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# ADVANCED FEATURES OF EXCEL



## Learning Outcomes

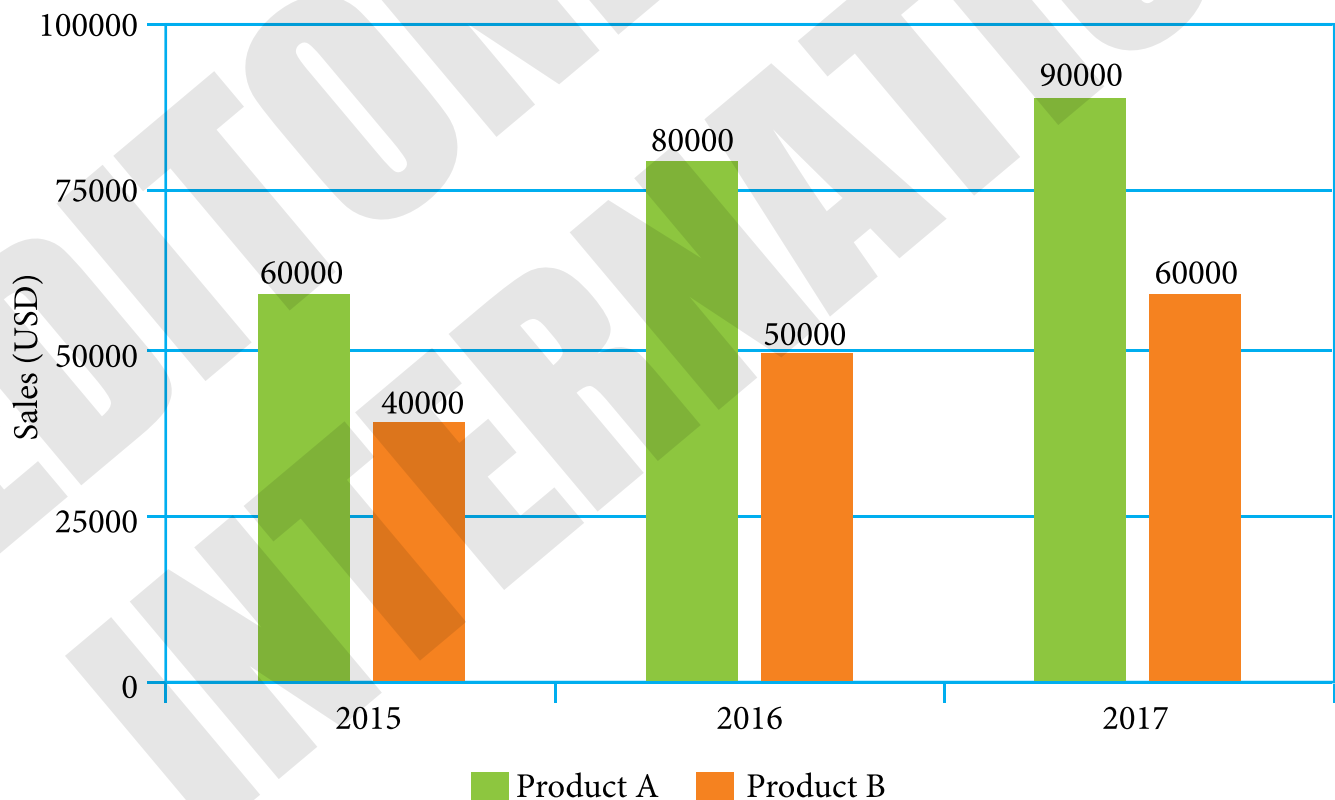
At the end of this chapter, students will be able to:

- ♦ Make charts in Excel.
- ♦ Recognise the components of a chart.
- ♦ Format charts and sort data in a worksheet.



Observe the following chart carefully. What does it represent?

Sales of Product A and Product B



**Teacher's Note:**

Guide students with the help of a chart to easily understand the data and compare values.



*Hey Friends! Let's learn how to make charts using the data from the worksheet.*

In order to efficiently handle a big amount of information in spreadsheets, Excel offers several extremely helpful functions including charts, sorting, and filtering data.

Humans are visual learners, therefore when given reference visual points, their understanding is enhanced. One efficient way to represent data in a pictorial form is through charts. We can easily understand and compare data values with the help of charts.

Charts depend on the data of a worksheet. When the information in the spreadsheet changes, the chart is immediately updated.



## MAKING A CHART

As stated above, in order to insert a chart in a worksheet, we need to add some data to it.

Follow the given steps to make a chart in Excel:

### Steps:

1. Select the data from which you want to make a chart.
2. Click on the Insert tab.



### Let Me Answer

*Have you ever made a chart in your Mathematics class?*

	A	B	C	D
1	Make	Colours	Odometer	Price
2	Honda	White	77667	7500000
3	TVS jupiter	Black	590312	850000
4	Yamaha	Red	456668	40000
5	Bajaj	Green	97111	700000
6	Royal enfield	Blue	340015	3500000
7	Apache	Black	877774	5000000
8	Hero Splendor	white	78889	9000000
9				
10				
11				

Figure 1.1: Creating chart

3. In the Charts group, click on see all charts button to open the Insert Chart window.
4. Click on the All Charts tab and from the list of charts shown in the left pane select column.
5. Click on the 'ok' button to insert the chart in the worksheet.



Figure 1.2: Insert Chart

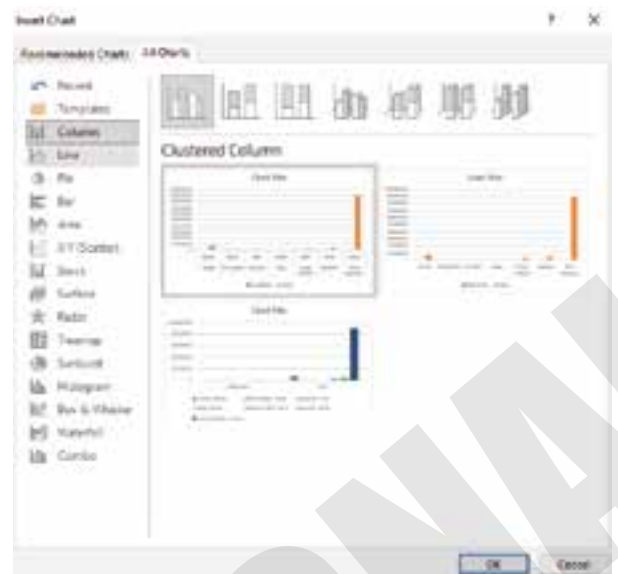


Figure 1.3: All Charts



## ELEMENTS OF A CHART

Various elements of a chart are:

1. **Chart Area:** All the area and other objects of a chart are included in the chart area.
2. **Category Axis:** The horizontal area of a chart is called the X-axis or category axis.
3. **Value Axis:** It is the vertical axis which is used to plot the values and is called the Y-axis.
4. **Data Series:** Data series consists of the bars, slices, lines or additional elements that show the data values.
5. **Category Name:** The labels visible on the X and Y axes are the category names.
6. **Plot Area:** A window within the chart area is the Plot Area.
7. **Legend:** Colours, patterns, or symbols assigned to the data series are depicted by legends.



**Let Me Answer**

*Define x-axis and y-axis.*



## FORMATTING A CHART

The look of the chart is enhanced by formatting. Chart elements, chart styles, and Chart Filters can also be formatted. We can also change the numbers on the value axis, and hide or show gridlines.

## Changing the Title of a Chart

Follow the given steps to edit the Chart title.

### Steps:

1. Click on the chart title.
2. Right-click on the Chart Title placeholder, the pop-up menu will appear.
3. From the pop-up menu, select the Edit text option.
4. Add the new Chart Title and press the ESC key.

## Editing Chart Elements

Titles, labels, gridlines and data labels can be edited.

Follow the given steps to edit the elements.

### Steps:

1. Click on the Chart.
2. The following pane will be displayed.

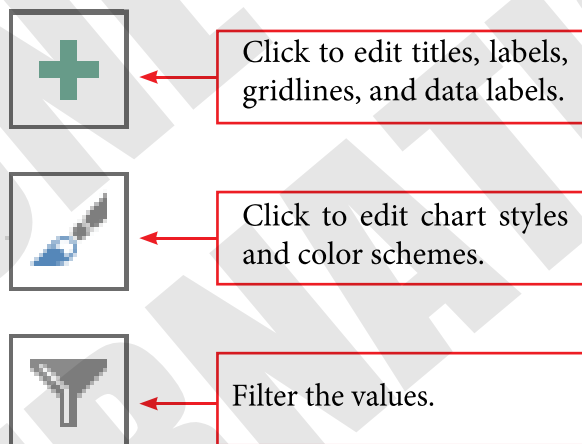
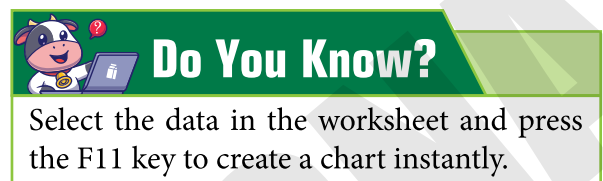


Figure 1.4: Chart Elements



## **EDITING CATEGORIES IN A CHART**

Follow the given steps to edit categories of the chart.

### Steps:

1. Click on the chart.
2. Click on the filter button.
3. Select the Categories option and unselect 1 from the Panel.
4. Click the Apply button and see the changes.

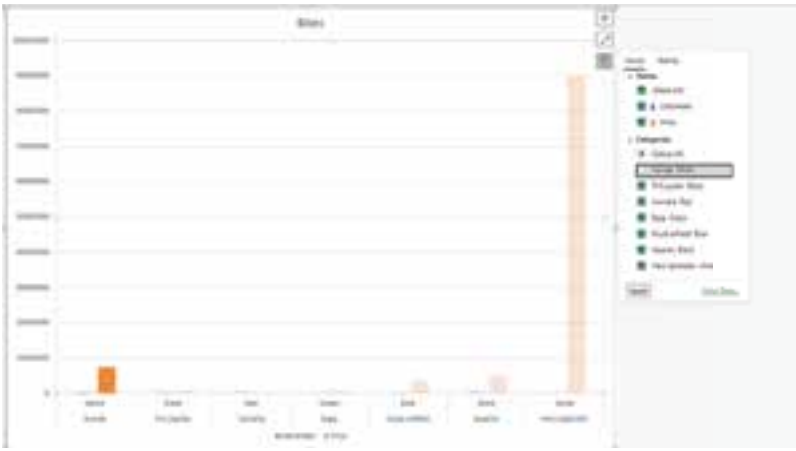


Figure 1.5: Chart Filters

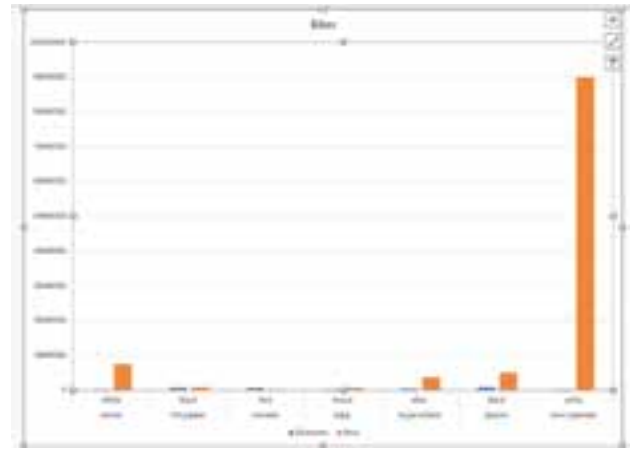


Figure 1.6: Editing Chart Categories



## FORMATTING LEGENDS

Follow the given steps to edit the legends in the chart.

### Steps:

1. Right-click on the legend.
2. From the pop-up menu, select the format legend option to open the Format Legend Panel.
3. Click on the Fill and Line option.
4. Select the solid fill option.
5. From the colour drop-down list, select the colour of your choice.

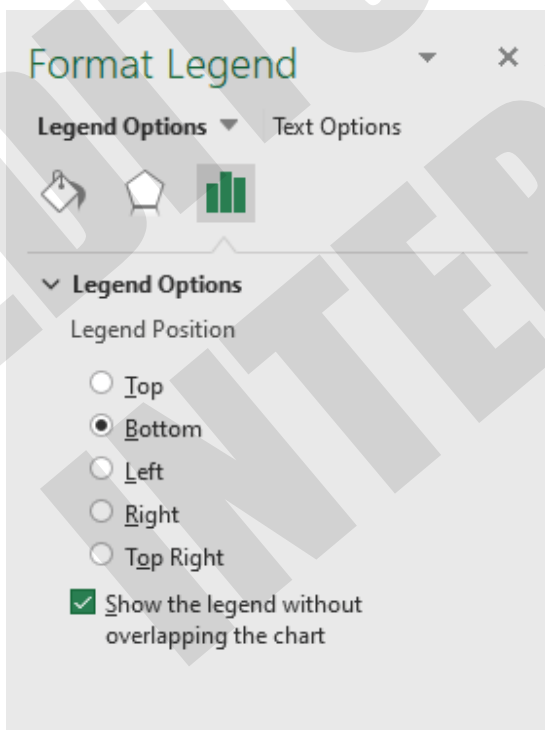


Figure 1.7: Legend Option



Figure 1.8: Format Legend



## SORTING DATA

Sorting is a feature in MS Excel that helps you organise data. You can sort a text column in alphabetical order (A-Z or Z-A). We can sort a numerical column from the largest to the smallest or the smallest to the largest. We can also sort a date and time column from the oldest to the newest or the newest to the oldest.

Follow the given steps to sort the given data.

### Steps:

1. Select the range of cells containing the data to be sorted.
2. On the Data tab, in the Sort and Filter group, click on the sort option to open the Sort dialogue box.
3. From the Sort by drop-down list, choose the column which you want to sort.
4. Select the values option from the Sort On drop-down list.
5. From the Order drop-down list, choose the order of sorting- largest to smallest option.
6. In the Sort dialogue box, click on the Add Level button to add a new level below the first level.
7. Specify the column name as mentioned in the sheet by dropdown list and order of sorting as A to Z in the Order drop-down list in the new level.

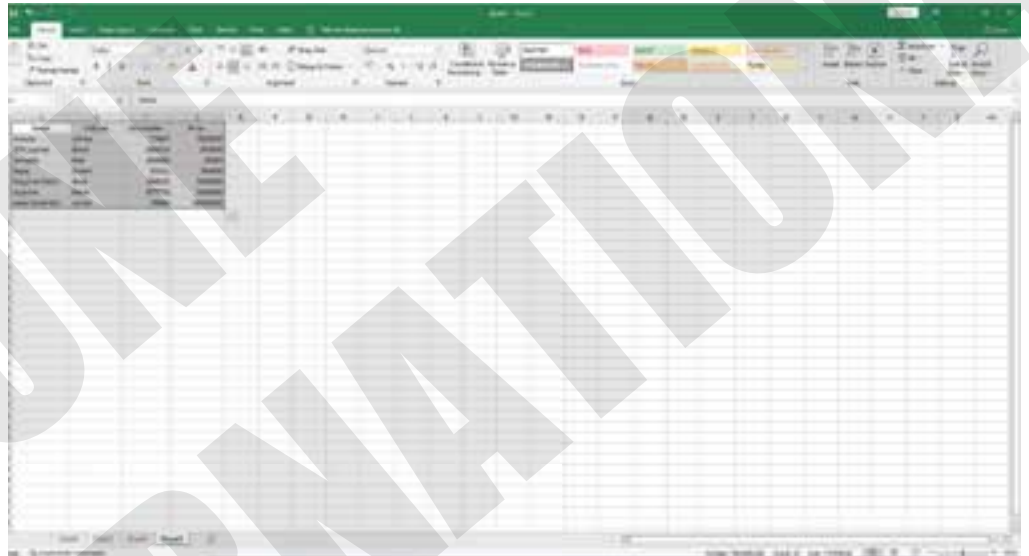


Figure 1.9: Sorting Data

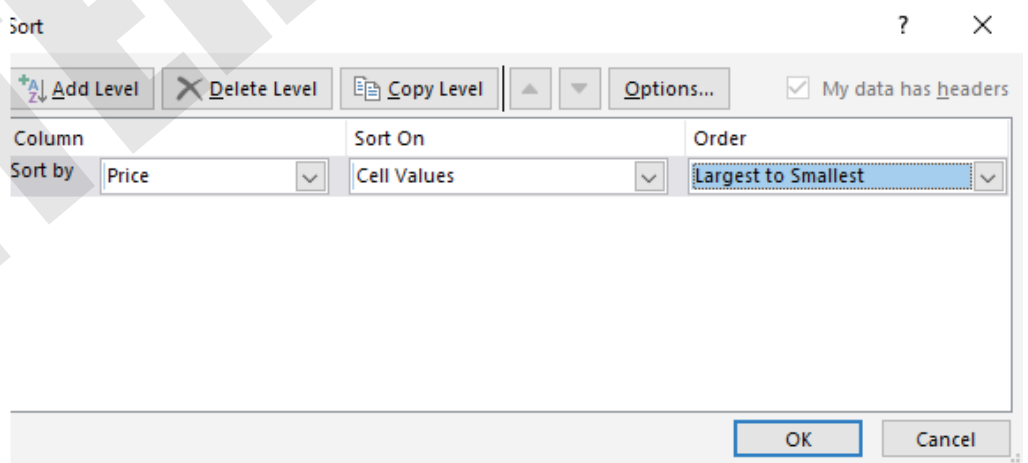


Figure 1.10: Sort

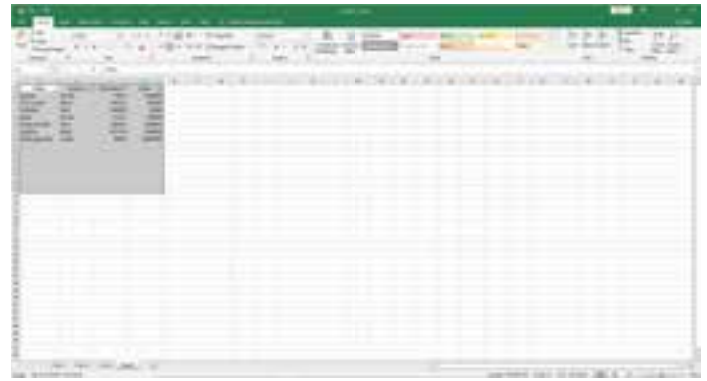
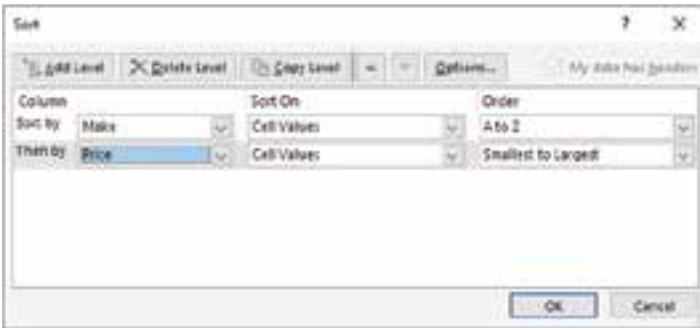


Figure 1.11: Sorting Data with Multiple Columns

## Filtering Data

Filter temporarily hides some of the data in a table, so you can focus on the data you want to see.

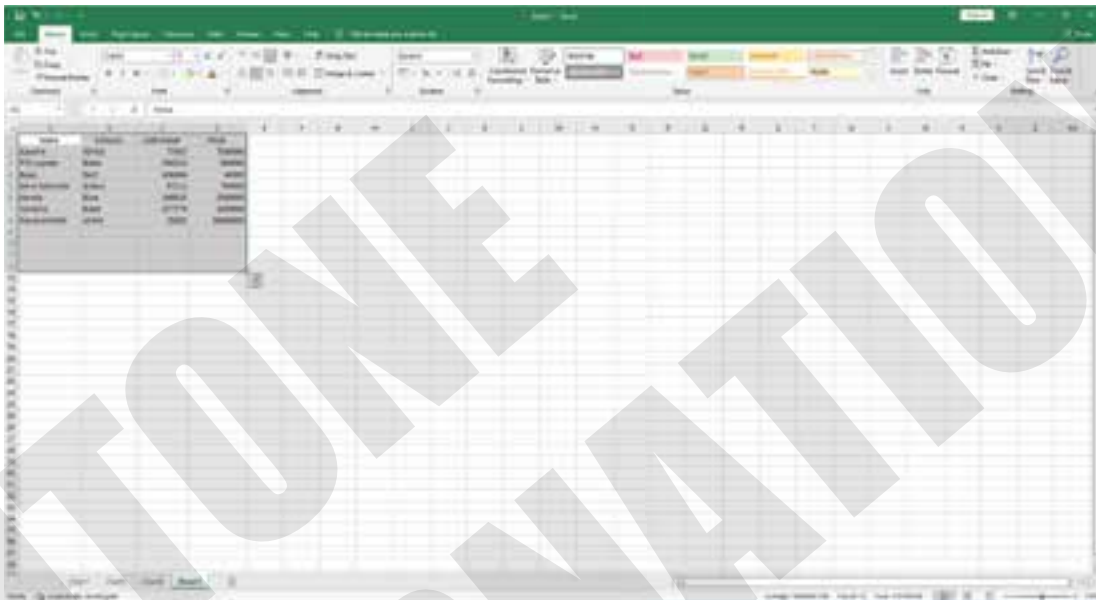


Figure 1.12: Filter Data

Follow the given steps to filter data.

### Steps:

1. Select the data you need to filter.
2. On the Data tab, click on the filter option in the Sort & Filter group.
3. The filter arrows appear next to each column's heading.
4. Click on the arrow next to the column to specify a condition.
5. A drop-down list appears which provides many options for filtering data.
6. Select the checkboxes of the values based on which you would like to filter the data and clear all other checkboxes.

### REMEMBER IT!



Ensure that the item of each data type in a column is identical before filtering the data.

- Click Ok.
- Observe the list which is filtered according to the chosen criteria.

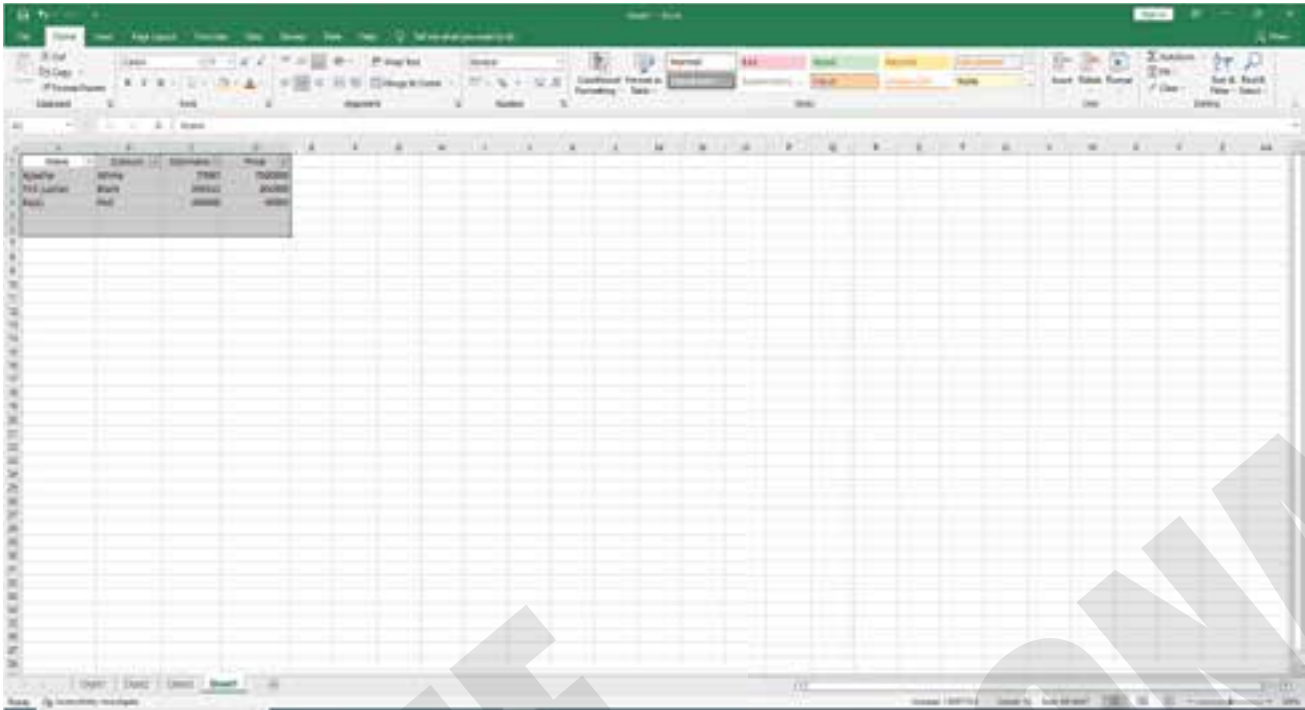


Figure 1.13: Filtered Data



## Kids' IQ

Sangam has created a chart that shows the grades he received in several exams. He immediately realised that he needed to modify the colours and symbols used to represent the data series after creating the chart. Which part of the chart should he use to make the same changes?



## Let's Recall

- The chart is immediately updated when the information in the spreadsheet changes.
- The labels visible on the X and Y axes are the category names.
- The horizontal area of a chart is called the X-axis or category axis.
- Data series consists of the bars, slices, lines or additional elements that show the data values.
- The look of the chart is enhanced by formatting.
- Sorting is a feature in MS Excel that helps you organise data in a particular order.
- Filter temporarily hides some of the data in a table, so you can focus on the data you want to see.

**A. Fill in the blanks.**

1. Charts depend on the data of a .....
2. The area and other objects of a chart are included in the ..... area.
3. Category axis is also called as .....
4. A window within the chart area is the ..... area.
5. .... just temporarily hides the data.

**B. Write 'T' for True statements and 'F' for False statements.**

1. The X-axis is a vertical axis.
2. The look of the chart is enhanced by formatting.
3. Titles, labels and gridlines cannot be edited.
4. Filter helps you organise data in a particular order.
5. Formatting improves the appearance of a chart.

**C. Answer the following questions.**

1. Explain any three elements of a chart.

.....

.....

2. What do you mean by filtering?

.....

.....

3. Write down the steps to sort data.

.....

.....

4. State the difference between sorting and filtering.

.....

.....

5. Write the steps to change the title of a chart.

.....

.....



### Critical Thinking

Ramesh is the head of the accounts department in the organisation. He has made an Excel sheet which displays the name, designation, salary and bonus of each employee. However, he is asked to show the sheet to one of his colleagues but is not allowed to disclose the bonus given to each employee. Suggest to Ramesh how he can hide the specific data.



### Team Work

Work in pairs. Imagine your school has organised an inter-class race. In sheet 1, add the names and timings of the players in Team A. Further, add the names and timings of the players in Team B in sheet 2.



# MORE ON PYTHON



## Learning Outcomes

At the end of this chapter, students will be able to:

- ◆ Recognise Python keywords.
- ◆ Comprehend the fundamental rules of a language.
- ◆ Understand Syntax.
- ◆ Identify different operators of Python.

## Warm-up

What will be the output if the given statements are typed in interactive Python mode?

1. `>>>'Python is Fun'`

2. `>>>30 + 30`

3. `>>>'Shubham\Shubhi'`

4. `>>> 100% 30`



Assist students in doing the above exercise and give some more statements to them.



*Hello Friends! We covered the fundamentals of the Python programming language in the previous class. More information about the rules that govern the Python programming language will be covered in this chapter.*

There are several laws that apply to every human language. These principles are language-specific i.e., we adhere to the linguistic rules of the language in which we are communicating. Similar to this, if you want to instruct a machine using a programming language, you must adhere to the syntax, or set of rules of that language.

**REMEMBER IT!** 

Python is one of the 9 languages that influenced the design of JavaScript.



## SYNTAX

The collection of guidelines that must be followed while writing programming statements is known as the syntax. The interpreter will highlight a statement mistake if the proper syntax is not used.

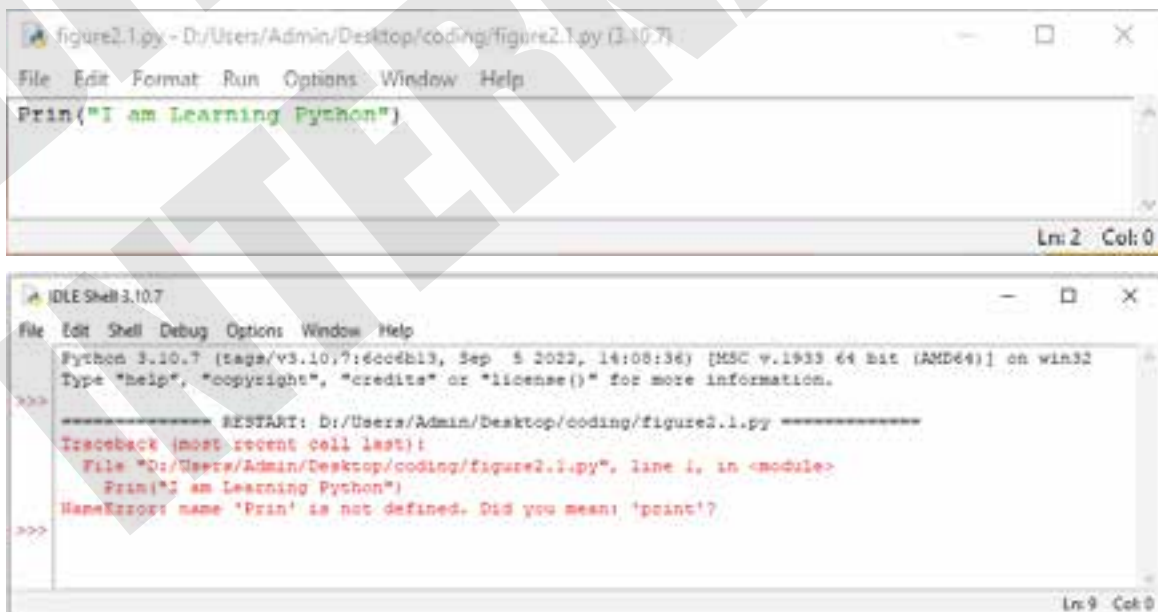
For example, your science teacher finds out that the labelling of the diagram done by you is not correct, then she will mark the labelling as incorrect.

A syntax error might cause the programme to stop working by using improper punctuation, the wrong keywords, or undefined phrases.



## Do You Know?

Many big names use Python for their products/services. Some of these are NASA, Google, IBM, Nokia, etc.



```
figure2.1.py - D:/Users/Admin/Desktop/coding/figure2.1.py (3.10.7)
File Edit Format Run Options Window Help
Prin("I am Learning Python")
Ln: 2 Col: 0

IDLE Shell 3.10.7
File Edit Shell Debug Options Window Help
Python 3.10.7 (tags/v3.10.7:60cd813, Sep 5 2022, 14:08:36) [MSC v.1933 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
----- RESTART: D:/Users/Admin/Desktop/coding/figure2.1.py -----
Traceback (most recent call last):
  File "D:/Users/Admin/Desktop/coding/figure2.1.py", line 1, in <module>
    Prin("I am Learning Python")
NameError: name 'Prin' is not defined. Did you mean: 'print!'
>>>
```

Figure 2.1: Syntax Error

Look at the program's output and the interpreter's error in the example given on the previous page. The error is highlighted in red.



## VARIABLES

Variables are placed in a computer's memory where values can be stored. These values are retrieved from memory during processing, where they are subsequently processed to produce output. Each variable has a set of values and distinctive names that make it easier to find and identify the values that have been stored in memory.

**Marks=80** : Marks is a variable that stores the value 80.

**PinNo=110032** : PinNo is a variable that stores the value 110032.



## VARIABLE NAMING CONVENTIONS

The guidelines that need to be followed while defining variables are known as variable name conventions.

- ❖ An underscore (\_) or an alphabet can begin a variable name.
- ❖ White spaces are used to create variable names.
- ❖ The names of variables can be made up of letters, numbers and underscores.
- ❖ A variable name needs to make sense.



### Let Me Answer

Create two variable names by following its name conventions.

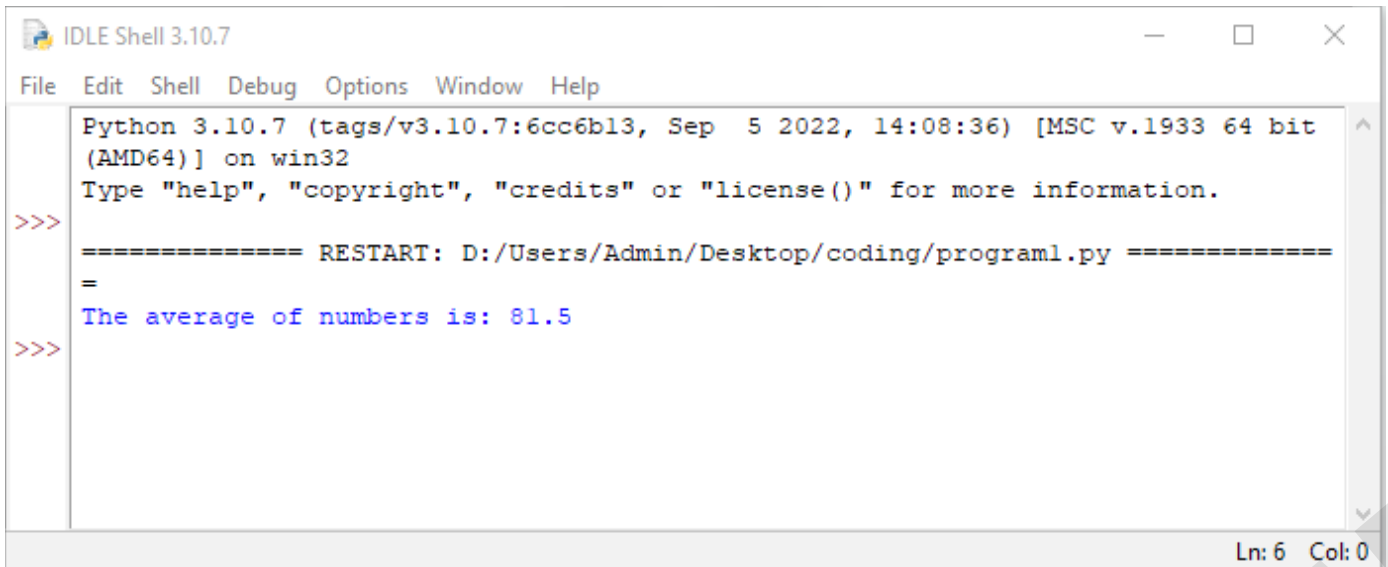
Let's create some programs using variables.

**Program 1:** To print the average of two numbers, write a programme. To store the values, use the following variables:

number1, number 2, average , total

```
program1.py - D:/Users/Admin/Desktop/coding/program1.py (3.10.7)
File Edit Format Run Options Window Help
number1=90
number2=65
total = number1+number2
average =total/2
print("The average of numbers is:",average)
```

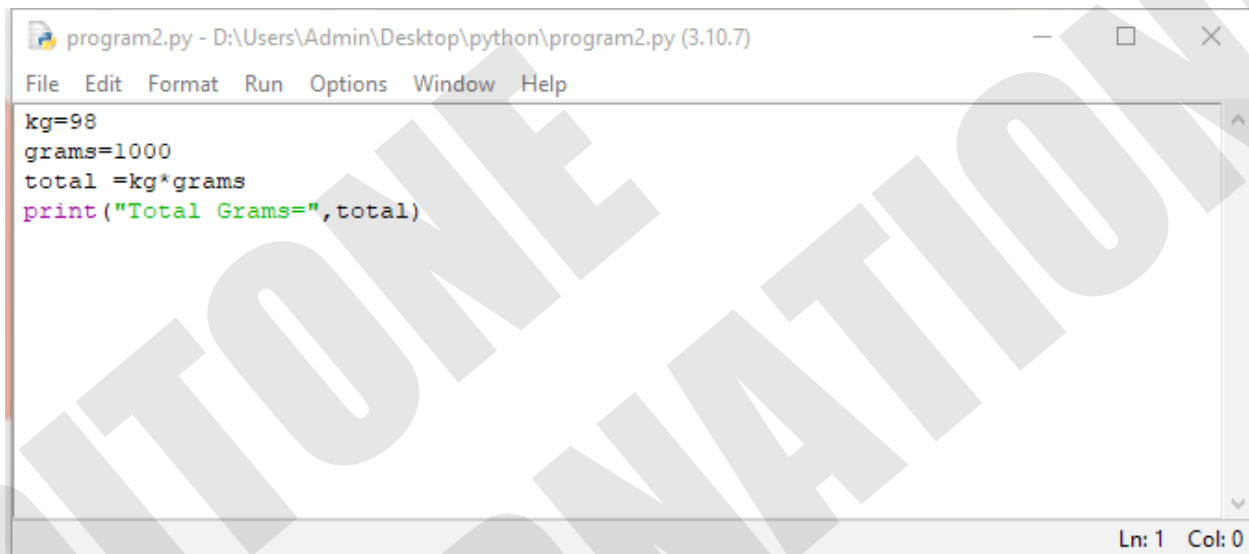
Figure 2.2: Program1



```
Python 3.10.7 (tags/v3.10.7:6cc6b13, Sep 5 2022, 14:08:36) [MSC v.1933 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: D:/Users/Admin/Desktop/coding/program1.py =====
=
The average of numbers is: 81.5
>>>
```

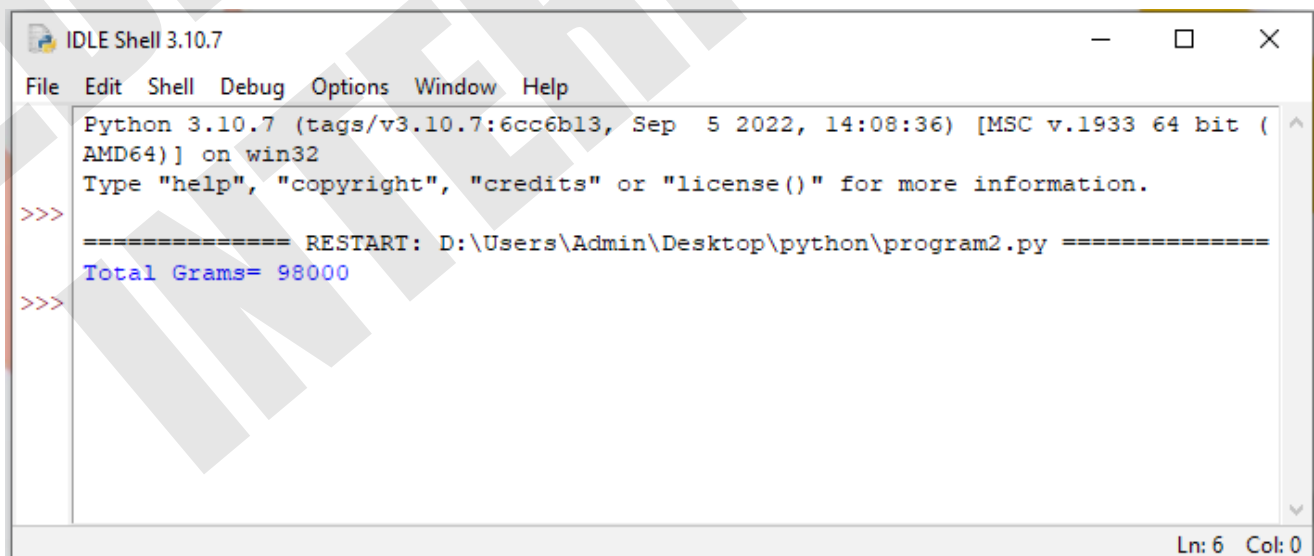
Output

**Program 2:** Using variables create a program to convert Kilograms into Grams.



```
kg=98
grams=1000
total =kg*grams
print("Total Grams=",total)
```

Figure 2.3: Program 2

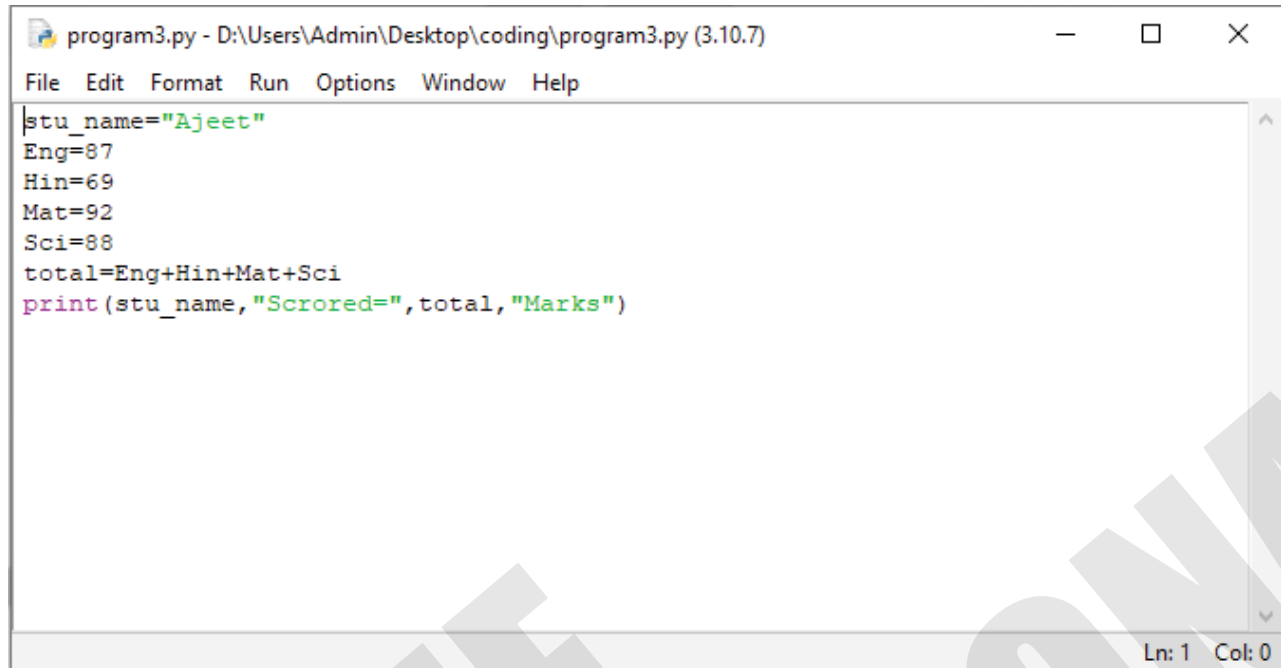


```
Python 3.10.7 (tags/v3.10.7:6cc6b13, Sep 5 2022, 14:08:36) [MSC v.1933 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: D:\Users\Admin\Desktop\python\program2.py =====
Total Grams= 98000
>>>
```

Output

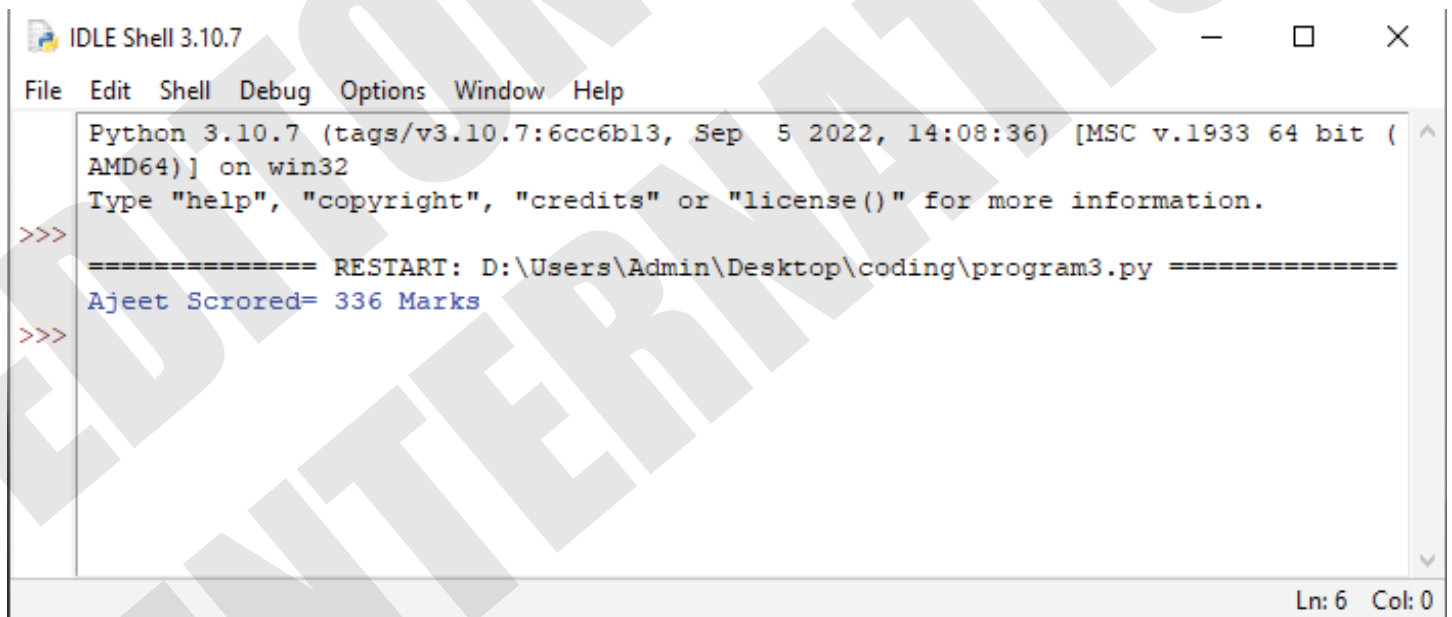
**Program 3:** Create a program to print the marks scored by Ajeet in the following subjects.

1. English
2. Hindi
3. Math
4. Science



```
program3.py - D:\Users\Admin\Desktop\coding\program3.py (3.10.7)
File Edit Format Run Options Window Help
stu_name="Ajeet"
Eng=87
Hin=69
Mat=92
Sci=88
total=Eng+Hin+Mat+Sci
print(stu_name, "Scored=", total, "Marks")
Ln: 1 Col: 0
```

Figure 2.4: Program 3



```
IDLE Shell 3.10.7
File Edit Shell Debug Options Window Help
Python 3.10.7 (tags/v3.10.7:6cc6b13, Sep 5 2022, 14:08:36) [MSC v.1933 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: D:\Users\Admin\Desktop\coding\program3.py =====
Ajeet Scored= 336 Marks
>>>
Ln: 6 Col: 0
```

Output



## INPUT FUNCTION

The input function in Python is used to receive user input. The input function is used to collect values from users and save them in a variable.



Create a table in the excel and list the best antivirus available.



## Let's Recall

- A computer virus can damage or remove crucial data from your computer.
- Computer viruses along with worms, trojan horses, keyloggers, spyware, adware, and other malicious software are all examples of malware that can harm your computer.
- A simple virus poses a threat since it will swiftly exhaust all available memory and crash the computer system.
- A Trojan horse is a program downloaded and installed on a computer that appears harmless, but is, in fact, malicious.
- A programme that can duplicate itself, or create copies of itself, is referred to as a worm.



## Upskill Your Intelligence



### A. Fill in the blanks.

1. A computer ..... can damage or remove crucial data from your computer.
2. All computer viruses are produced by .....
3. As long as the computer is turned on, the ..... is active.
4. A programme that can duplicate itself is referred to as .....
5. .... in 2021 was a mass-mailing worm.

### B. Answer in one word.

1. Software to detect and remove viruses.  
.....
2. Name any one Antivirus.  
.....
3. The worm which managed to bring down the internet in January 2003.  
.....

4. It usually spreads with email attachments and removable hardware devices.

.....

5. Examples of a virus.

.....

**C. Answer the following questions.**

1. What is a computer virus?

.....

.....

2. How do you get to know your computer is infected?

.....

.....

3. Explain about the Trojan horse.

.....

.....

4. How does a virus spread?

.....

.....

5. What are the harms caused by a virus?

.....

.....



**Critical Thinking**

**If your computer is infected by a virus, then what steps would you take? Mention them in detail.**



**Team Work**

**Pair up with your friend and write the following details.**

1. Which antivirus do you use?

2. Which antivirus does your friend use?

3. Which antivirus does your school's computer have?



## Guess Who am I?

The horizontal area  
of a chart.

Set of rules that needs  
to be followed for  
writing programming  
statements.

1.82 billion  
people log  
on to this site  
daily.

A cyber-attack that involves  
the use of charging pots.

If you wish to change the placement  
of cell data corresponding to the cell  
borders the, I am the right attribute  
you should choose.

# Fun GAME 2

Play this game with your friends and answer each question one by one.

**Start!**

What is computer virus?

How does CSS save time?

How do you organise your files?

What is the big data?

What is the trojan horse?

Can you live without computers?

Move ahead 3 spaces

Name the componenets of a chart

Miss a turn

What is cyberbullying?

Do you know a lot about computers?

Miss a turn

What are identifiers?

Go back to start

Go back 1 step

Move 1 step ahead

What is data science?

What do you mean by juice jacking?

Define cyber safety.

What are psychological models ?

Explain the skills required to become a data scientist

What is the best thing about computers?