

PowerPoint has features that let you add tables in slides and also format them to enhance their visual effects. What's more, these tables are also compatible with Microsoft Excel, so you can basically take a spreadsheet or a section of a spreadsheet and paste it into a slide as a table.

The following steps will help you add a table in PowerPoint.

Step 1 – Go to the “Tables” group under the “Insert” ribbon.

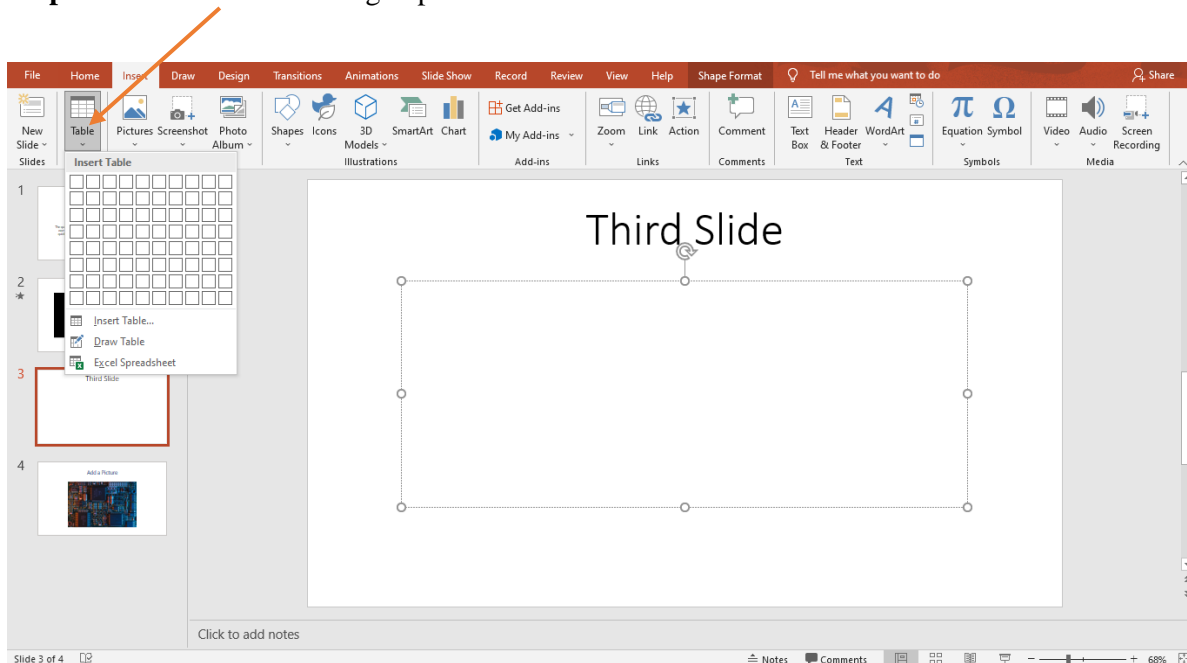


Fig. 30 (Working with Tables in PowerPoint)

Step 2 – If you require more than 10 columns or 8 rows click on "Insert Table" to open the “Insert Table” dialog where you can specify the column and row count.

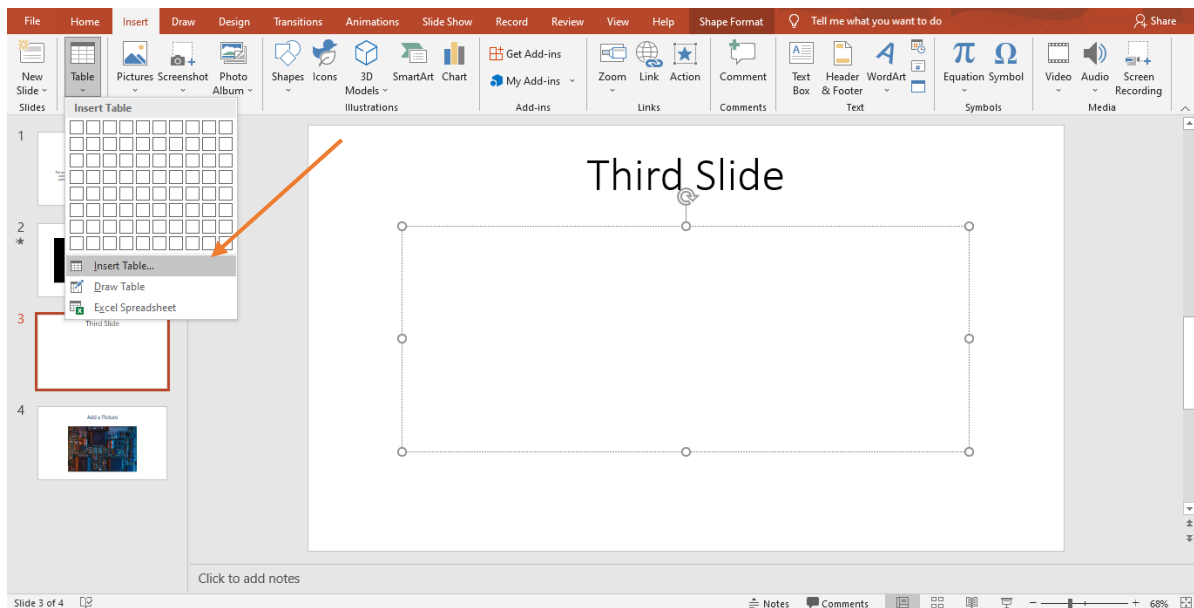


Fig. 31 (Insert Table in a Slide)

PowerPoint table is a simple table that does not support the mathematical features of an Excel spreadsheet. If you want to carry out some calculations, you can insert an **“Excel spreadsheet”** instead of a regular table.

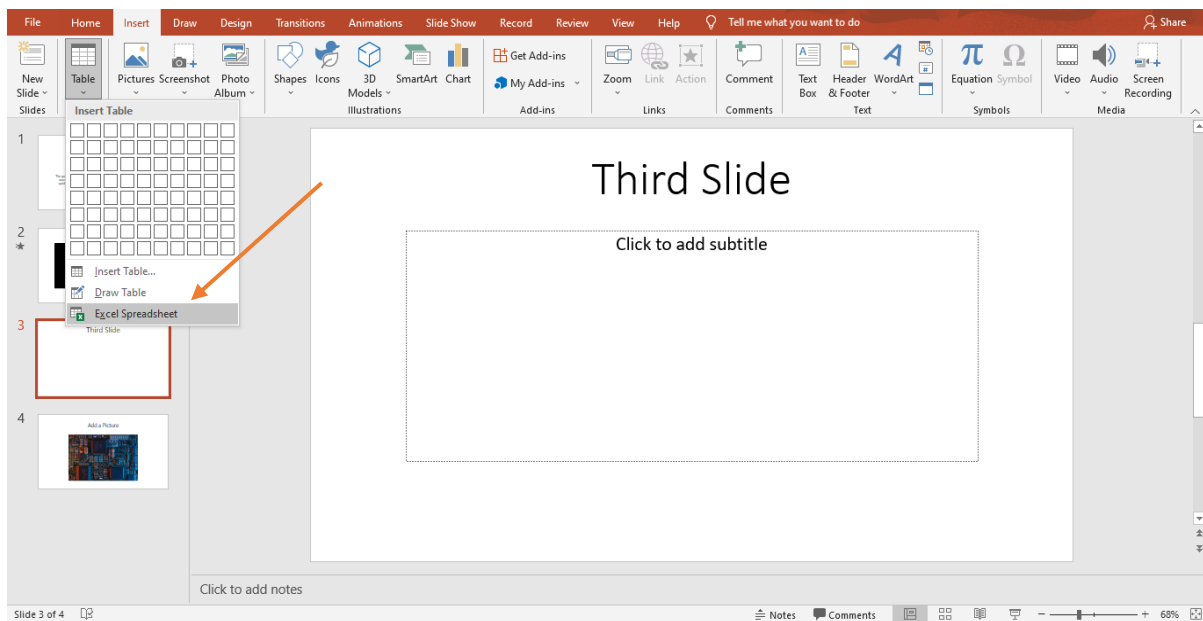


Fig. 32 (Insert Excel Sheet a Slide)

This will insert the spreadsheet in the slide and as long as the spreadsheet is selected, the ribbon at the top will be changed to an Excel ribbon instead of a PowerPoint one.

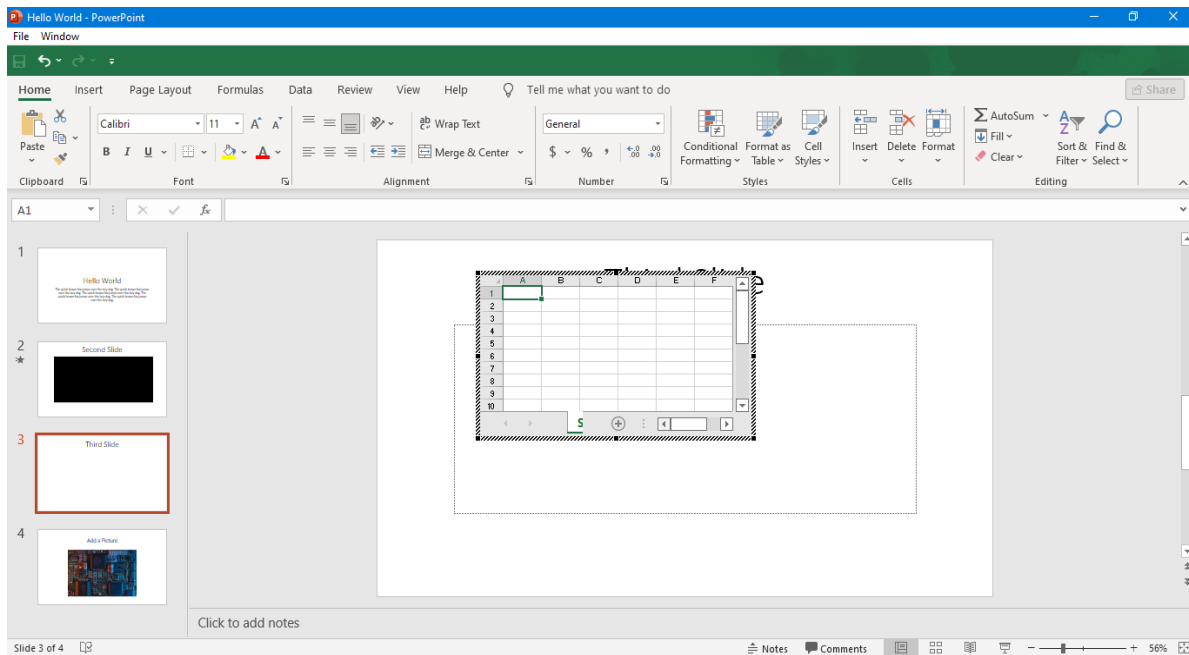


Fig. 33 (Add a Spreadsheet to a Slide)

Add & Format Charts in Powerpoint:

Charts are an effective way of representing data. Long list of confusing numbers can instantly become trends which can be spotted when they are captured as charts. PowerPoint supports the addition and formatting of charts. Given below are the steps to add a chart to PowerPoint.

Step 1 – Go to the “**Illustrations**” group under the “**Insert**” ribbon.

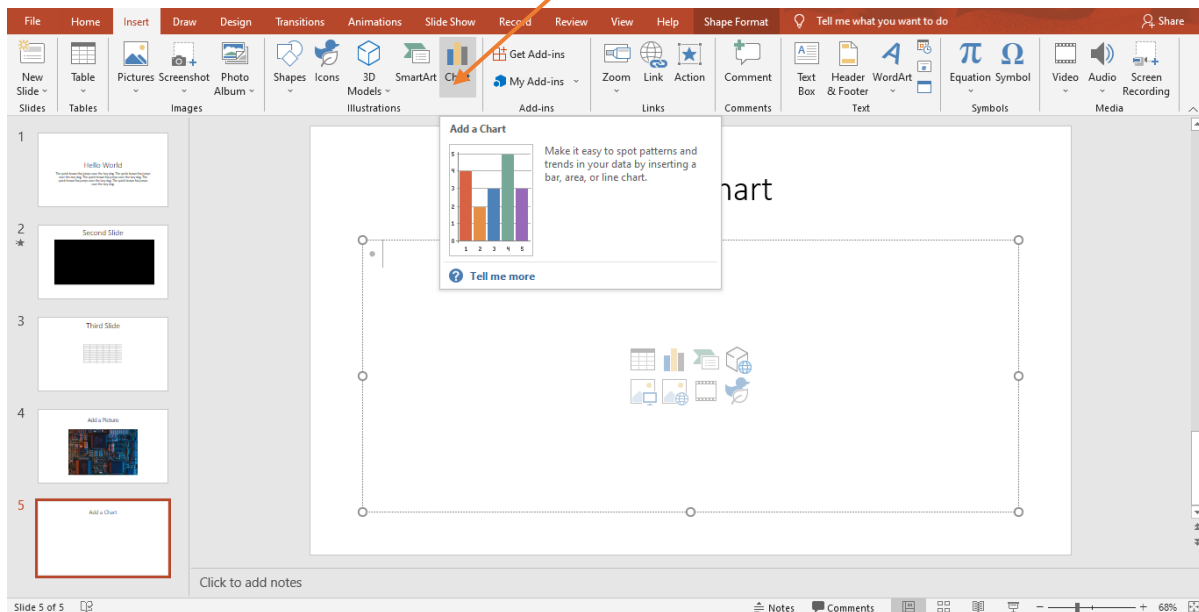


Fig. 34 (Add Chart in a Slide)

Step 2 – Click on the Chart option to open the “**Insert Chart**” dialog. You can choose the chart category and pick individual chart types from the list.

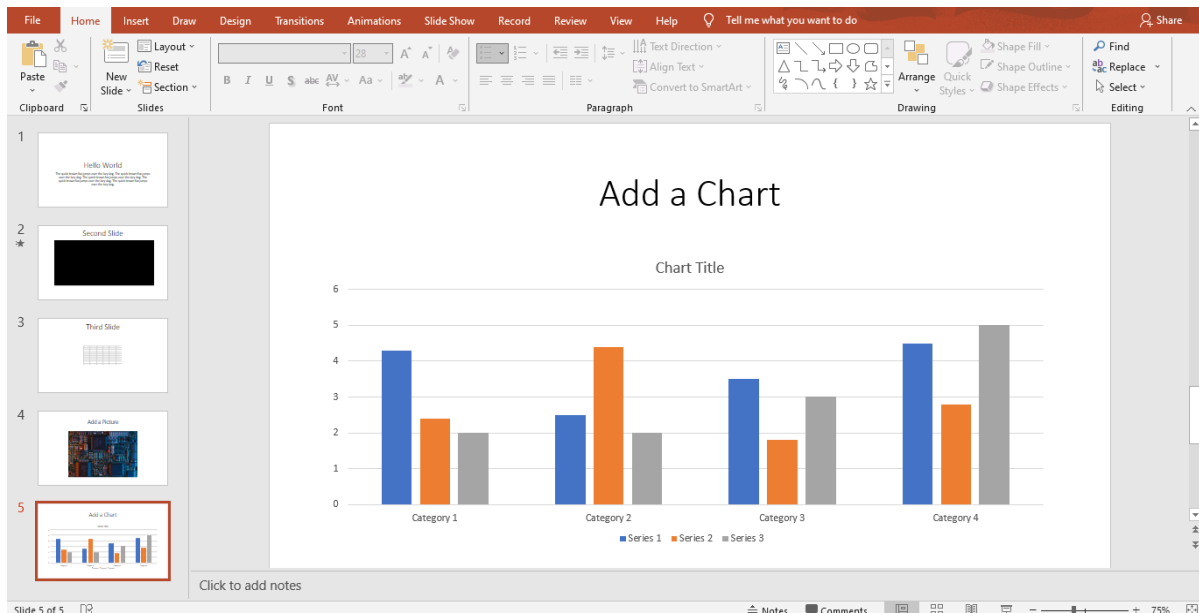


Fig. 35 (Add Chart in a Slide)

Step 3 – Along with the chart, an Excel spreadsheet is also launched. This spreadsheet is the source for your chart. You can change the category names, series names and individual values to suit your needs.

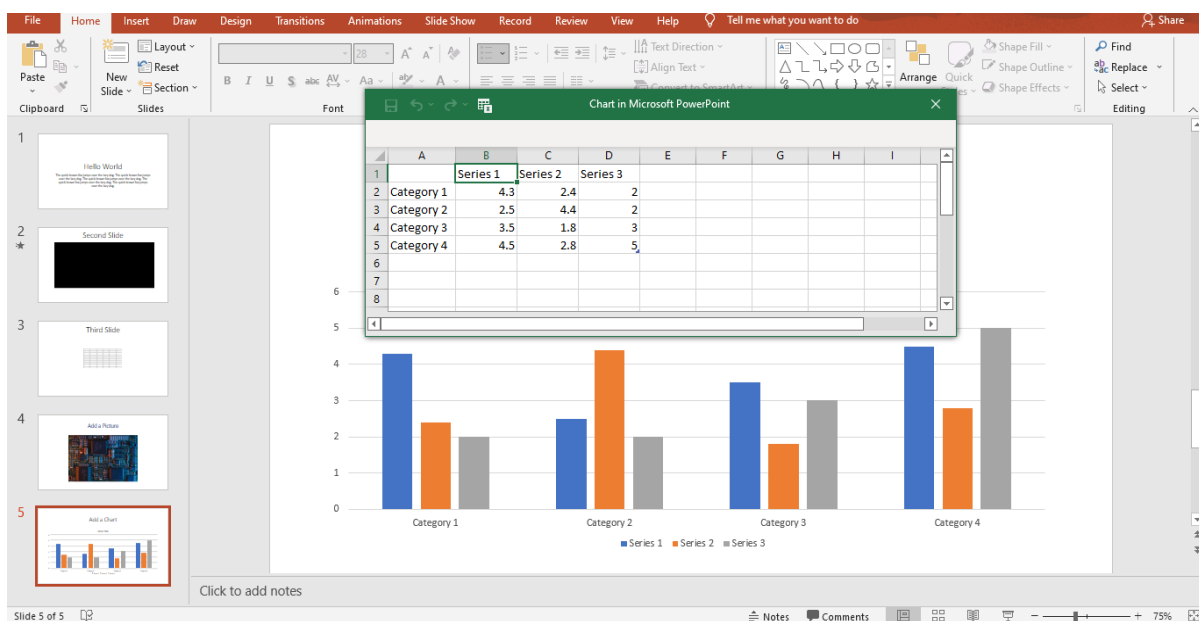


Fig. 36 (Generate Excel Sheet from Chart)

As you edit the values and the table in Excel the chart gets modified automatically.

The PowerPoint chart formatting features have been grouped under three ribbons: **Design**, **Layout** and **Format**. The sections below discuss the features under each ribbon. To access these ribbons, you must select the chart first.

Chart Design Features:

Feature	Sub Features	Description
Type	Change Chart Type	Changes the chart type retaining the same data.
	Save As Template	Saves current chart type as a template.
Data	Switch Row/Column	Transposes current excel data - this is enabled when you have the source data excel sheet open.
	Select Data	Changes the data range covered in the chart.
	Edit Data	Changes the chart source data.
	Refresh Data	Refreshes the chart to show the latest data.
Chart Layouts	Chart Layouts	Offers a list of predefined layouts which can be instantly applied to current chart with a single click.
Chart Styles	Chart Styles	Offers a list of predefined styles which can be instantly applied to current chart with a single click.

Add & Preview Animations in Presentation:

PowerPoint offers animation support which can be used effectively to add some motion in a monotonous presentation and make it more interesting. Animation can be applied to any object on the slide and the motions can be automated, timed or trigger.

The following steps will help you add and preview animations in the slide.

Step 1 – Go to the “Animation” ribbon and Choose an animation.

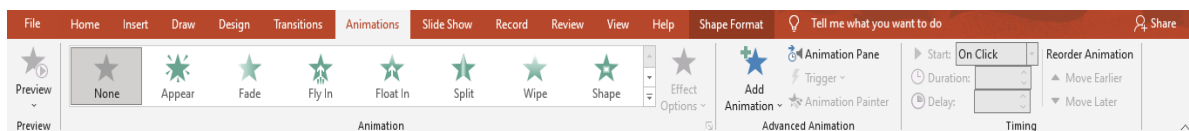


Fig. 37 (Add animation a Slide)

There are different ways to start animations in your presentation:

- **On Click** - Start an animation when you click a slide.
- **With Previous** - Play an animation at the same time as the previous animation in your sequence.
- **After Previous** - Start an animation immediately after the previous one happens.
- **Duration** - Lengthen or shorten an effect.
- **Delay** - Add time before an effect runs.

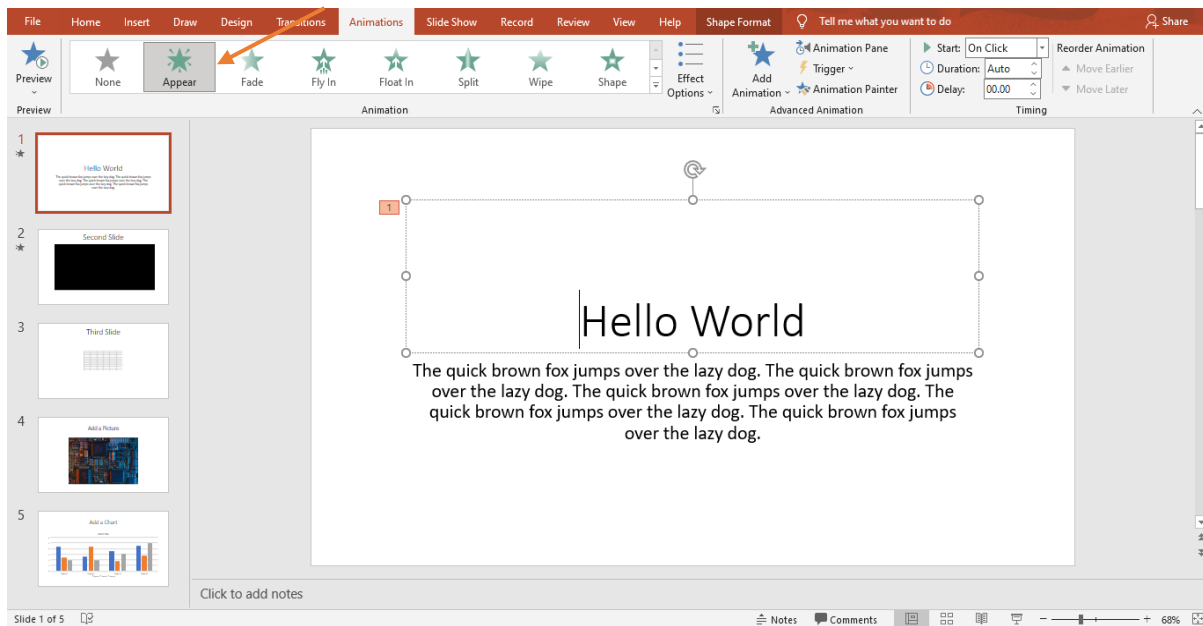


Fig. 38 (Animation in a Slide)

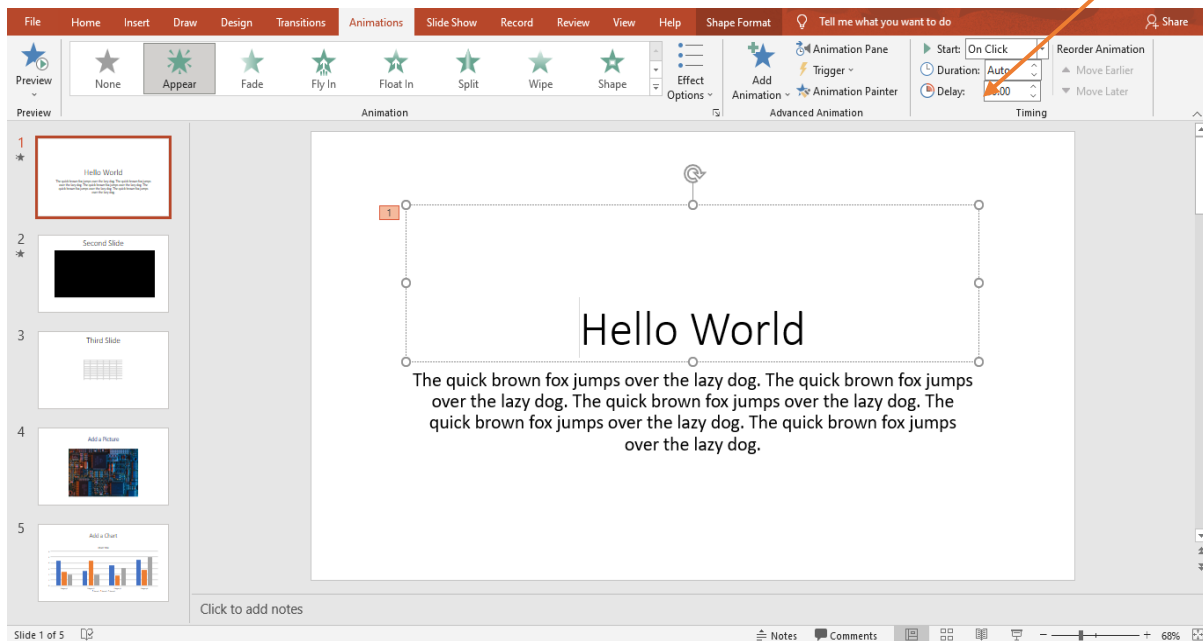


Fig. 39 (Animation in a Slide)

Add & Preview Transitions in Presentation:

PowerPoint supports slide transition feature which allows you to specify how should the slides transition during the slide show. Given below are the steps to add and preview slide transitions.

Step 1 – Select the slide to which you want to apply the transition.

Step 2 – Go to the “Transition Scheme” under the Transitions ribbon.

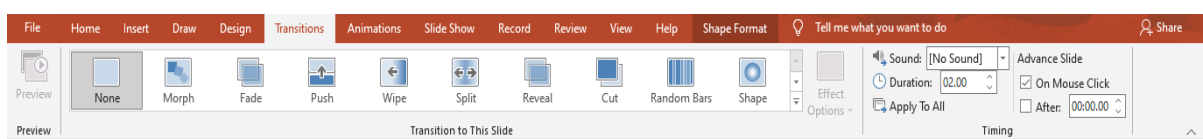


Fig. 40 (Transition Ribbon in PowerPoint)

Step 3 – Select one of the transition schemes from the list available. PowerPoint will instantly show you a preview of the scheme. If you are not satisfied, you can pick an alternate scheme. The last selected scheme will apply to the slide.

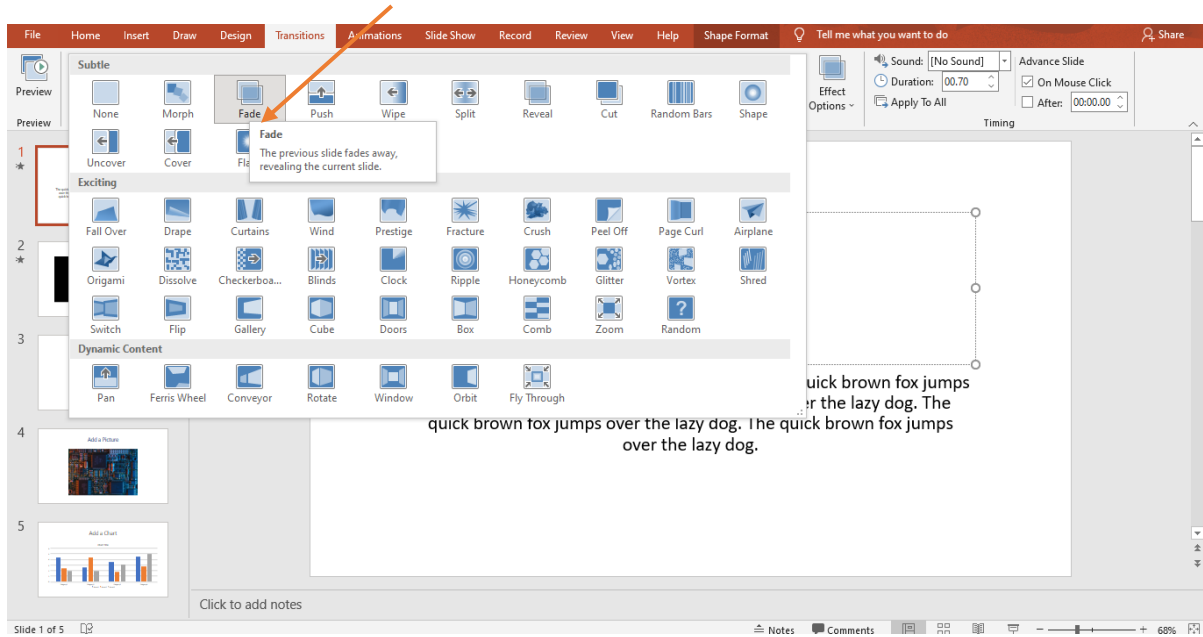


Fig. 41 (Add Transition in a Slide)

Step 4 – You can change the effects on the selected transition scheme from the “**Effect Options**” menu. Every scheme has a unique set of effect options.

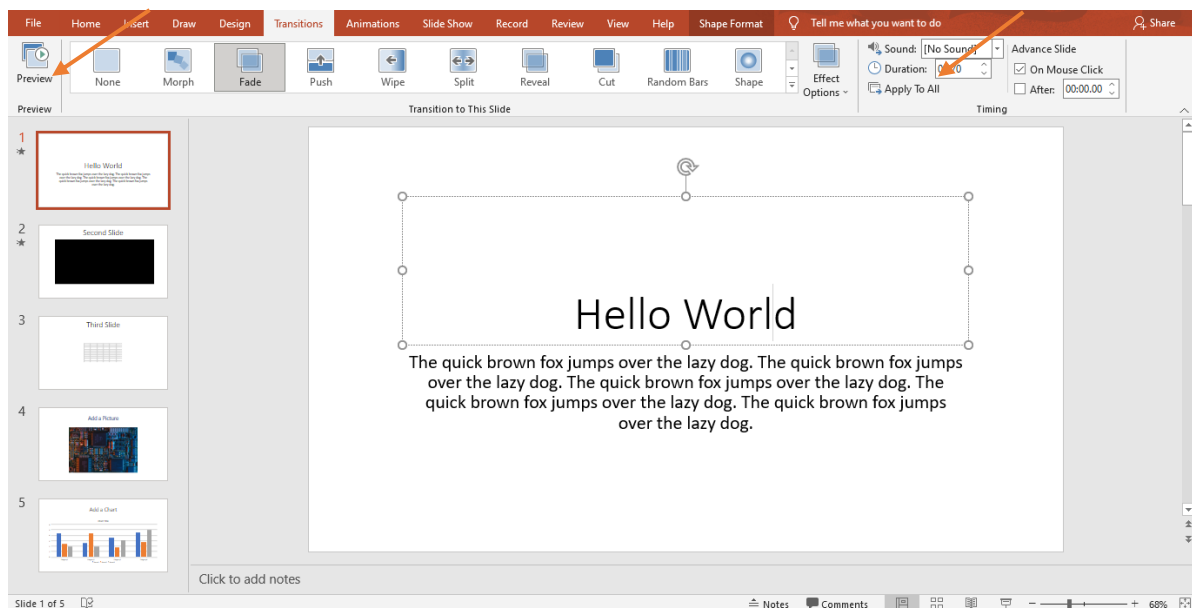


Fig. 42 (Add Transition in a Slide)

Step 5 – You can also modify the transition timing settings from the “**Timing**” section.

Step 6 – To preview the slide transition, click on “**Preview**”.

Task 01: Working with Multimedia**[30 minutes / 30 marks]**

1. Take your Pre-lab named **“PowerPoint.pptx”**
2. Save the presentation as **“PowerPointInLab.pptx”**
3. Apply the **“Ripple Transition”** to all slides
4. In the second slide, **“Demote”** all bullets below **“Great Presentation”**
5. Apply **“Grow & Turn”** animation to all slides
6. **Reorder** the second slide **“Animation”** as depicted here.
7. Add **“Notes”** to the **second** slide entitled **“Presentation at University of Punjab”**
8. Change the **“Design Variants”** to **“Wisp Light Blue”**
9. Apply the **8×8** rule to the last slide
10. Change the view to **“Slide Sorter”** view
11. Check **“Spelling & Grammar”**; correct the errors as needed

Save and submit **“PowerPointLab.pptx”** to your Lab instructor.

Post-Lab Activities:

Scratch Programming:

What is Scratch

Scratch is high-level visual programming language that makes computer programming exciting. With Scratch it is easy to create interactive stories, animations, and games. You can use Scratch to learn computer programming concepts while playing with the fun tool.

Scratch has an extensive collection of graphics, animations, sounds, and music included that you can use to create your projects. You can also use the built-in graphic design tool to create unique content for their projects.

Why Learn Scratch:

Computers are powerful tools that can be used for solving problems, completing tasks, watching movies, or playing games. However, the programs that we use on the computers must be written. Scratch will allow you to write your own programs and games that you can use or share with your friends.

While learning Scratch, you can also use skills that you learn in other classes such as math, music, or science. For example, you could write a calculator program, you could create a virtual piano, or you could write a program to simulate a scientific experiment.

Scratch Interface:

Scratch provides you with a powerful interface to create programs such as games or animated stories. The scratch team at MIT designed the interface to be easy to use.

Use the links on the left to read brief explanations of each section of the scratch interface.

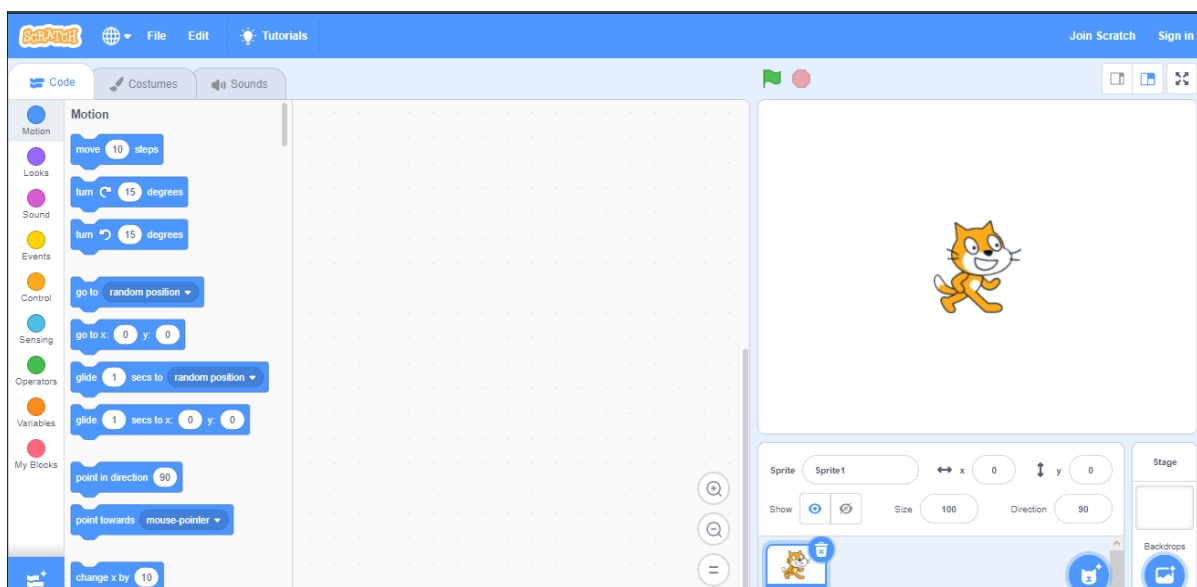


Fig. 43 (Scratch Interface)

Scratch Interface - Block Palette

The block palette is where the different script blocks are located. The different type of script blocks include: motion, control, looks, sensing, sound, operators, pen, variables. This website will go into

greater detail for each function as you progress. The purpose of this section is to just give you a rough idea of each script type.

- **Motion** - controls the up, down, left, right, and rotation movement of the sprites.
- **Control** - allows you to specify things such as what starts and stops your sprites, how you can move the object, conditional operators such as if/then and repetition.
- **Looks** - affects the appearance of your sprite such as color and costume.
- **Sensing** - controls to sense if your sprite is touching the edge, another color, another sprite, at a specific X or Y coordinate, the sound volume, etc.
- **Sound** - control sounds, pitches, and volume.
- **Operators** - Logic operators including tools to perform match functions, select a random number, greater than, less than, equal to, etc.
- **Pen** - pen functions allow you to draw lines and objects on the stage.
- **Variables** - create variables to hold numbers or text.

Scratch Interface – Stage :

It is important to not confuse the stage and the stage window.

The stage is basically the background of your project. Like sprites, the stage can have different costumes that change as the story plays out.

The stage window is the main area where the action of your program takes place. If you were to program a game or animated story, the stage window is where the action would take place when you start the program. You should also pay attention to the green flag and red stop sign in the upper right corner of the stage window. These buttons can be configured to control the beginning and end of your program.

You will also find the stage toolbar above the stage window.

The stage toolbar functions, from left to right, are:

- **stamp** - create a copy of an existing sprite.
- **scissors** - delete a sprite
- **grow sprite** - increase the size of a sprite
- **shrink sprite** - decrease the size of a sprite
- **small stage** - decrease the stage windows and increase the script area.
- **full stage** - increase the stage windows and decrease the script area.
- **presentation mode** - switch the stage window to full-screen.

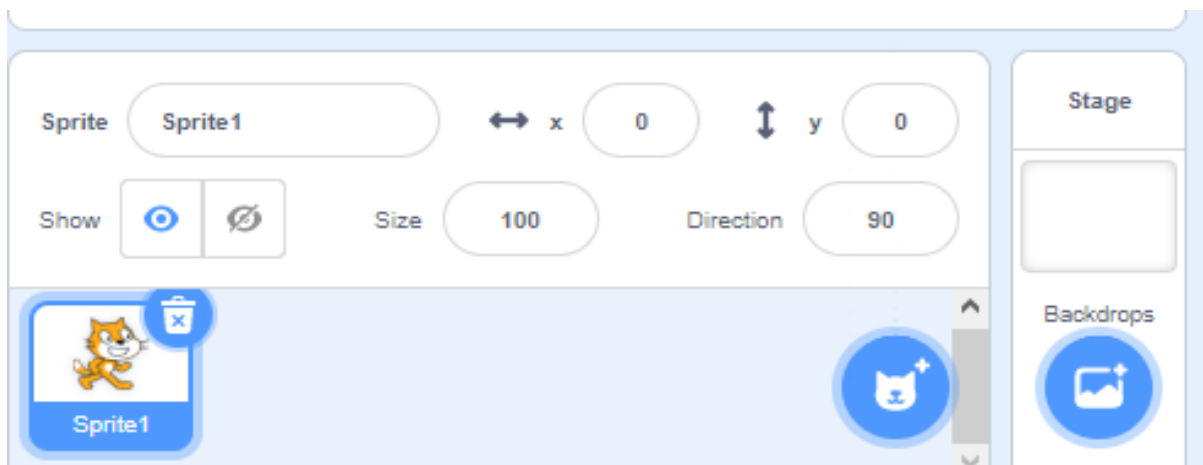


Fig. 44 (Sprite in Scratch)

Start a new project

To code in Scratch, first open the Scratch. Next, click on the “Create” button to make a new project. You should have a screen that looks like this:

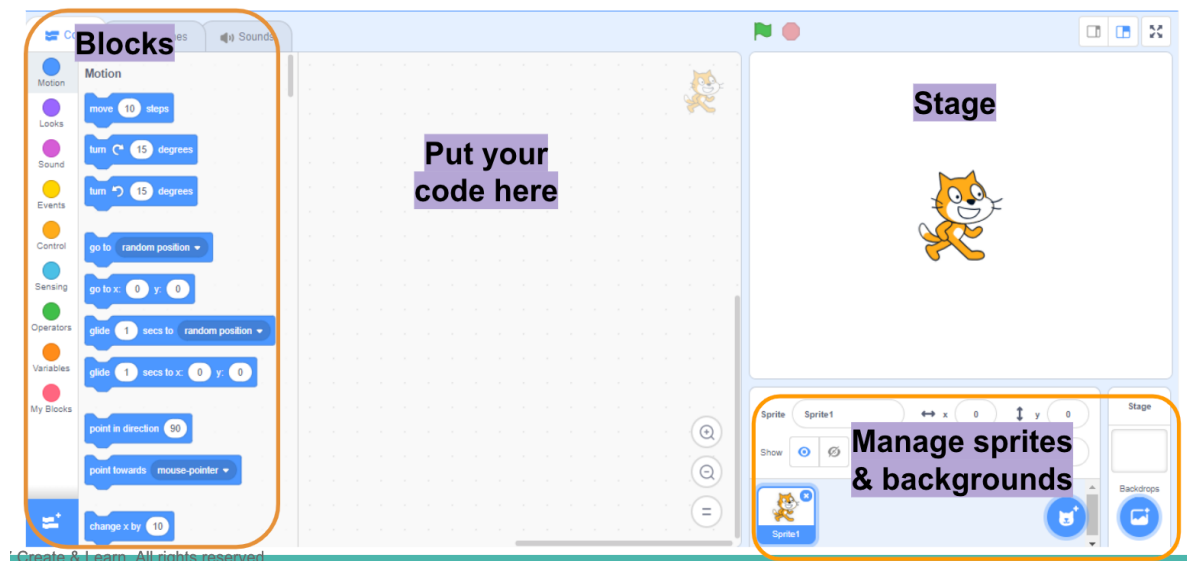


Fig. 45 (Blocks in Scratch)

Drag the code blocks:

The code blocks are on the left-hand side of the screen. To code, click and drag the blocks to the large center space. On scratch, the characters and objects are called “**Sprites**” You can add or delete as many sprites as you want. Each time you add a sprite, it will appear on the stage.

Click on sprites to code for them:

Click on each sprite to code for that particular sprite. There are hundreds of fun sprites to choose from. Whether it’s a soccer player, a butterfly, or a ballerina, our students in our Scratch Ninja course never cease to amaze by their creative choices and story lines.

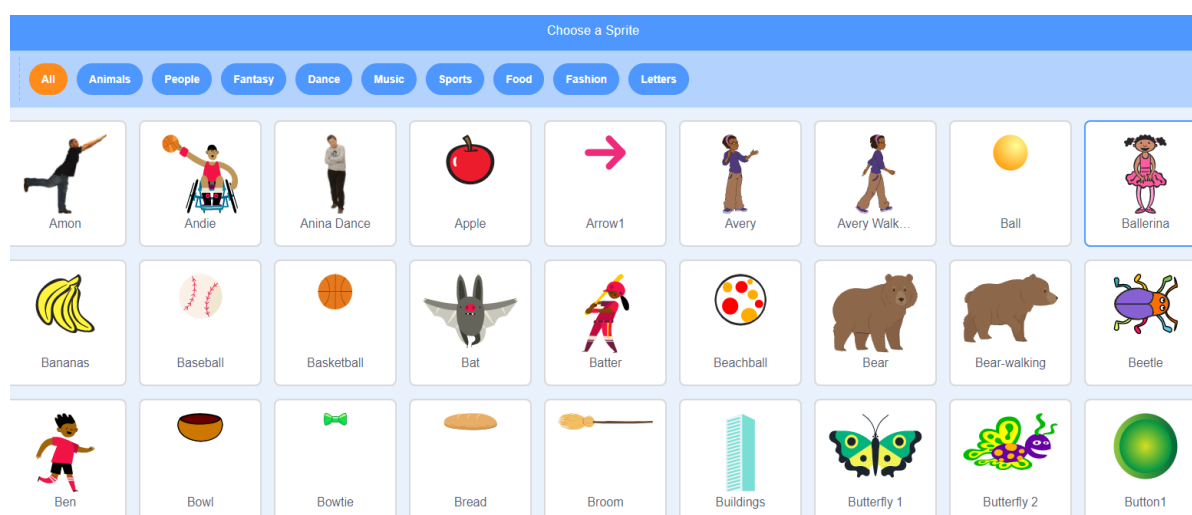


Fig. 46 (Objects in Scratch)

To code, you can drag blocks of code from the left-hand side and connect them together. Each sprite, as well as the background, will have its own code.

These blocks can make sprites move, make sounds, and change color. And when connected together form a series of actions to build your games, animations, and other projects.

Watch your code run:

After you've coded your project, you can click on the Green Flag to see your code run on the Stage.

If you want to save or share your project, make sure it's saved under your account. If you already have an account, click **"Log In"** If you need to make an account, click **"Join Scratch"** and follow the instructions (make sure you have a parent with you!).



Explore basic coding blocks to learn to code with Scratch:


There are many different types of blocks on Scratch and we're always excited to learn which blocks are our students' favorites.

Notice how most of the blocks are shaped with a special notch at the top and the bottom; this is so that they can connect together! Here are some of the most important blocks:


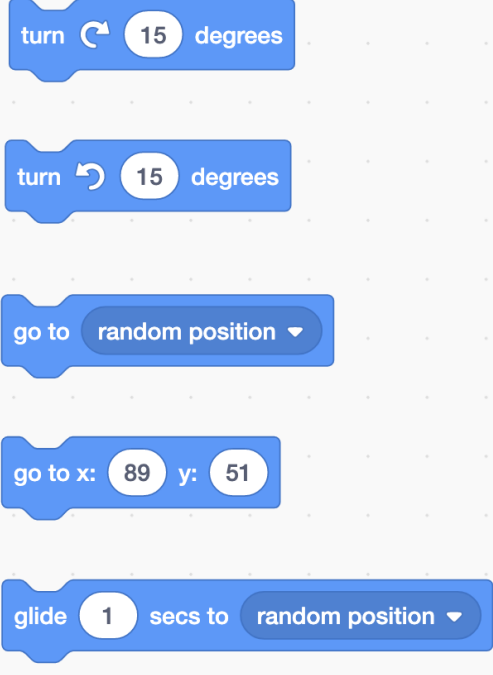
Events blocks in Scratch:



These yellow-colored blocks have a special shape, with the bump at the top. These blocks are **"Starting blocks"** meaning they must go at the top of any chunk of code we create. They tell us when the code will be run.


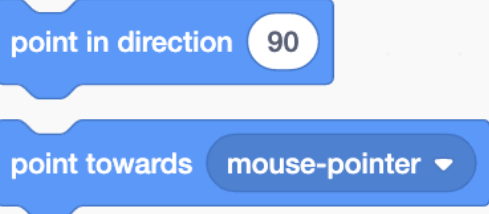
Event Block	When: How it Works
	<p>Run the code when the green flag is clicked (when the program begins). Most of the time, we use this block</p>
	<p>Run the code when a key is pressed. Use the dropdown menu to choose which key you want!</p>

	<p>Run the code when the sprite is clicked.</p>
---	---

These blue colored blocks allow your sprite to move, rotate and glide.

Motion Block	Types of Movement
	<p>This block allows you to move your sprite. It will move in the direction your sprite is facing</p>
	<p>These blocks allow you to rotate your sprite to the right or the left.</p>

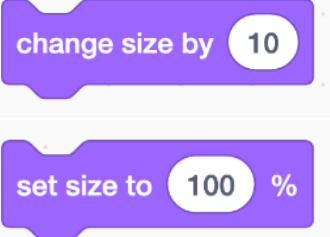
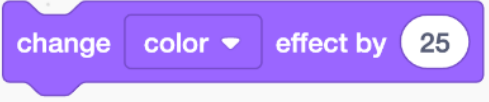
	<p>These blocks allow you to rotate your sprite to the right or the left.</p>
	<p>This block lets your sprite “jump” to a position. You can click on the dropdown menu to see the different options!</p>

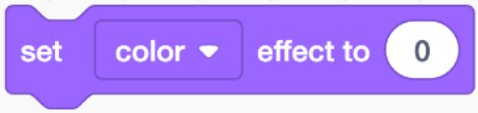
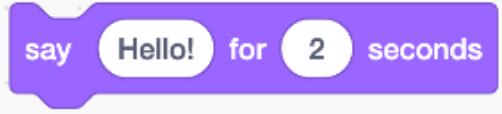
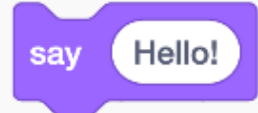
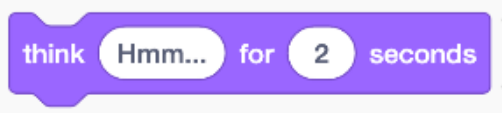
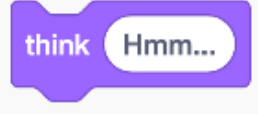
	<p>This block allows your sprite to smoothly glide across your screen to a position of choice.</p>
	<p>These blocks allow you to adjust the direction that your sprite is facing</p>

Try combining a motion block with an event block to see what happens!

Looks blocks

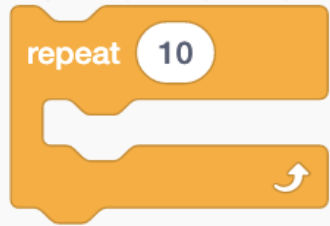
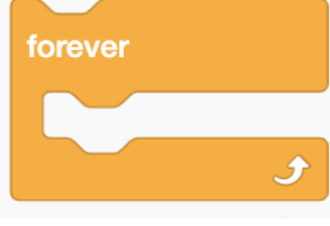
These purple-colored blocks change the appearance of your sprite.

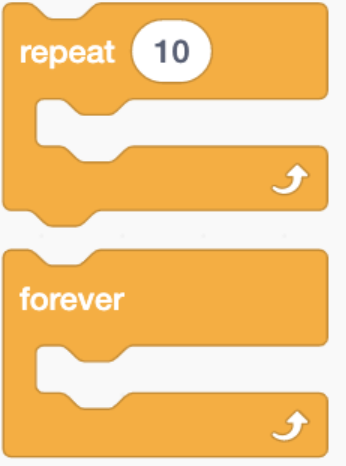
Looks Block	Appearance: Types of Looks
	<p>These blocks change the size of your sprite.</p>
	<p>These blocks will change the color of your sprite. Use the dropdown menu to see other fun effects!</p>

	
   	<p>These blocks will create a speech or thought bubble for your sprite, with the text in the code block</p>

Control the flow of your Scratch code:

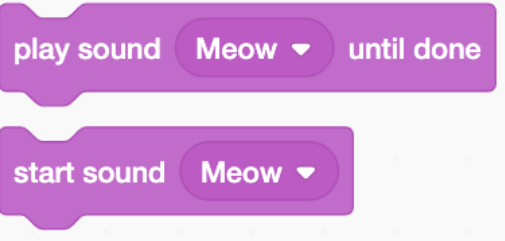
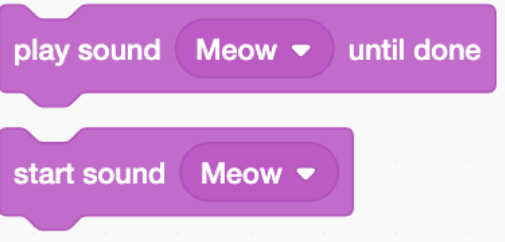
These blocks are found in the “**control**” section, colored in orange. Like the events blocks, they also have a special shape. Loops enable the continually run and repeat.

Loops Block	Repetition: How Long to Run the Code
 	<p>The forever loop will keep running the code (as long as your program is running)</p> <p>Notice that the forever loop doesn't have a notch at the bottom. This is because the loop will keep running forever, so nothing added under it will run!</p>

	<p>The repeat loop allows you to specify how many times you want to run the code.</p>
---	---

Sounds - Blocks to enable “talking” sprites and more

This section allows you to add sound to your program. Each sprite has different sounds, but you can also add your own from the “**sounds**” tab. For example, get your dog sprite to bark or record some sounds to have it “**talk**”.

Sounds Block	Start or Play: Types of Sound
	<p>Will start playing the sound. Any code blocks under this one will run as your sound it playing</p>
	<p>Will play the sound until finished. Any code blocks under this one will run once the sound is over</p>

Catch Game by using Scratch:

Let's create a Game by using scratch. A game where objects are falling from the sky. And you catch them to make scores. It could be any object that's falling. It can be character or object that's catching. Let's break this into five steps.

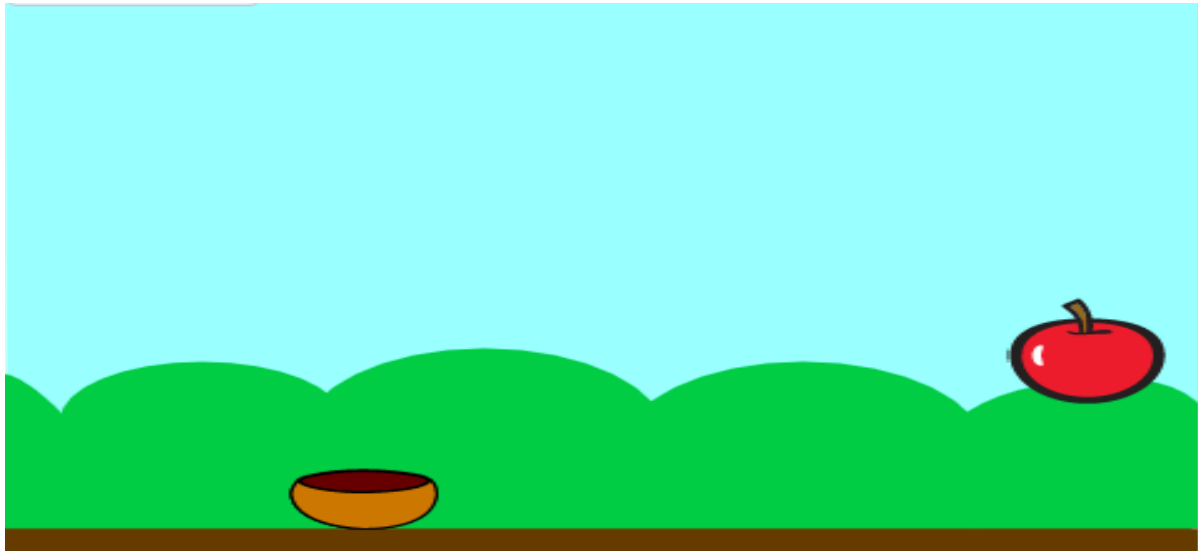


Fig. 47 (A Drop Catch Game)

- Move a catcher
- Go to the Top
- Fall down
- Catch it
- Keep scores

Move a catcher:

We want to catch the things falling from the sky. And we're going to make it move with arrow keys. To make a catcher click the button **"Sprite"** to choose character or object.

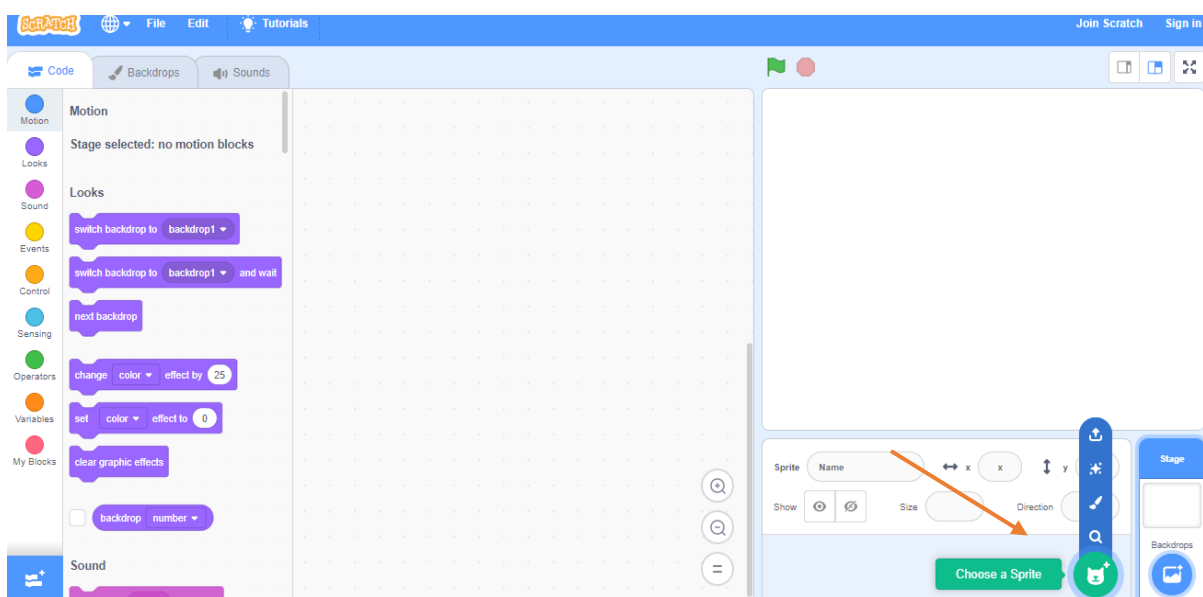


Fig. 48 (Add an Object in Scratch)

By clicking Sprite, you will get a list of characters and objects. You can choose whatever to want.
Let's use bowl for this purpose.

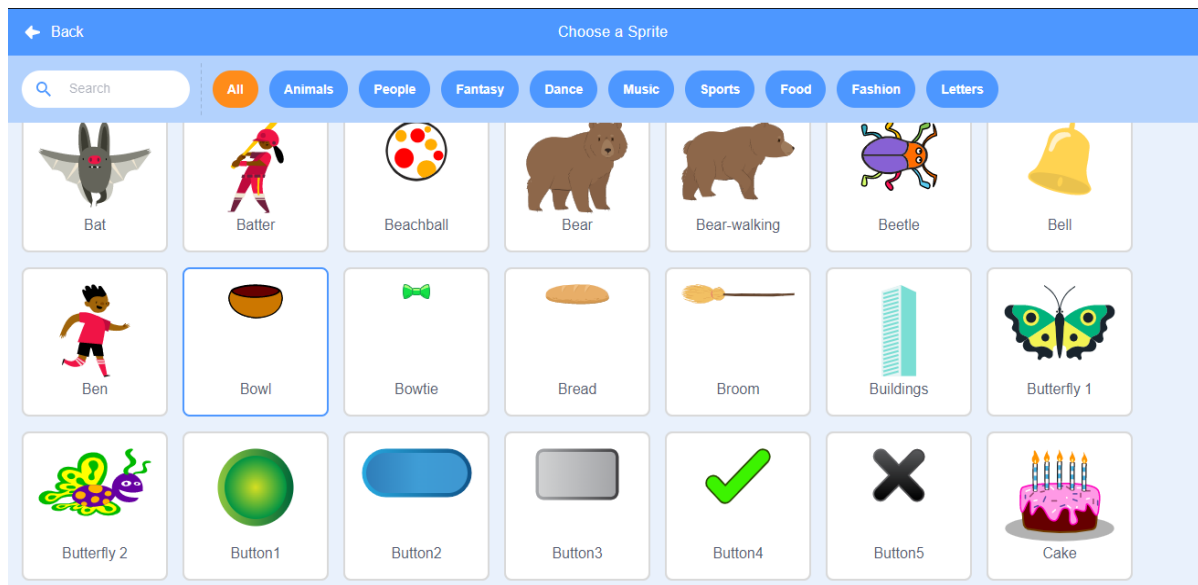


Fig. 49 (Select Sprite)

Let's add a backdrop too. You can pick any background.

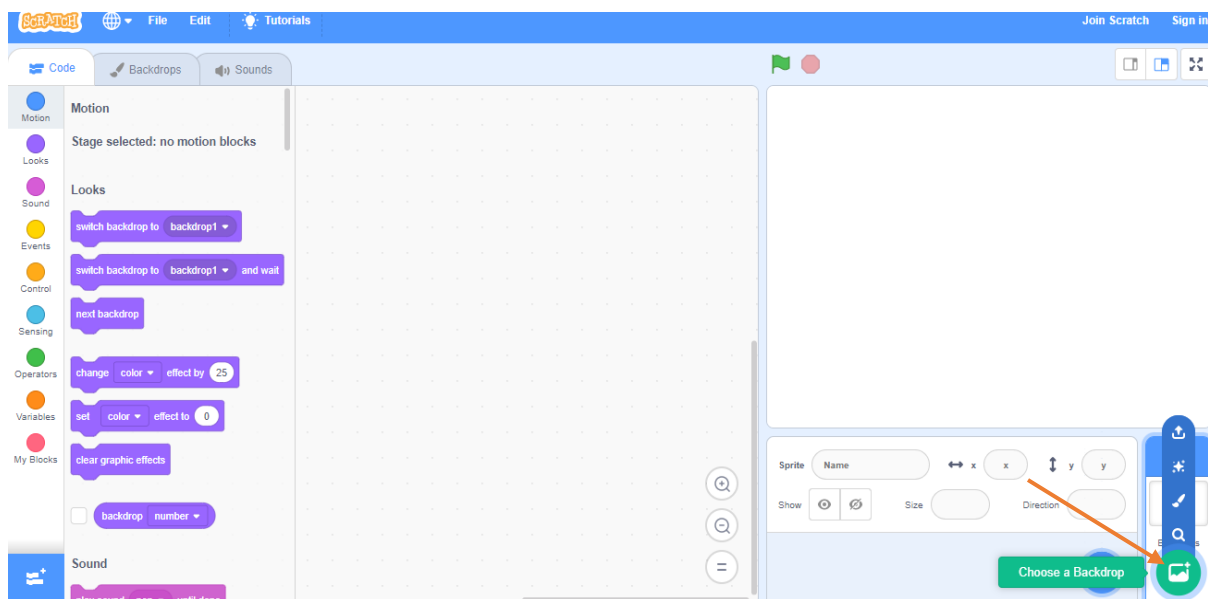


Fig. 50 (Add Backdrop)

After choosing you board will look like as follows.

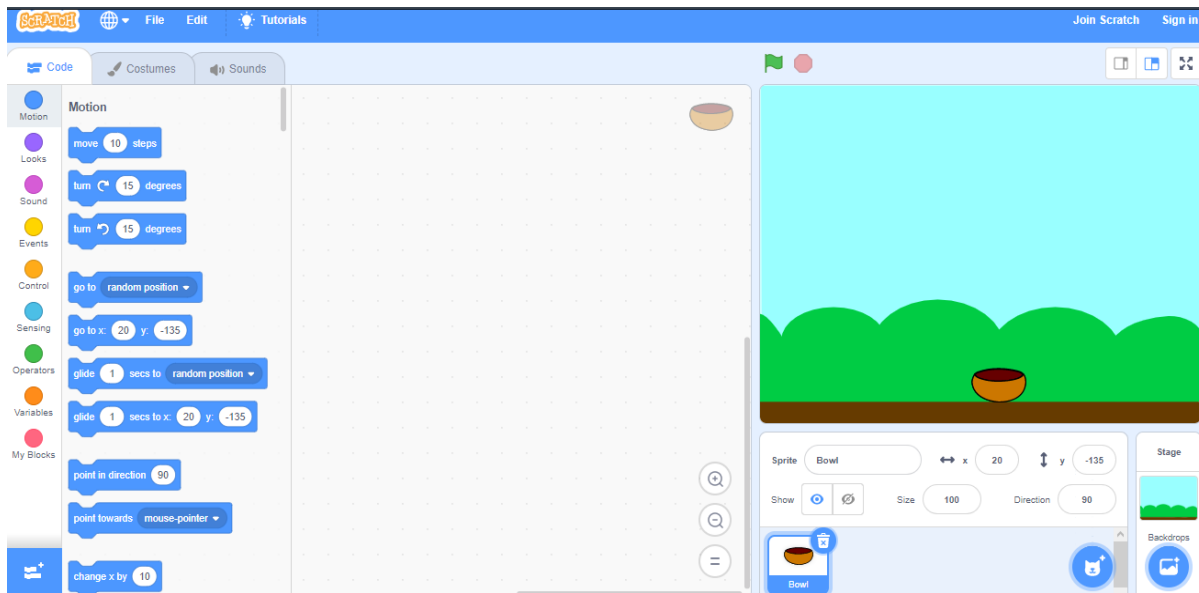


Fig. 51 (Make Moving a Bowl)

We want to make bowl able to move side by side by pressing arrow keys. So, it can catch objects whatever going to fall from top.

We will use a block (change x by 10) from the motion nav bar.

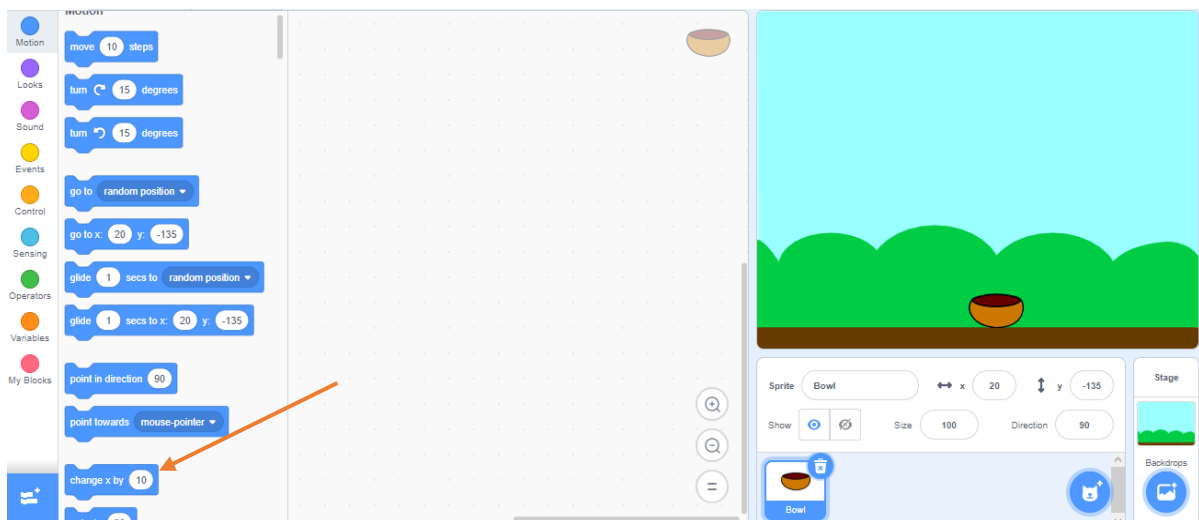


Fig. 52 (Change Position of Bowl)

By clicking this bowl will change its position. Let's make the bowl able to move by pressing keys.

There is a helpful block for this purpose. Let's take if then block from control bar.

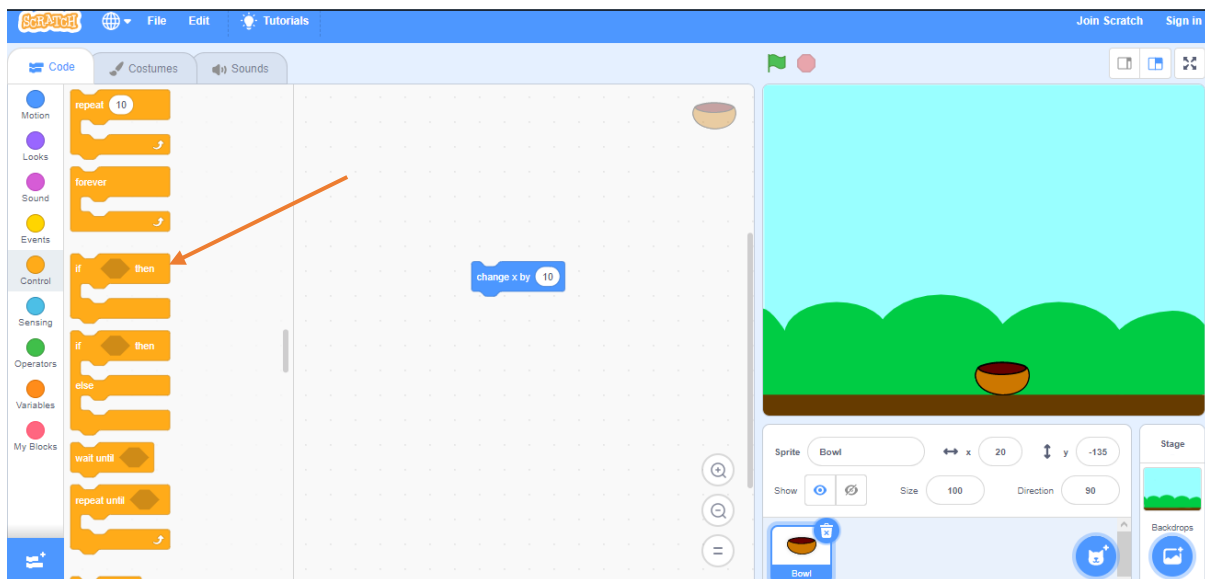


Fig. 53 (Add if-then Block)

By using if then block bowl will move only when a specific event in if condition will occur. So, in our game if right key is pressed. We can make the bowl change x by 10. To choose event we will go to “Sensing” bar.

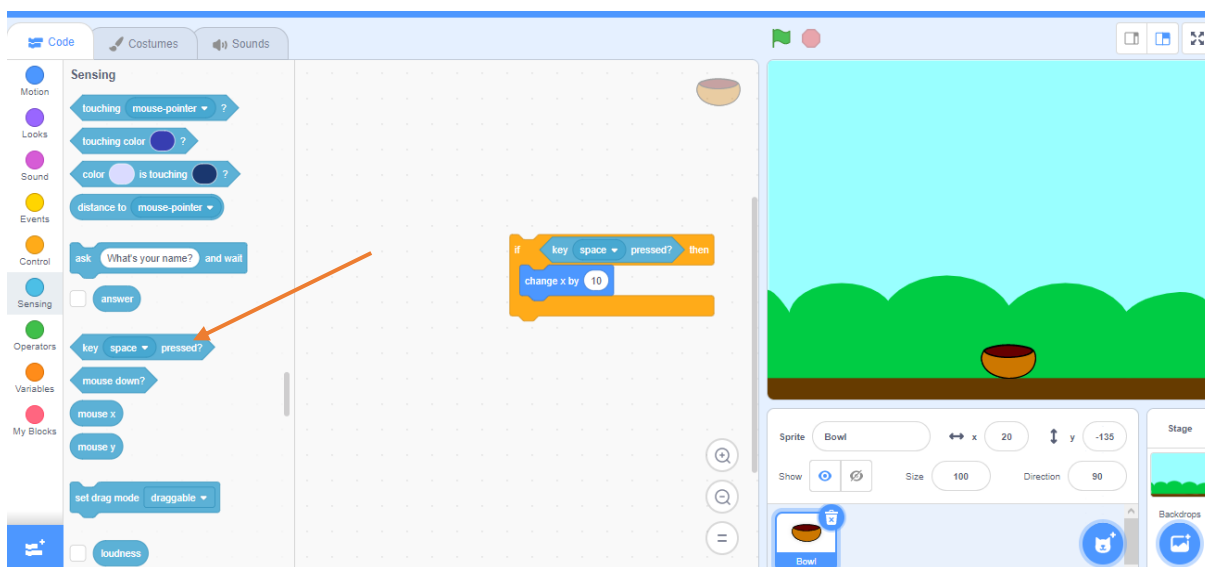


Fig. 54 (Add Condition Sensor)

Let's try it out. And let's make it start by clicking flag. Here by pressing space key nothing will happen. It is because if then block only being checked once. When clicked green flag. Its asking is the right key being pressed right now? But then it just stops doing the code. It should check if then statement always. For this purpose, let's add a forever block around if then block from control bar.

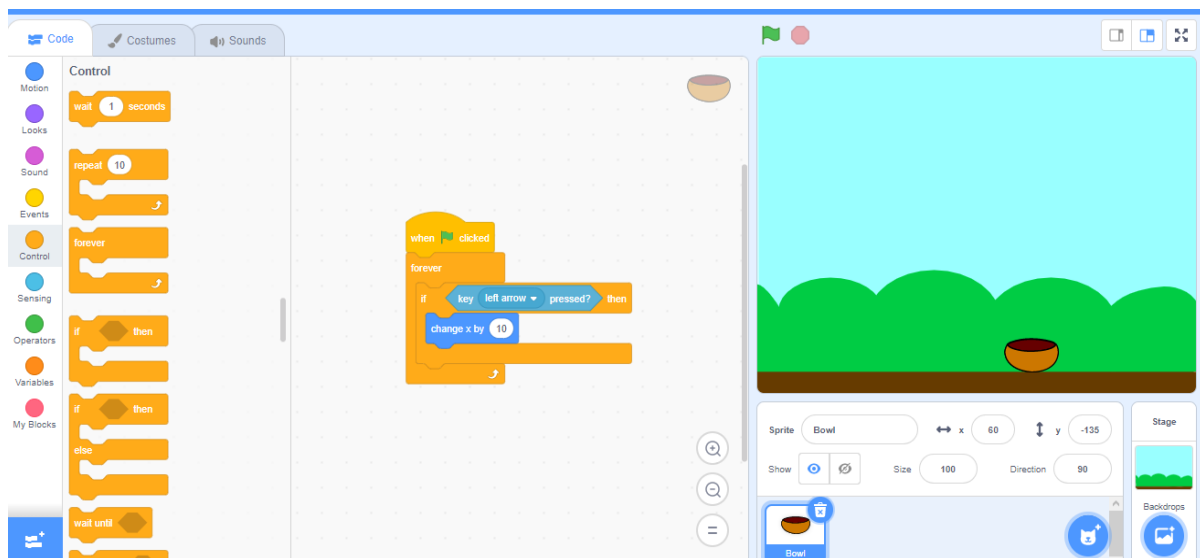


Fig. 55 (Add Click Event)

Now it is always checking, is the left arrow key being pressed? Now for right key pressed instead of changing x to 10, we will make it to change x by -10.

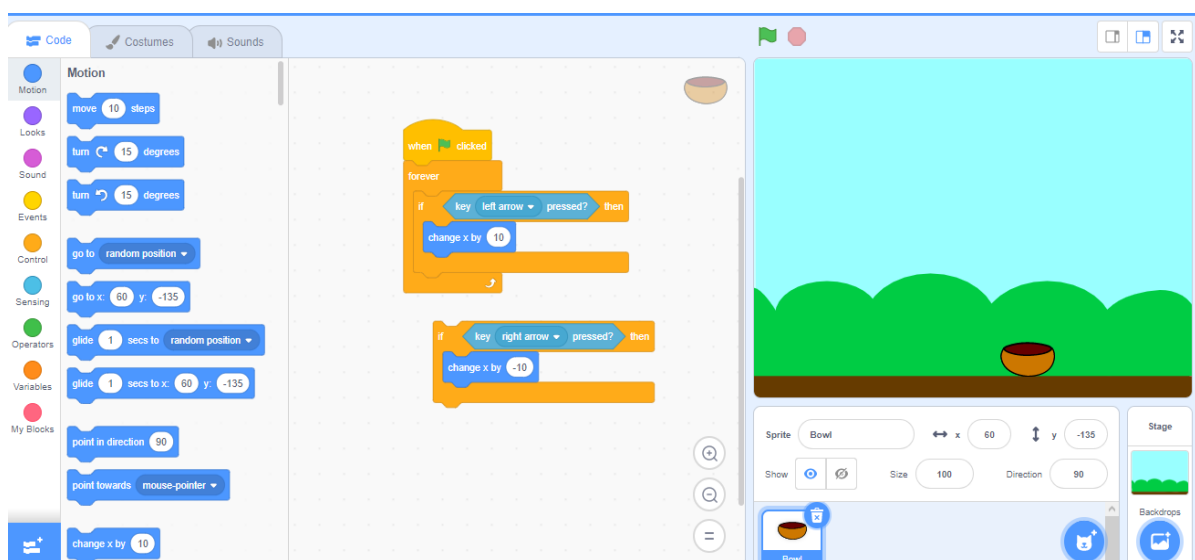


Fig. 56 (Making Bowl Moving left & Right)

Now let's put this block inside forever loop.

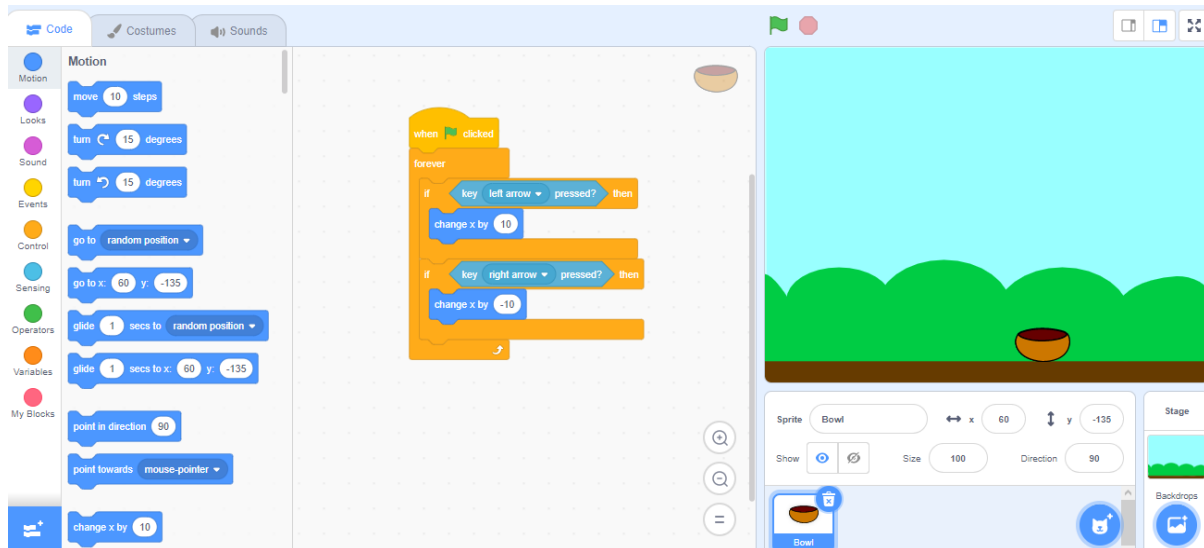


Fig. 57 (Add Right Arrow Key Listener)

From now you will be able to move bowl by pressing right and left arrow keys.

Go to the Top:

Next, let's pick an object that we want to be falling. Make it go to the top of the screen. For this purpose, you can use any object, Let's pick apple to be falling.

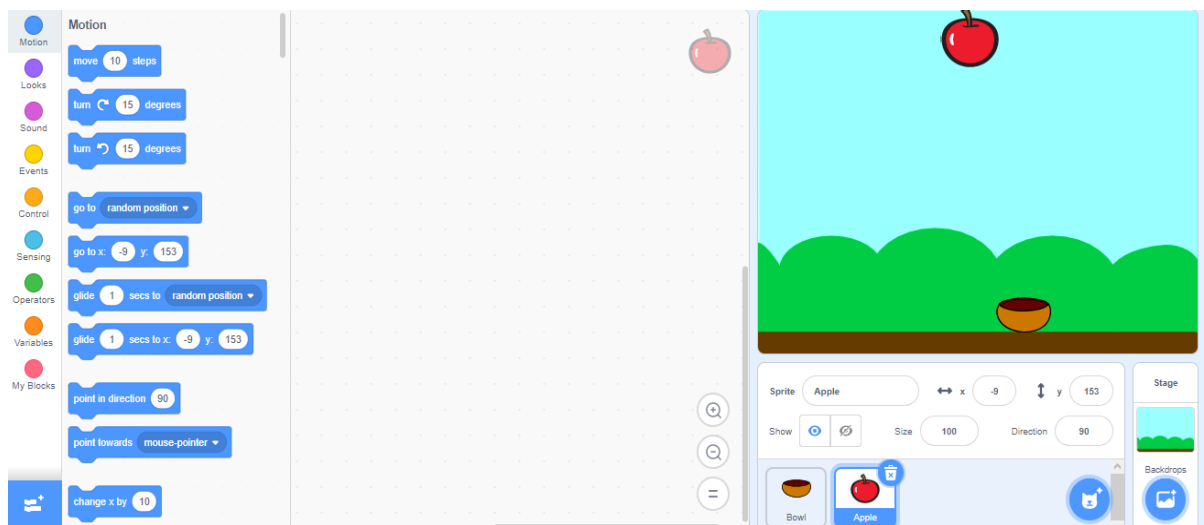


Fig. 58 (Add Apple to Game)

We want apple to start from the random position from the top. For random position we will use this block from motion bar.

To set its height of apple, let's set "Y" to 170 to make it high on the top. By this it would go to random position on the top, because, "Y" is set to 170 which is top position.

Fall down:

Now let's make our apple to fall.

If you change "Y" by 10 it would go up and if change "Y" by -10. It would go down.

If put this inside forever loop, it will be falling down and it will be keep falling while hit the surface.

So right now, we have an apple that can fall one time. What would we like to do, is if it's at the bottom it should go to the top again? This is another good time to use if then block.

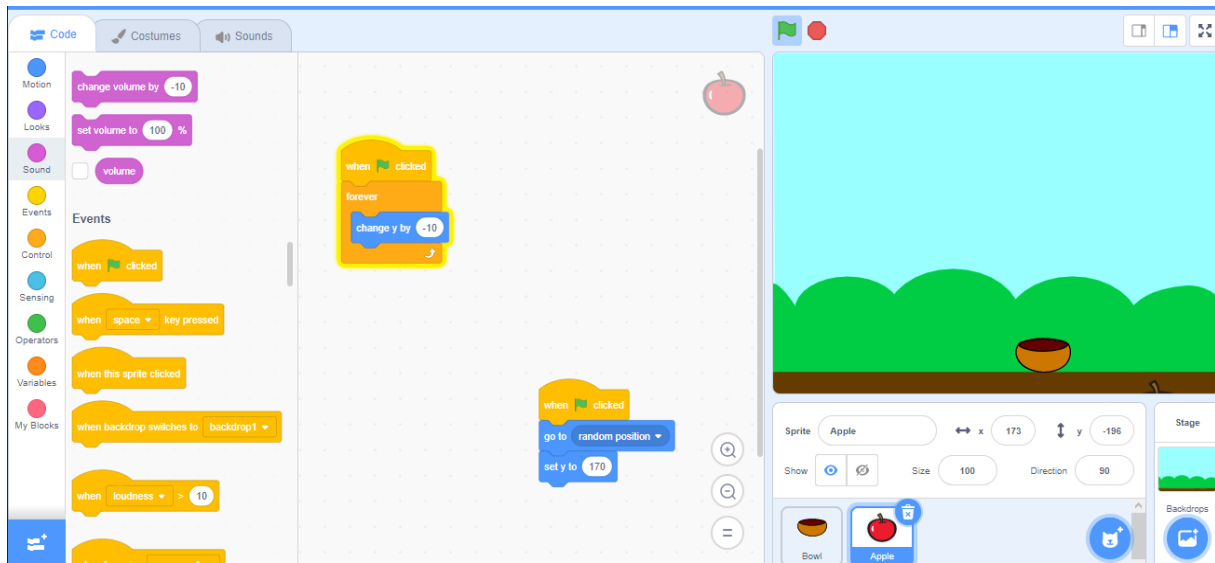


Fig. 59 (Make Apple Moving Down)

Let's drag on if then block out. In here we need to put some code, that check if the apple is at the bottom. How can it check that apple is at the bottom?

As we know “Y” check how much apple is on height. “Y” is -170 when apple is at the bottom. Cause if the apple's “Y” position is that low. To check position, we will use “Y” position blue block from motion. And also need to use green block to check value from operation bar.

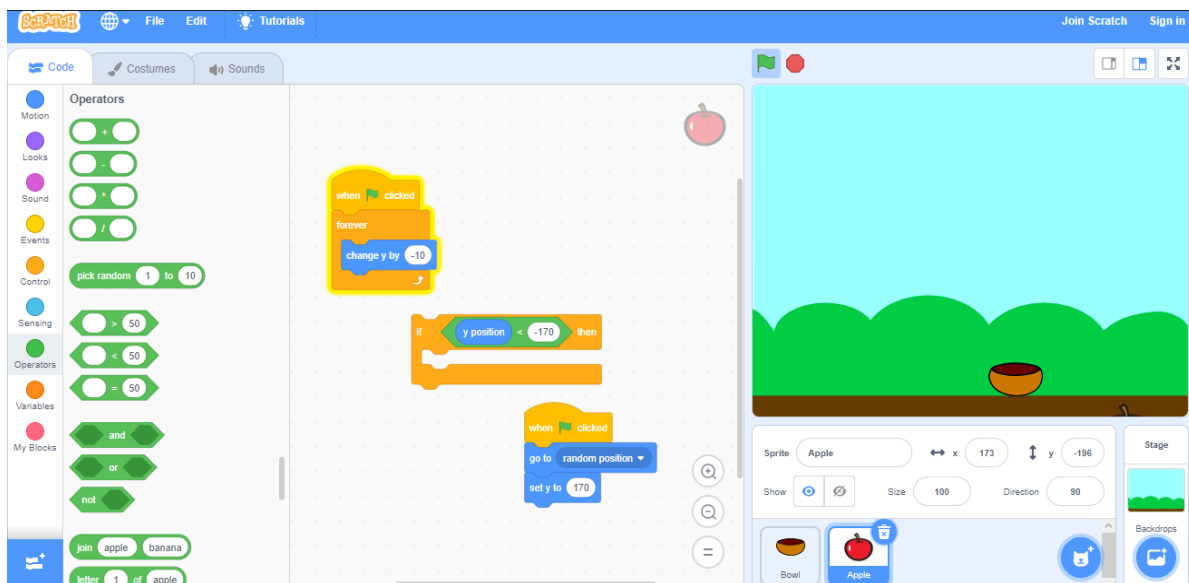


Fig. 60 (Position Checker for Apple)

We are checking if “Y” position is less than 170. On this check we want apple should go on top again. Let's add a logic to take it on top.

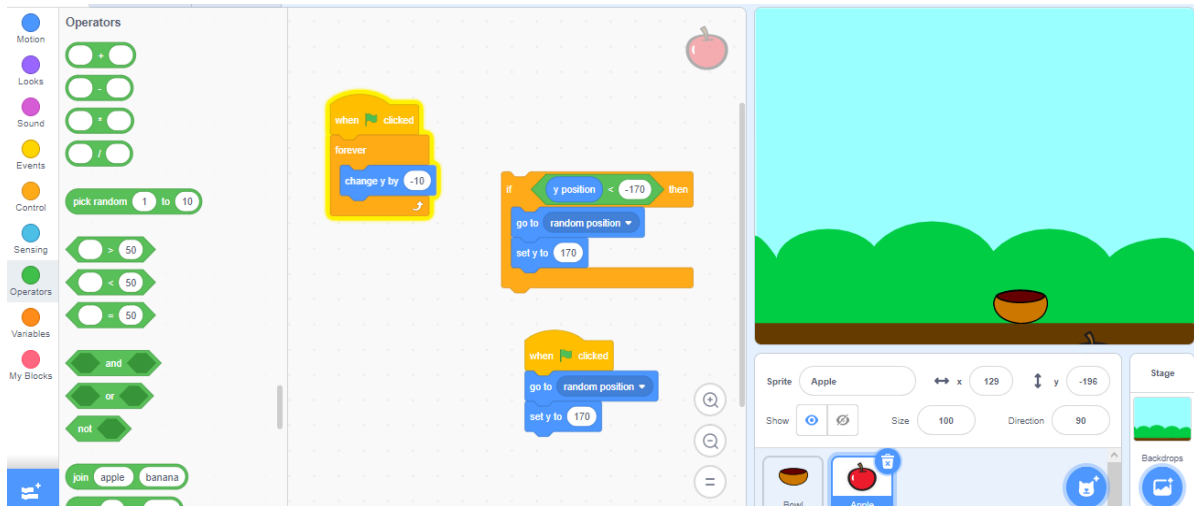


Fig. 61 (Make Apple Move to Top After Touching Bottom)

By logic inside if block it will go on the top. And let's put this block inside forever loop. Now you will see apple will go to the top when it touches bottom.

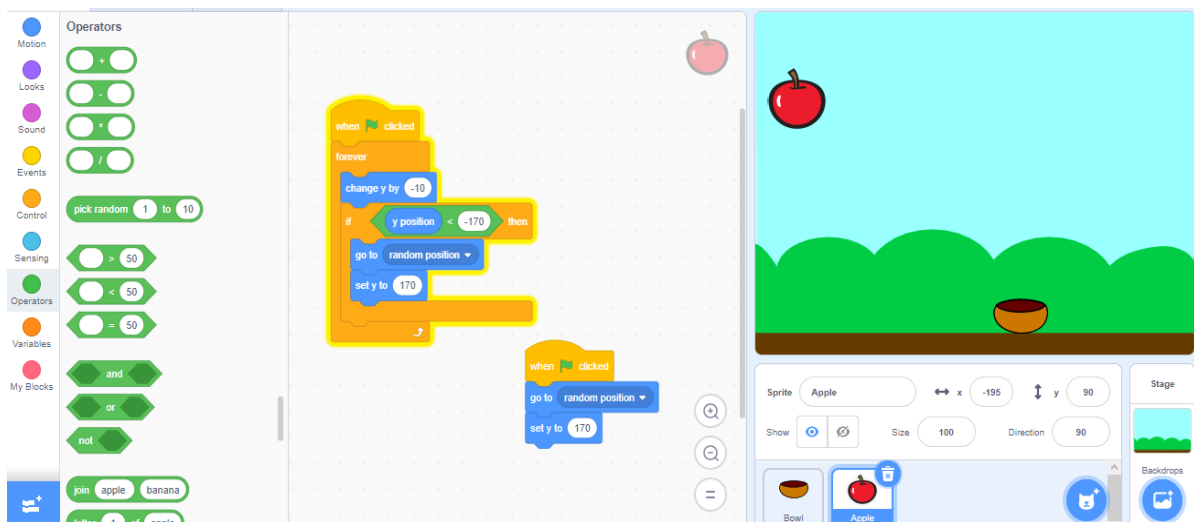


Fig. 62 (Apple Move)

Let's discuss logic of this block, so every time the apple moves down by -10, it asks am I on the bottom, if it is bottom position will be change to 170.

Catch it:

Now, let's make it so that we can catch the apple in the bowl. Instead of them just falling through the bowl. If the apple touches the bowl, then player catch it. So, it should stop falling. So, this is another good time to use if then block. And there is another helpful block in the sensor block, if object is touching to something else.

We will change mouse pointer to bowl to touch. Now block will test whether it touch bowl or not.

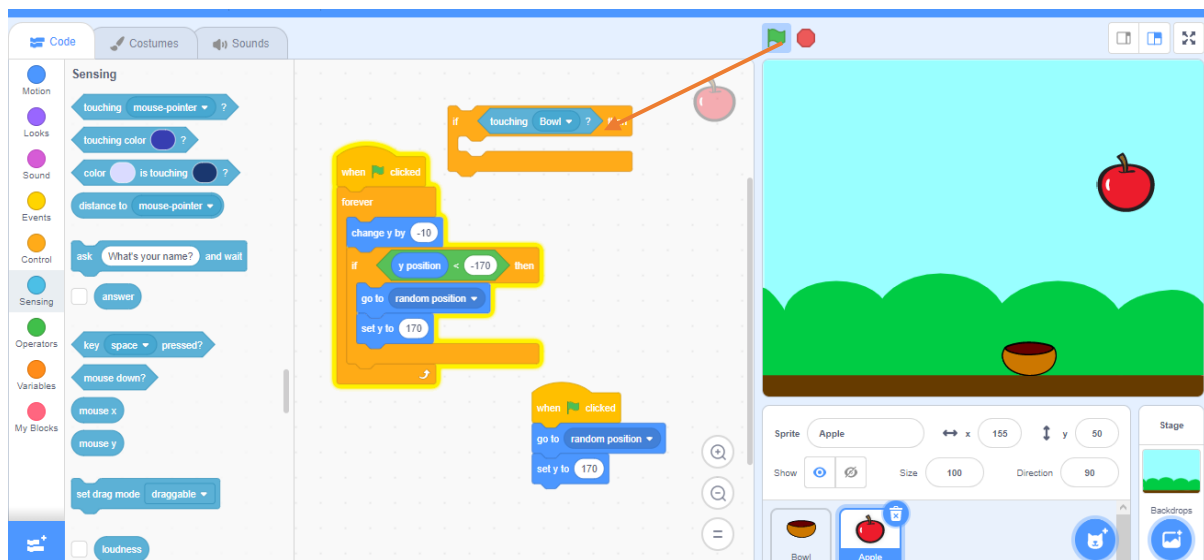


Fig. 63 (Catch the Apple)

Now after touching it should go on the top. When it touches bowl, it should produce a sound. It can be added from Sound bar.

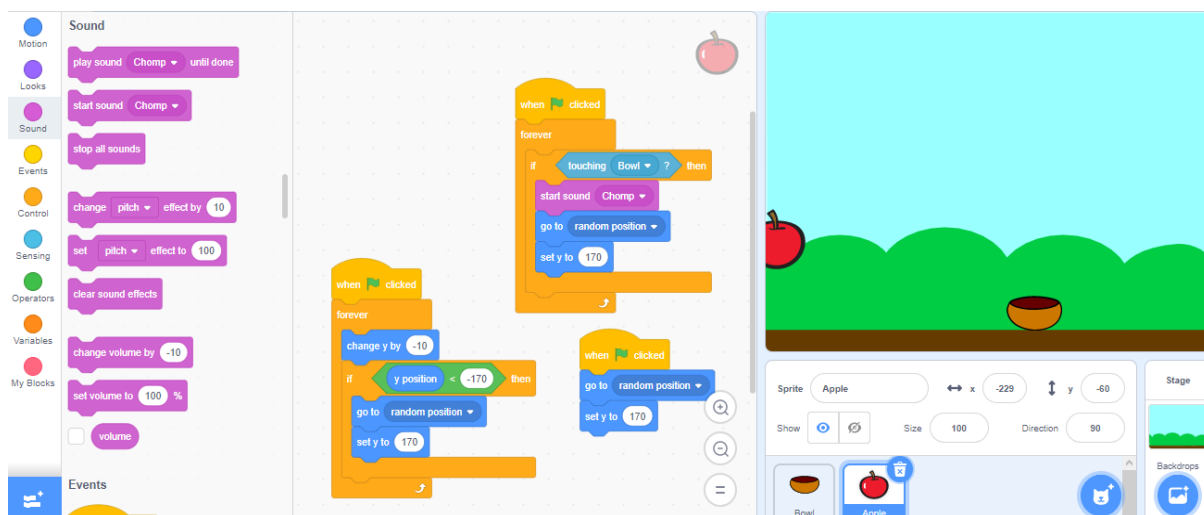


Fig. 64 (Catch the Apple)

Keep scores:

So now it should add score when bowl touches the apple. To make the score, we can add a variable. Let's add a variable to keep track of scores.

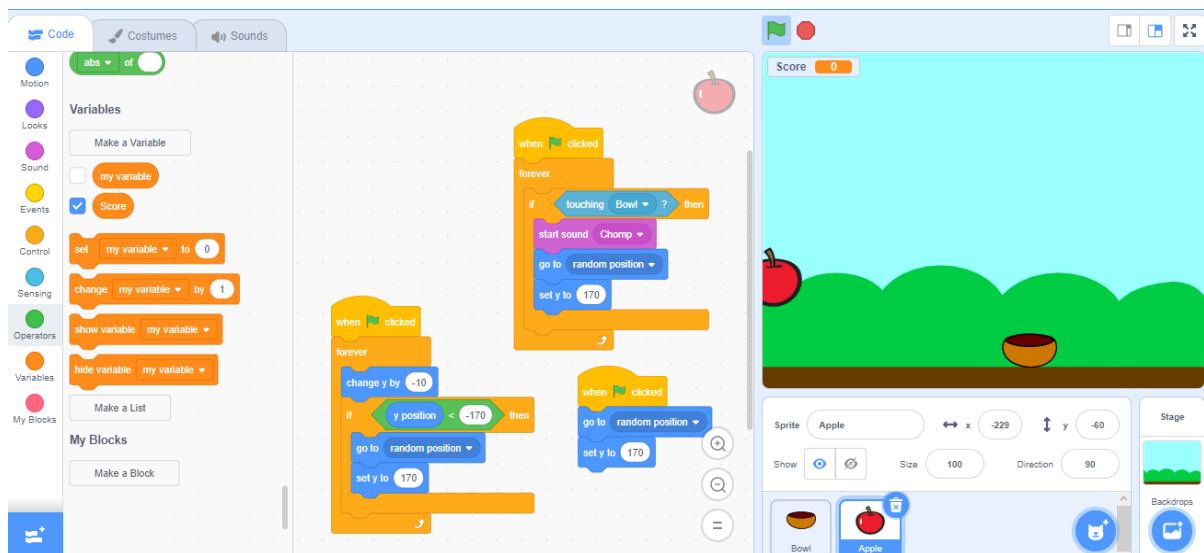


Fig. 65 (Count the Score)

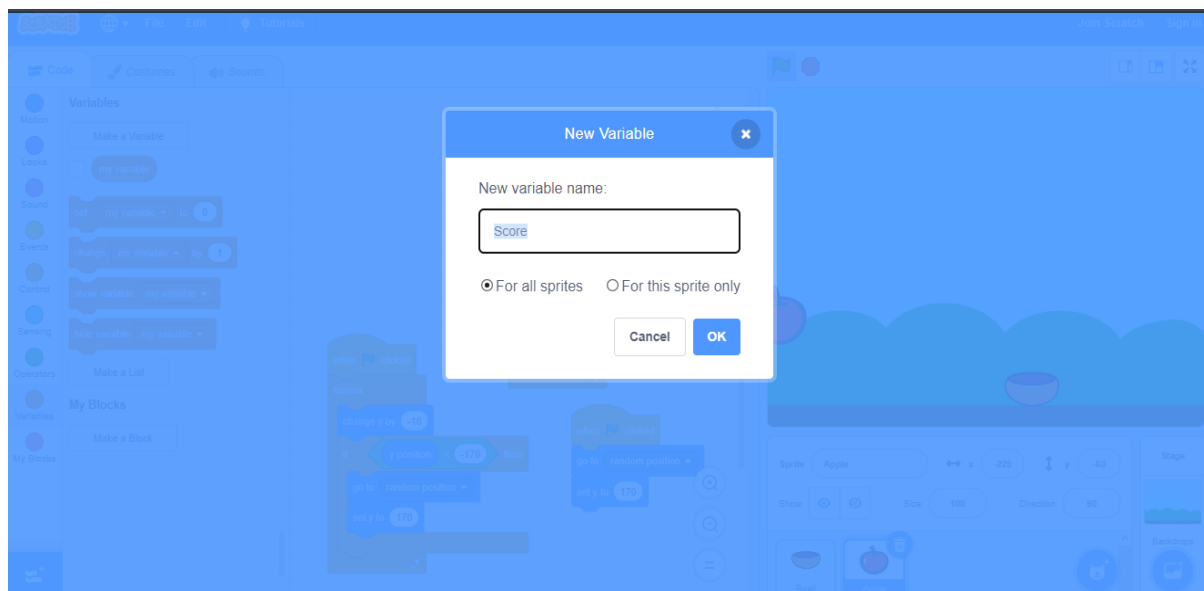


Fig. 66 (Make a Variable)

Change my variable to Score by 1 to make the score increase.

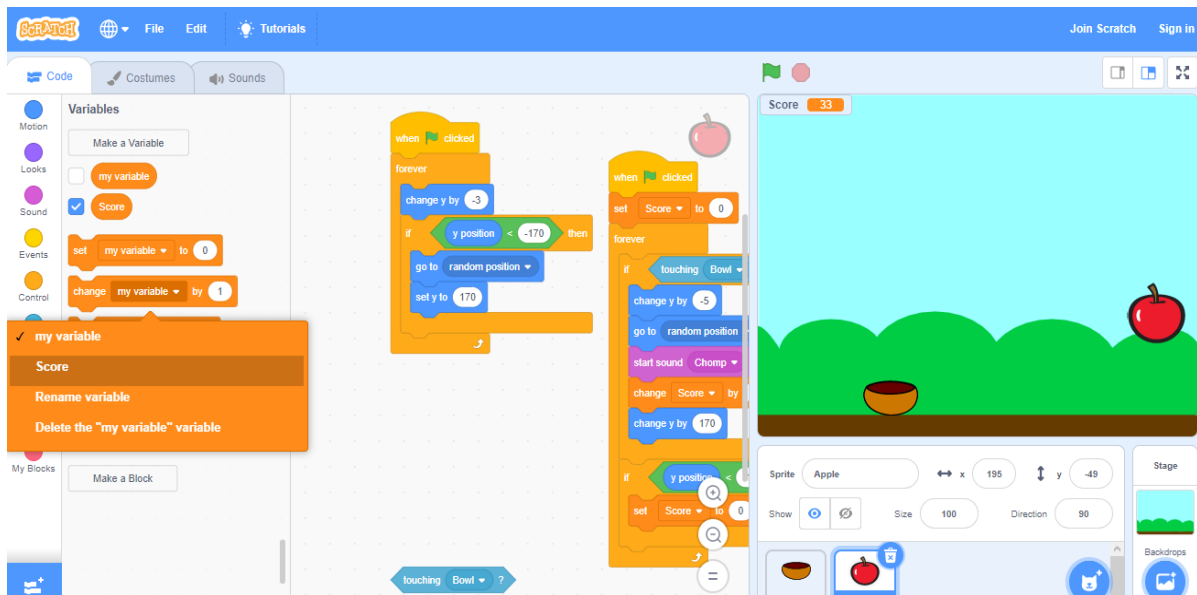


Fig. 67 (Increment Score by 1)

It should change score by 1 when it touches the bowl.

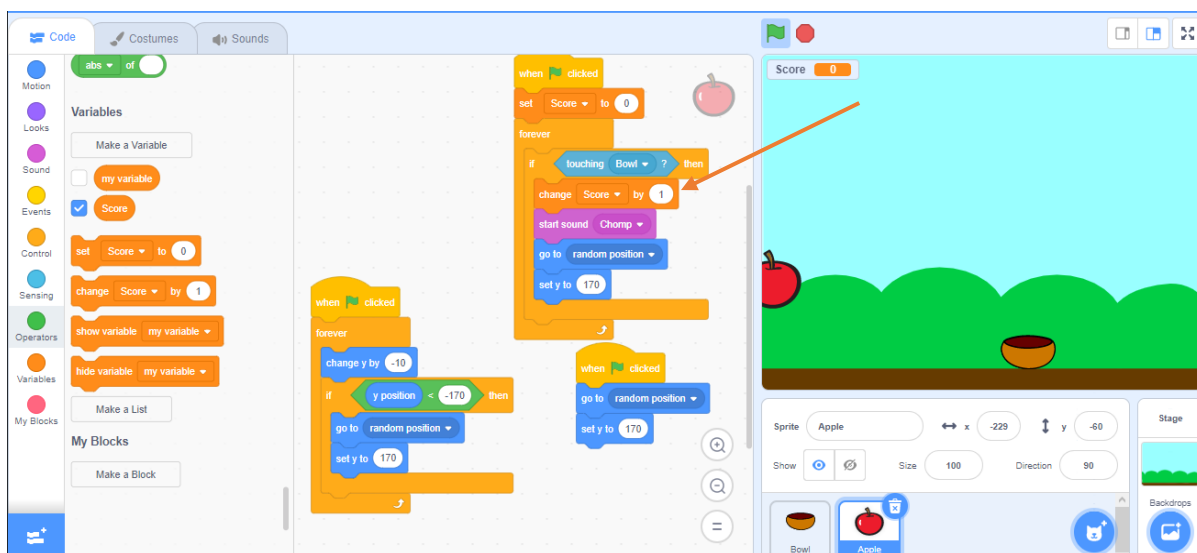


Fig. 68 (Catch Apple Game)

Also sets the score to zero at the start. By this when apple will touch the bowl the core will be increase by 1.

So, this is whole game. Try to make this by own for practice.

Task 01: Catch Game in Scratch

[50 minutes / 30 marks]

1. Make apple catch game.
2. Save and submit “rollno_game.sb3” to google classroom.

Submissions:

- For Pre-Lab Activity:
 - Perform Pre-Lab as mentioned above.
 - Save respective document in folder “RollNo_Pre-Lab_08”.
 - Then zip whole folder (RollNo_Pre-Lab_08.zip), and email to your respective TA.
- For In-Lab:
 - Perform mentioned tasks of In-Lab activity.
 - Make a folder on Desktop by name “RollNo_In-Lab_08”.
 - Then save each document in folder “RollNo_In-Lab_08”.
- For Post-Lab Activity:
 - Perform Post-Lab as mentioned above.
 - Save respective document in folder “RollNo_Post-Lab_08”.
 - Then zip whole folder (RollNo_Post-Lab_08.zip), and email to your respective TA.

Evaluations Metric:

- All the Lab tasks will be evaluated offline by TA's.
- Division of In-Lab tasks: [30 marks]
 - Task 01 (Working with Multimedia) [30 marks]
- Division of Pre-Lab tasks: [30 marks]
 - Task 01(Formatting a Presentation) [30 marks]
- Division of Post-Lab tasks: [30 marks]
 - Task 01(Game by Using Scratch) [30 marks]

References and Additional Material:

- Mary Lemons, Microsoft Official Academic Course, MICROSOFT POWERPOINT 2016, Wiley Publisher, 2016. ISBN: 978-1-11-927303-5.
https://drive.google.com/drive/u/1/folders/1V9nh8WIKOIQvi_ig98_YCaP7Vvei-tQz
- Learn Microsoft ® PowerPoint:
<https://support.microsoft.com/en-us/PowerPoint>
- Use Scratch:
<https://scratch.mit.edu>

Lab Time and Activity Simulation Log:

- Slot – 01 – 00:00 – 00:15: Settlement and attendance
- Slot – 02 – 00:15 – 00:30: Discussion on topics, some nouns and context
- Slot – 03 – 00:30 – 00:45: Demonstration on screen (Microsoft ® PowerPoint)
- Slot – 04 – 00:45 – 01:00: Demonstration on screen (Microsoft ® PowerPoint)
- Slot – 05 – 01:00 – 01:15: Demonstration on screen (Microsoft ® PowerPoint)
- Slot – 06 – 01:15 – 01:30: Demonstration on screen (Microsoft ® PowerPoint)
- Slot – 07 – 01:30 – 01:45: Give Tasks and discussion on each task
- Slot – 08 – 01:45 – 02:00: Activity time slot (Task01: Working with Multimedia in PPT)
- Slot – 09 – 02:00 – 02:15: Activity time slot (Task01: Working with Multimedia in PPT)
- Slot – 10 – 02:15 – 02:30: Evaluation of the In-Lab
- Slot – 11 – 02:30 – 02:45: Evaluation and the Post-Lab Instructions
- Slot – 12 – 02:45 – 03:00: Elaboration of the Post-Lab