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Learn Python Programming For Free | Python Programming Tutorial In Hindi

Introduction :

In this blog i will teach you python from A to Z. You can navigate between the topics on this page by clicking on the topics below. We will cover topics like:

1. Downloading Python [00:17 – 00:58]
2. Downloading VS Code [00:58 – 01:35]
3. Installing Python [01:35 – 02:09]
4. Installing VS Code [02:09 – 02:22]
5. What you can do with Python? [02:22 – 02:55]
6. VS Code Overview [02:55 – 04:37]
7. Checking Python Installation [04:37 – 06:06]
8. First Python Program [06:06 – 07:40]
9. About Programming Languages [07:40 – 10:35]
10. About Python in Brief [10:35 – 11:05]
11. Understanding First Code [11:05 – 12:10]
12. Python in Power Shell [12:10 – 14:03]
13. VS Code Community [14:03 – 15:20]
14. Indentation in Python [15:20 – 18:03]

28. OOP (Object Oriented Programming) [1:38:37 – 1:42:40]

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☐ 9. Login And Registration Form Using Php & MySQL [Php Login System In Hindi]

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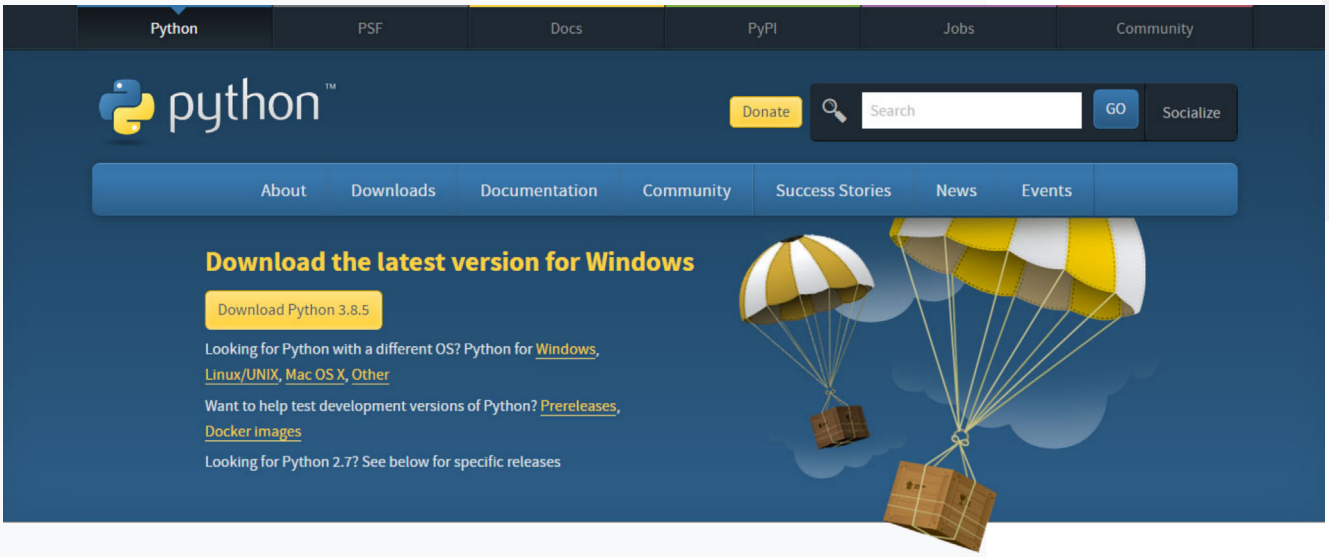
Python Download :

Step 1: Open this link - https://www.python.org/downloads/

Step 2: Choose the version you want to download. For convenience just click on download button and it will download the latest version. If you have some other OS then download Python for that OS.



Now we will move on to download VS Code for better coding experience and then we will learn to install both of them.

VS Code Download :

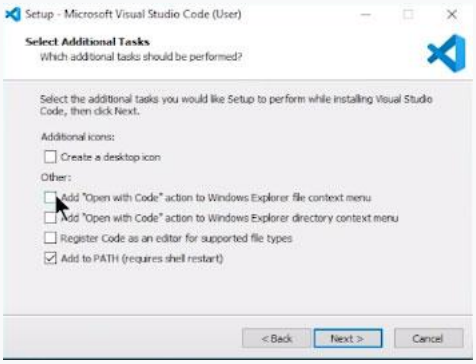
To write Python code we need IDE (Integrated Development Environment) and for that we chose Visual Studio Code.

Step 1: Open this link - https://code.visualstudio.com/download

Step 2: Download VS Code according to your OS.

Installing VS Code :

Keep everything to default and click on next everytime and install. Except click on tick on both "Add"



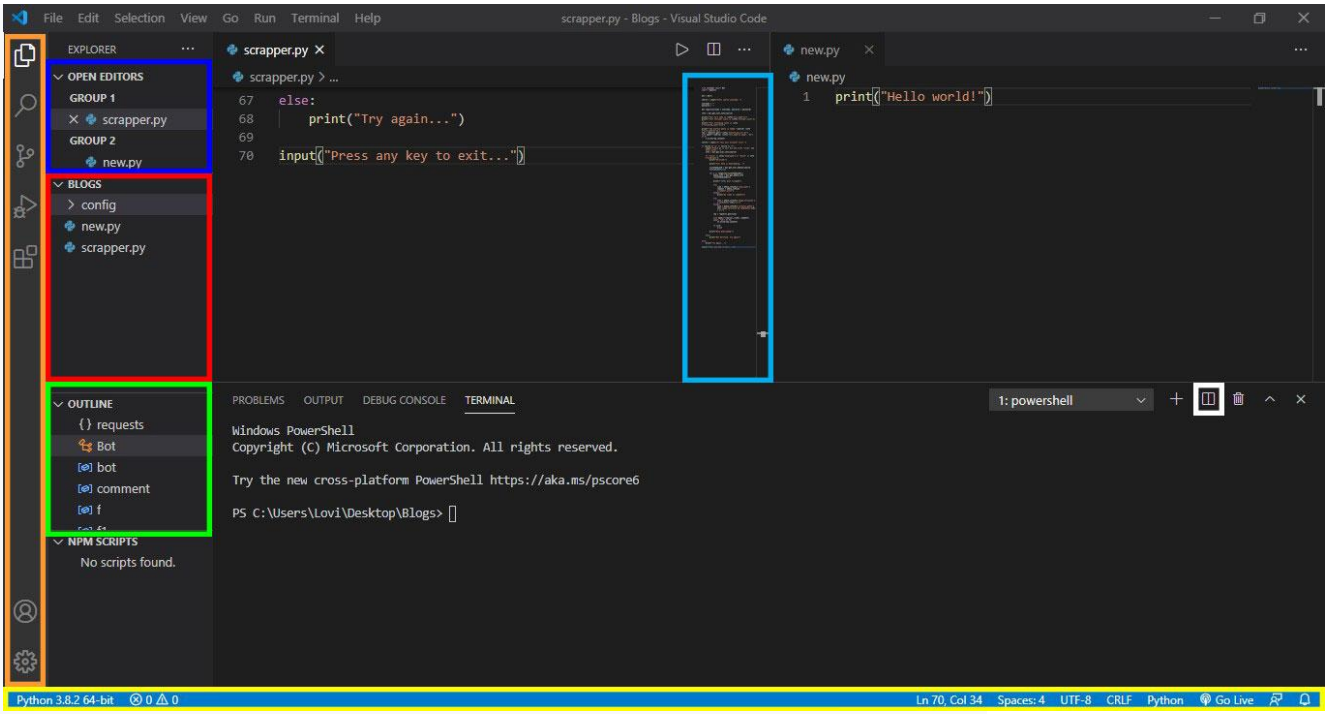
What you can do with Python :

You can create machine learning projects, websites, GUI Projects, scripts for scrapping, bots, etc. Sky is the limit. You can make games, we even have a series on that, check out this link! You can even write a script to make your computer automatic.

VS Code Overview :

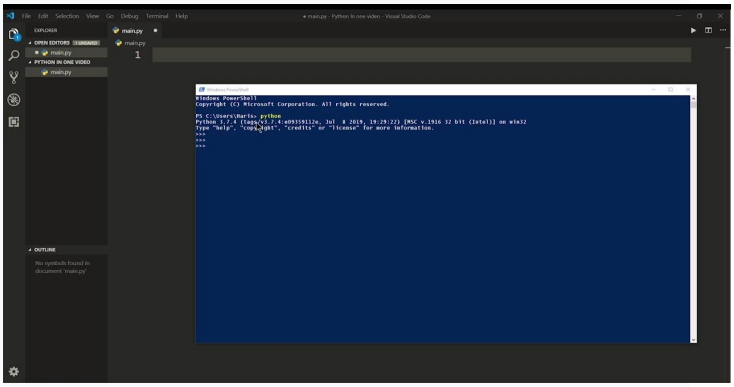
Visual Studio Code is a source-code editor or IDE developed by Microsoft for all major OS's. It have features like debugging, embedded Git control and GitHub, syntax highlighting, intelligent code completion, snippets, and code refactoring. These features of VS Code make it the best IDE in today's world.

There are alot of features in VS Code which make it one of most favorite code editor among coders. Features like:



Checking Python Installation :

After installing Python and VS Code you must check that whether you have successfully installed Python or had some problem. So, check it using terminal.



First Python Program :

```
print("hello world")
```

Python in Brief :

- Python is a high-level, general-purpose programming language. Python use interpreter as its language processor.
- Python is used to develop GUI Programs, Web Applications, websites, Games, scripts, etc. and python is even used in networking and all. Python is even used to do photo editing, video editing and other type of general purpose work.
- This programming language is used mostly everywhere in tech field. It is used in Data Science, AI, Machine learning etc.

Understanding First Code :

```
print("hello world\n")
```

In this code we wrote a function (print) which allows us to print anything which is written inside that function in double quotes (“”).

So, in print function when we use “” (Double Quotes) it means anything enclosed in double quotes will be displayed as it is and is known as string.

String is a data type in Python which is related to text. And to make string just enclose that part in either (‘’) Single or (“”) Double quotes.

Python in Power Shell :

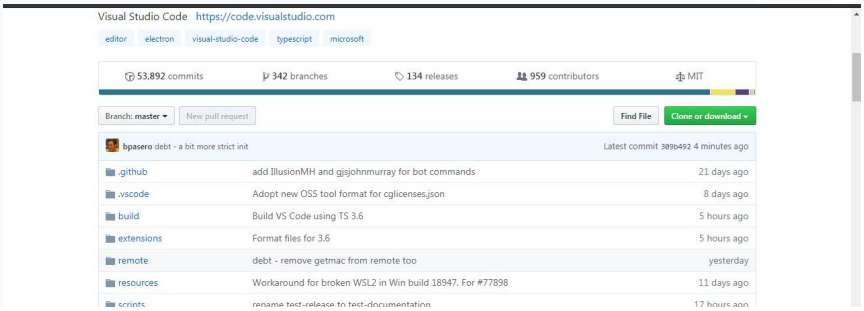
We can write code in Power Shell of windows. But the problem is that it’s like interactive mode i.e. we can only write one line code at a time and then we have to execute it. So, this type of interactive mode is used when we want to check any error in any specific line or at the time of debugging the program.

So, we should write code in good IDE i.e. VS Code. Because it provide us many features and allows us to write good and efficient code.

VS Code Community :

VS Code is one of the best IDE in today’s world and it is developed and maintained by Microsoft on regular basis.

The main thing about VS Code is that it’s a IDE of Microsoft and as we all know Microsoft is such a big company and its services are generally marvelous and that’s why I also prefer using this VS Code. It is open source software which allows us to write code and there are many people who are managing it on daily basis and try to improve it regularly.



```
if (5>4): #This is the ehader part
    print("5 is greater than 4") #This is body part
    print("Got it!")

else:  #This is the ehader part
    print("Bye guys!")  #This is body part
```

So, indentation means leaving a TAB space from margin and in python it is used to show that statements which are indented belong to upper statement.

In statements like if, if-else, elif, for etc. we use indentation because these all are type of complex statements and they have two parts as I already told you header and body.

We have to indent our body statements to show that these are sub-statements of our main statements which is written in header portion.

```
i = 0

while (i<10) : #This is a header part
    print(i+1) #This is a body part
    i±i+1
```

Comments in Python :

Comments are the code which is not executed while interpreting the code. Comments are used to make the code more understandable for the programmer.

There are two types of comments in Python :-

- Single Line Comments
- Multi-Line Comments

Single Line comment is the comments which are created in single line only i.e. they occupy the space of single line only.

These are created using # (Hash/Pound Symbol) in Python.

Multi Line comment are the comments which are created by using multiple lines i.e. they occupy more than one line in the program.

These are created using triple quote (‘’’ Comment Code ‘’’) in Python.

```
#It's a single line comment

print("Hello Everyone")

'''
It's a multi
line
```

And there are some built-in modules also which are available to use when we are offline.

```
import math #Here we have imported a built-in module 'math'

print("Here we will use some math functions")
a = 2
b = 4
c = math.sqrt(16)
d = math.pow(a,b)
print(c)
print(d)
```

So, in above code as you can see we have downloaded a module named as opencv-python. So that's how you can download module :

```
#pip install __module__name
```

And After downloading modules you have to simple import them or use them in your program.

So, to do so simply type: import _module_name in your code.

That's how you can use module in your programs.

Variables :

A variable is a name or an identifier which is given to any storage area or memory location.

- It's a name of memory location.

Rules for defining a variable in Python :-

- Variable name can contain alphabets, digits, and underscore (_).
- Variable name can start with an alphabet and underscore only.
- It can't start with a digit.
- No whitespace and reserved keywords are allowed to use as a variable name.
- Variables are case-sensitive.

E.g. a=5, _demo = "Name", De_mo1 = 65.85, etc.

Type-Casting :

Type-casting is defined as converting one data type into another for smooth functioning of program.

- With type() function we can find the type of any variable.

```
print("\t\tType Casting")

a = 52
b = 58.68
```

```
print("\t\tType Casting\n")

a = 15
b = "25"
print(type(b))
b = int(b)
print(type(b) )
print("Sum of a and b is",a+b)
```

Strings :

String literal in python are enclosed in either single quotes (‘’) or double quotes (“”).

It means “hello” is same as ‘hello’.

We can simply assign string to a variable.

```
print("\t\t Strings")

a = "Hello"
print(a)

demo = '''
This is an
example of
multi-line
string.
'''
print((b))
```

So, here we declared a variable Demo and in that variable we assigned a multi-line string.

In multi-line strings also we can use either single quotation mark or double quotation mark.

String Slicing :

In Python to use any specific character of string we use index no.

Index no. is a special type of no. which allows us to extract any character from string.

Index no. starts from 0.

For example:

```
print("\t\t Strings")

a = "Hello"
print(a[0])
print(a[1])
```

```
print("\t\t Strings")

a = "Hello"
print(a)
print(len(a))
```

- variable_name.lower() = This function converts all the characters in lower case of a string.

```
print("\t\t Strings")

a = "Hello"

print(a)
print("\n")
print(a.lower())
```

- variable_name.upper() = This function converts all the characters in upper case of a string.

```
print("\t\t Strings")

a = "Hello"

print(a)
print("\n")
print(a.upper())
```

- variable_name.replace(“char1”, ”char2”) = This function replaces char1 by char2 in a string.

```
print("\t\t Strings")

a = "Hello"
print(a)
print(a.replace('ello', 'i'))
```

Adding Strings :

We can simply add two or more strings by using ‘+’ operator between two variables.

```
print("\t\t Strings")

a = "Hello"
b = " Guys"
print(a+b)
```

Format Strings :

It means we can easily format string by using .format function.

Operators :

An Operator is a symbol which is used to perform operations on operands in any programming language.

In python there are many type of operators :

- ** - This is an exponential operator i.e. if we write 2**3 then it means 2 raise to power 3.
- // (Floor division) – This divides two no. but returns a integer value.
- % (Modulus Operator) – This operator returns the remainder.

There are many more operators such as +,-,*,/ etc.

Python Data Collections:

In Python there are some built-in or core data types :

- Lists
- Tuples
- Sets
- Dictionaries

Now we'll discuss each of them in brief.

Lists :

A List in Python represents a list of comma-separated values of any data type between square brackets.

```
print("\t\tList\n")

lst = [8,5,2,9,7]

print(lst)
print(type(lst))

print(lst[0])
print(lst[1])
print(lst[2: 5])
```

List Functions :

- variable_name(list).append – This function adds a new value or element in the end of the list.

```
lst = [8,5,2,9,7]

print(lst)
print(type(lst))

lst.append(99)      #append runction
print(lst)
```

```
lst = [8,5,2,9,7]

print(lst)
print(type(lst))

lst.remove(2)       #remove runction
print(lst)
```

- variable(list).pop() – This function removes one element from the end of the list.

```
lst = [8,5,2,9,7]

print(lst)
print(type(lst))

lst.pop()       #remove one element from list
print(lst)
```

- del variable[index_no] – This keywords allows us to remove or delete any particular element from the list by using it's index no.

```
lst = [8,5,2,9,7]

print(lst)
print(type(lst))

del lst[2]       #remove the element at index 2
print(lst)
```

- del variable(list) – This is used to delete whole list from the program.
- Variable(list).clear – This function removes all the elements of the list.

```
lst = [8,5,2,9,7]

print(lst)
print(type(lst))

lst.clear()       #clears the list
print(lst)
```

Tuples:

- These are those lists which cannot be changed i.e., are not modifiable. Tuples are represented as list of comma-separated values of any date type within parentheses.

Tuples doesn't allow modification.

If we wish to modify any tuple then we'll get error but we can modify type after converting or type casting it into the list.

Sets elements are enclosed in {} Curly Braces.

In sets repeated elements does not get printed.

Sets Functions :

- variable_name.add(element) – This function is used to add one element in the Set.

```
print("\t\tSets\n")

set1 = {1,2,3,4,5,1,2,3}
print(set1)
print(type(set1))
set1.add(99)
print(set1)
```

- variable_name.update([element1, 2, 3…]) – This function allows us to add many elements in the set.

```
print("\t\tSets\n")

set1 = {1,2,3,4,5,1,2,3}
print(set1)
print(type(set1))
set1.update([5,6,99,109,199])
print(set1)
```

There are many more functions of sets such as .pop, .clear, del etc. Try them in your computer.

Dictionary :

Dictionary data type is another feature in Python's hat. The dictionary is an unordered set of comma-separated key: value pairs, within {},with the requirement that within a dictionary, no two keys can be the same (i.e., there are unique keys within a dictionary).

```
print("\t\tDictionary\n")

dictionary1 = {
    "Play" : "Doing some activity",
    "Food" : "Something eatable",
    "Python" : "Language",
}

print(dictionary1)
print(len(dictionary1))
```

Dictionary Functions are same as of list, tuples etc.

Conditional Statements :

```
print("\t Input statement \n")

a = int(input("Enter any number: "))
name = int(input("Enter any name: "))
print(type(a))
print(a)
print(type(name))
print(name)
```

So, In conditional statements we have 3 type of statements :

- if statement
- if-else statement
- elif statement
- if statement – In if statement condition is checked and if the condition is true then body of if statement get executed.

```
print("\t Conditional Statements \n")

x = int(input("Enter any number: "))
if (x>100):
    print("Number entered is greater than 100")

print("END!")
```

- if-else statement – In if-else statements condition is checked and if condition is true then block of if statement get executed but if 'if' condition is false then block of else statement get executed.

```
print("\t Conditional Statements \n")

age = int(input("Enter your age: ")

if (age>=18):
    print("You are eligible to vote")

else:
    print("You are not eligible to vote")
```

- elif statement – In these type of statements, there are many instances when there is a need to check condition. We use these statements when we have to check many conditions.

```
print("\t Conditional Statements \n")

x = int(input("Enter any number: ")

if (x>50):
    print("Number is greater than 50")
elif (x>25):
```

```
print("\t Loops \n")

num = 5
for a in range(1, 11 ):
    print(num, 'x ', a, '=', num* a)
```

```
print("\t Loops \n")

x = 1
while(x<=100):      #while loop
    print(x)
    x = x+1
```

In loops sometimes we use break and continues statements :

break statement is used to stop the loop before it has loops through all the items or statements.

continue statement allows us to stop the current or active iteration of the loop and continue with the next iteration.

Functions :

A function is a block of codes that take inputs, do some specific task and produces output. We create functions when we have to do some work again and again in a program. That's why we create function and calls it whenever we want to use it in our program.

Creating a function :

```
'''
def function_name () :

         statement 1,

         statement 2,

         ….
'''
```

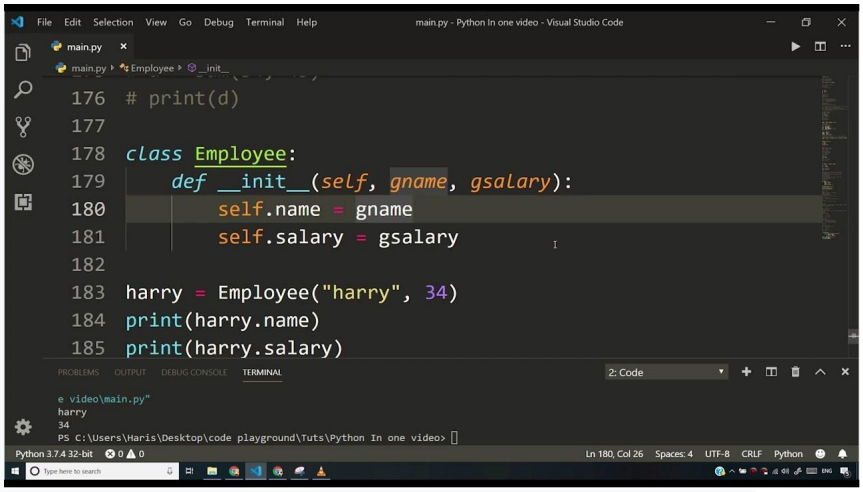
```
print("\t Functions \n")

def demo():     #Derining a runction
    print("Hlo Guys")
    print("It's my First Function")
    print(" : )")

demo()      # Calling a runction
```

```
print("\t Functions \n")

def add(a,b):         #Denining Function
```



Short Notes Summary:

Python Introduction [00:00 – 00:17]:

- Guido van Rossum created Python in December 1989, and it was released in 1991.
- It is an open-source, object-oriented, general-purpose programming language.
- It is used for developing desktop GUI, web and software development, etc.

Download Python [00:17 – 00:58]:

- Download latest version of Python from the given link: https://python.org/downloads/

Download and Install VS code [00:58 – 01:35]:

- For more efficient and faster coding, we are going to use the VS Code IDE. It is a free source editor developed by Microsoft that provides support for debugging, smart code finishing, syntax highlighting, etc.
- You can easily download the VS Code from the given link: https://code.visualstudio.com/download.
- After successfully downloading the VS Code, install it like any other software.

What will you learn by the end of this video? [02:22 – 02:55]

- After completing this Python tutorial, you will acquire a firm grip on the basic as well as the advanced concepts of Python. This video will help you get the in-depth details of the logic building so that you can easily write advanced programs for machine learning, GUI creation, and website development.

Overview Of VS Studio Code [02:55 – 04:37]

- First and foremost, it is an editor that is beyond your expectations! Because of its fascinating and useful features like debugging, smart-code completion, embedded Git control and GitHub, support for hundreds of languages, snippets, and more VS Studio is considered as the best IDE in today's world. With its lightning-fast source code editor, VS Studio Code comes out as the perfect IDE for daily use.

Step 3: Click on the run program button, and "Hello World" will be printed successfully on your screen.

You have successfully made your first Python program. Pat yourself on the back!

- **What Is A Programming Language?**

• It is a fact that we all need a language to establish efficient and easy communication with each other. Similarly, we need a language to develop a proper connection with computers. The language which helps us to communicate with computers is known as a programming language.

• A programming language comprises a set of instructions that perform a specific task or function when executed.

• Programming languages are used to develop algorithms so that the time-consuming tasks can be completed within seconds.

- **Understanding Our First Code:**

The first code we wrote was a "Hello World" program. In this program, we used a print() function that helps us to print the message verbatim on the output screen.

Write your message within the double or single ("","' ')quotes, and it will be displayed on the output screen.

Example:

print(" Code With Harry")

Output: Code With Harry

Using Python REPL in Terminal [12:10 – 14:03]

- **Python in Power Shell:**

Python programs can be written in Windows Powershell. But, the problem with Windows Powershell is that it allows us to write only one line of code at a time. After one line, it automatically executes the code. Therefore, it becomes difficult to build large programs or script. Therefore, we need an IDE or editor so that we can quickly write, debug, and run our program in a single software.

- **Community Of Visual Studio Code:**

• Because of its vibrant and fast-growing community, VS Code turns out to be the best IDE in the world. The best thing about VS Code is that it is developed by Microsft, and we all know that we can trust this tech-giant. Thousands of people are working on the development of this IDE, and it is getting better day by day.

• It is an open-source project; therefore, you can also contribute to their community on Github.

Indentation [15:20 – 18:03]

- **Indention In Python:**

• Developers make use of comments because, without comments, things can get really confusing. It would be impossible to know the function of code in a massive program.

• Comments help the developers to explain the logic used in a line of code.

- **Types Of Comments In Python:**

• Single line comments

• Multi-line comments

1. 1. **Single line comments:** To make a single line comment, simply start your line with a # symbol. The single-line comments are automatically terminated at the end of the line.

1. 1. **Multi-line comments:** To make a multi-line comment, simply start your line with the" "" symbol. Unlike single line comments, they do not get terminated automatically. We need to add the closing symbol, i.e."""" for their termination.

There is no pre-defined syntax for adding comments. You can do whatever feels more comfortable for you.

Modules and import statement [21:35 – 27:52]

- ○ **What Are Modules In Python?**

Modules in Python are Python files which contain some pre-written code(functions, classes, variables, etc.). Modules are free to use, and we can use them by using an import statement.

- ○ **Why Are Modules Needed?**

Modules are used when we need a piece of code that is already written by someone and available on the internet.

Suppose we are making a game in which one module is responsible for the game logic, and another module would be accountable for user login. Here, each module is a different file with the .py extension, and we can easily import them into our program.

- **Syntax For Downloading A Module:**

There are plenty of Python modules that are available on the internet. In Python, we also have some in-built modules that can be used offline.

Step 1: Before importing the module into our program, we need to download it first.

You can download any module using the syntax below:

```
# pip install __module__name
```

Step 2: After successfully downloading the required module, we can easily import it into our program.

1. 1. The name of the variable may include alphabets, digits, and underscore ( ).
   2. We can use the alphabet and underscore only for the starting of a variable name.
   3. A variable name can not begin with a digit.
   4. Variable names are case-sensitive.
   5. Whitespaces and reserved keywords can not be used as a variable name.

TypeCasting [39:32 – 44:17]

- **Type-Casting In Python:**
  - The conversion of one data type into another data type is known as Type-casting.
  - Python is an object-oriented programming language, and there may be situations when we want to perform arithmetic operations on the variables of the same data type. Here, type-casting comes into the picture.
  - With the help of type() function, we can easily find out the data type of any variable.

Strings [44:17 – 58:24]

- **Strings In Python:**
  - In a similar way to other popular programming languages, Python strings are byte arrays representing Unicode characters.
  - Like other programming languages, Python does not support a char(character) data type.
  - A single character is considered as a string of 1 length.

- **How To Create Strings In Python?**

Creating strings in Python is like assigning a value to a value. We just need to enclose the characters in single or double-quotes.

Example:

a= " Code With Harry "

b= ' Code With Harry '

- **String Slicing In Python:**
  - In Python, slicing is a feature that allows us to access a specific part of a string.
  - In order to extract any character from a string, we use index numbers.
  - Index number start from 0.

Example: a= "Code With Harry"

Here, a[0]= C

similarly, a[1]= o

- **String Functions:**

- **Operators In Python:**

An operator is a symbol that tells a compiler or interpreter to perform a specific task.

The value on which operators operates is known as an operand.

Examples:

a=5

b=7

c= a+b

Here '+' is the operator and operands are 'a' and 'b'.

- **Types Of Operators In Python:**

There are plenty of operators in Python. Some of the most commonly used operators are given below:

- + - Addition operator
  - - Subtraction operator
  - * - Multiplication operator
  - / - Divison operator
  - % - Modulus operator
  - ** - Exponentiation operator
  - // - Floor Division

- **Core Data Types In Python:**

There are four core data types in Python:

- Lists
  - Tuples
  - Sets
  - Dictionaries

Lists [59:50 – 1:09:43]

- **Lists In Python:**
  - Written with square brackets.
  - They are mutable, i.e., changeable.
  - It is an ordered sequence of elements.
  - Repetition of elements is allowed.

- **List Functions:**
  - variable_name(list).append :

- Written in parenthesis.
- Tuples are immutable, i.e., they can be changed.
- Tuples are also ordered sequence of elements.
- Repetition of the element,i.e., duplicates, are not allowed.

Sets [1:13:05 – 1:17:15]

- **Sets:**

- Written within curly brackets {}.
- Sets are unordered and unindexed.
- Duplicates are not allowed.

- **Sets Functions:**

- variable_name.add(element) : This function allows us to add an element to a given set.
- variable_name.update([element1, 2, 3…]): This function allows us to add more than one element to a given set.
- variable_name.copy(element): This function returns the copy of a element.

There are plenty of functions of sets. Try to explore them by yourself.

Dictionary [1:17:15 – 1:21:30]

- **Dictionary:**

- Written within curly braces{}.
- Dictionaries are unordered set.
- Dictionaries have a key: value pairs within curly braces.
- Within a dictionary, each and every key is unique.

Conditionals in Python [1:21:30 – 1:27:01]

- **Conditional Statements In Python:**

In any programming language, conditional statements are the statements or expressions which perform various calculations depending on whether a specific boolean condition returns true or false.

- **Types Of Conditional Statements:**

There are three types of conditional statements:

- if statement
- if-else statement
- elif statement

Now, we will discuss each of them in brief.

Syntax:

```
if test expression:
 statment 1
else:
 statement 2
```

Here, the interpreter first checks the if test expression, if it turns out to be true, then statement 1 gets executed else the statement 2 gets executed.

3.**elif statement:**

Syntax:

```
if test expression:
 statement 1
elif test expression:
 statement 2
else:
 statement 3
```

- elif is the short form of else if.
- Here, the interpreter first checks the if test expression, if it turns out to be false, then the next elif block gets tested and so on.

Loops [1:27:01 – 1:33:42]

- **Loops In Python:**
  - In Python or any other programming language, loops come into the picture when we need to iterate over a sequence.
  - Loops allow us to repeat a specific block of code again and again until a condition turns out to be false.

- **Types Of Loops In Python:**

There are two types of loops in Python:

1. 1. 1. For loop
      2. While loop

For Loop:

- For loops are used to iterate over a sequence of a given list, tuples, sting etc.

- **Python Continue Statement:**
  - It returns the control at the beginning of the while loop.
  - The continue statement skips all of the statements in the current iterating loops and returns the control at the top of the loop.
  - Loop does not get terminated, but it continues with the next iteration.

Functions [1:33:42 – 1:38:37]

- **Functions In Python:**
-
  - Organized and reusable code.
  - They are used for performing single or related actions.

- **Advantages Of Functions:**
  - Better application modularity
  - High degree of code reusability
  - Better code clarity
  - Less degree of code duplication

- **Why Do We Need Functions?**
  - Suppose you are writing a program in which you want to use a piece of code again and again. Will you write that code again and again? Isn't it time-consuming?
  - To solve this problem, we use functions. Instead of writing code, again and again, we simply make a function and call the function whenever we need it.

- **Rules For Function Declaration:**
  - It must begin with keyword **def,** followed by the name of the function and parenthesis.
  - Input parameters or arguments must be placed in the parenthesis.
  - A colon(:) marks the end of the function header.
  - A return statement is used to return something from a function, but it is optional.

Syntax For Function Declaration:

```
'''def function_name( parameters ) :

        statement 1

        statement 2'''
```

OOPs Concepts in Python [1:38:37 – 1:42:40]

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  - Object-Oriented Programming In Python
  - Python is a multi-paradigm programming language. It has support for various approaches to problem-solving.
  - OOP is one of the most popular and widely used approaches for problem-solving. In this approach, everything

```
# import cv2
# import math

# This is a comment
# print("Hello world")
# print(math.gcd(3,6))
'''
This is a multi line comment

'''
# This is also a comment
# print(5+8)
# if(age<18):
#     print("hello")


a = 34
b = "Harry"
c = 45.32
d = 3

# print(a + d)
# print(a - d)
# print(a * d)
# print(a / d)
```

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