Python - Module 2: Python Introduction

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Video: Python Introduction

Hello, good afternoon.
My name is Al here.
I'm China for the Python
and Data Science and data Engineering.
So here are the main agenda.
What you are going to learn as part
of the Python program is programming.
First the basics of Python programming fundamentals,
then advanced python like uh, object oriented programming
and some special libraries like, uh, and
and we have frameworks within the Python that is
for application developments, zago and fast, PI
and flask, such kind of things.
Okay, so let me start about the Python.
So among all languages nowadays,
Python is becoming more and more popular.
So what might be the reasons for the Python like growth
and python popularity?
Basically two reasons. We can say.
The first reason is ease of learning.
You can say it as a easy to use also.
So this is a right option, a way to, so like, uh,
for the beginner to start learning a programming language.
And second thing, Python is having a rich set of libraries
for different purposes.

Python is having predefined libraries.
So each library consists of some predefined functions.
Depends on your use case.
You can input that library and you can call that library.
So without writing any lengthy of the code.
So because of the first feature, like a code, uh,
like a development time
and uh, length of the code is reduced
that way if you use libraries like this, okay,
still deliver dollar process will be very simple.
So these are like uh, the first high level benefits,
but internally, technically it supports some other features.
So here are the Python key features.
Python is a high level language,
also interpreter based language.
In case of interpreter based languages,
you type set up statements in the program
statement by statement.
Execution will happen. For example,
if any is a statement is a like encountered error.
So what I have written enough for four,
our file lines sub statements.
Third line is having error.
So first statement one will be executed
after that statement to when our control teach two part
statement, the program execution will be stop.
So whenever it got stopped, then you'll identify that client
and you will rectify that line.
Again, you'll read on the program again,
program execution will be started from
beginning to after year.
So this is the side of interpretive based languages.
That two, we said one word here, high level language.
So high level language means actually

that there are different language like uh,
low level languages and uh,
middle level languages
and high level languages, especially if you go
through the high level languages,
this high level language similar, uh, similar to
how you are speaking your regular English
with a simple English, a small example.
For this I want to print some message.
A statement in Python is like print out.
Okay? So simply you are asking to print some message.
The message is here that is called
that much simple language.
The Python is, so here one of the key feature pass.
Let me install the key features.
After that I will explain each and every one.
The first feature, high level language
and also it is interpreter based language.
PowerPoint is ease of learning.
Of course it's not a technical
benefit, it is a user benefit.
And one of the important key feature here, dynamic typing
is dynamic typing.
You can technically saying yes, dynamic data typing
match benefit, extensive libraries.
In the beginning we discussed like which set of libraries
can call it as extensive libraries
for different purposes.
And also it is supporting cross platforms
and latest programming ing.
That is object oriented programming,
supporting group feature
oriented programming.
Finally, this is edge.

So these are the major features of the Python.
All these features will be helpful to a developer
and to the industry step by step.
We'll be discussing already I
explained to you about high level language
and what is interpreter based language.
So easy to use means when compared
with other languages it's more easy.
For example, you are achieving some specific task in Java
by writing hundred lines of code,
same functionality you can achieve just a
for pilot in the file.
But the statements are very simple, okay?
And the technical discussion is starting from the dynamic
typing point of onwards.
Okay, I'm starting. That is uh,
discussing about a dynamic typing
in any language.
We are sorting values into variables.
So variables are like the value holding points.
For example, I'm as assigning a value.
I'm declaring a variable here
for this, I'm assigning a value.
This is a Python programming study.
We assign any value to a variable
in this when you compare with other languages.
Whereas in other language what we have to do faster data,
type out that variable name
first we have to declare the variable
also directly can assign a value license after that value.
Example in C
or c plus plus of Java, JavaScript, such kind
of languages you are as sending variable in this type.
So was the NTA equal to.

So definitely how to specify data type
after that the variable net and then finally the value.
Whereas in Python, look into the Python.
We are not declaring any data type based on assigned values.
Automatically data types will be created here.
So here the data type here will be in digital.
For example, if I say something like a B question
10.25, automatically data type of B will be
float suppose C equal to LOSL
or D equals to ISL.
You can use single course
or double course in the Python program in both the cases,
the C and D are here.
String data types. So this is called simply the
dynamic, the feature called dynamic data type.
Okay? But to the next benefit
we said like uh, which set up libraries
I will open fresh, right?
For different purposes
and different use cases of the industry.
We have different predefined libraries.
So here library is a collection of
Python classes.
That means python predefined classes
in object oriented programming.
We design the blueprints by using classes later.
Once we step into object oriented programming,
we'll be discussing about this one
and functions and some
So actually the word libraries a non-technical.
In fact, technically there is a concept called package
set models.
By using these packages models, we create libraries.
The layman term is library.

Technically in Python we call them as packages.
Under packages module, under modules,
we keep classes, functions, variables.
But I'm saying that with set up libraries means all these
libraries are pretty redefined for different purposes.
So what are the redefined libraries that we have
for different purposes?
For example, I have a scale up.
This is machine learning.
Artificial intelligence people and data science people are
using machine learning.
But to implement machine learning algorithms,
writing the code from scratch is very tough.
Very lengthy programs you need to write.
If you use the psyche learn, that means a scale
and library you can implement,
you can try your machine learning models very easily.
Okay? So similarly, if any numerical calculations like uh,
MPA, metrics related competitions.
You wanted
if any metrics matrix specific competitions you want.
There is a library called mpa.
MPA means numerical python.
Example. If you treat like a yes one,
matrix B is one matrix.
I want to multiple, I want multiplication of the matrix.
Simply I can say it B simply one single line
of expression, okay?
The matrix multiplication kind of complex computations.
Also you can do very easy for example,
very more complex computation.
The ES metrics in version.
Suppose if you treat that as a matrix,
I want matrix in version simply INV function.

Is there INV of yay.
If you say like this matrix computation will be in this way.
I have library for machine learning.
That is a scale library for numerical computations, not by,
I want to pre-process some data like a data cleaner.
I want to extract data. I want
to perform some data cleaning activity.
I want to perform some transformations on the data.
Finally, I want
to find out some grouping aggregations for all these things.
I have library, I have a library here on us.
In this way, different purposes,
different libraries are available.
So depends on your role into the organization.
You can use them. Suppose if you are a data analyst
and number, you'll be using, for example,
you're a data scientist, psychic line and number.
You will be on the, so the,
this is a another key feature of the Python.
And next one more thing, it is supporting cross platforms
here, screen study
cross platforms.
What are the meaning of cross platforms?
For example, I one application or one program?
It's a program one in Python generally
for the Python programs figure.
So this program developed in my Windows system,
windows operating system,
but IT test desktop sits here.
The test operating system might be different.
So suppose he's using some Mac,
same pro Python program without doing any changes,
you can apply into this plan and you can execute them.
So finally our production is supposed in Linex.

So from the production environment's only like
with application we'll be live in today end users,
all end users will be interacting
with this production informance.
So once this test is passed, same Python program,
without doing any code changes,
that is applied into production.
Actually I developed my program in Windows tester,
has tested it in is Mac.
And then in the production I have linex operating system.
The linex also my program will be
that will without doing any.
This is what the feature of cross platform in Java.
Same feature is called platform independent.
I want more last feature
versatility in the program.
That means Python use cases are different
but different use cases.
You can use Python.
That means different types of applications.
You can use Python for example. You are a gaming developer.
You can use py. You
wanted to do data visualization just like a power BI tablet.
Such kind of visualization tool.
Similarly, you wanted to do data visualizations,
but the visualizations,
you have different libraries like Plotly, CO,
such kind of libraries
that the interactive dashboards you can order
by writing a simple port interactive
D powerful interactive dashboards.
You can write, you can convert them into HT ML files ladder.
These HTML files will be migrated into web applications
or mobile applications.

And suppose I wanted all of web frame web have application.
So all of the web applications have different framework.
Plak Z,
actually spelling is tgo, but ation is just Z.
Okay? Not as most popular web framework
that is post A, right?
So these are the key features.
And also one more thing,
one final feature I'm highlighting when compared
with other languages, this feature is available only
with the Python.
The Python supporting multi programming paradigms,
multi programming
paradigms.
That means a different ways of programming.
The word programming.
Paradise means different ways of programming
or different styles of program
where our styles,
so in the market, different programming,
paradises like imperative programming.
And one more category is functional programming,
other programming style declarative programming.
And most widely popular programming style is two.
That means object oriented.
Let's some market popular languages,
programming, of course all these features, all these kind
of paradigms are supported by the Python.
In any style you can write your applications,
you can in any style you can write over withs.
So for the programming, the whole is like a C, C plus plus.
C is the best example. C global, such kind
of things you can say as a integrated program instance.
After that c plus plus

and Java, these things comes under C plus plus
or Java or IT dotnet C,
innovative and other languages.
These things comes under object work.
And if you talk about the S scale.
S scale comes under declarative program
and functional programming especially,
there is a big data framework for the data processing
that is spark within that most wide used languages scale,
actually stellar language is developed by Java,
but programming style is functional programming style.
And also before Sklar,
there was another language called hasken.
It is so many world and new languages are,
but each language is following their own
programming paradise.
But luckily here Python is supporting all types
of programming.
Paradises a simple demonstration,
a simple code representation for you.
For all these,
let's look into programming,
how Python is supporting this.
Just look into this, forget about the statements
and syn access just to try to concentrate
what is happening at each line.
I'm taking a collection. So in Python this kind
of collection is released.
This is a collection of elements. There are five values.
I want to find out this sum, I'm writing my own logic here.
Initially, total value something zero.
I'm taking of that sum follow I'm taking for I in R
for V in X.
How many elements are there in the X? 1, 2, 3, 4, 5.

So that automatically is low.
It rates for five at each iteration.
The value is coming into V.
After that we are instructing what would do with that V.
I'm going to add this. V two V, previous variable product
four plus C equal two V.
That means to the exit value of the total.
I'm adding this B now just look into this
small logic explanation.
Before loop, total value zero.
In the first generation, what happens?
Total plus equals to we.
You said then zero plus 10.
This 10 will be stored total in the second ation.
Total value already 10. Now for the 10 20 is added.
Now latest value of the total 30
in the third iteration, total value 30.
But 30 ation value is what? 30. 30 plus 30.
That is 60 in the fourth.
Ation already have 16.
The total, the 40 is added.
Now the value hundred in the fifth ation
total is hundred.
Now 50 is added. Total one 50.
Now high ation ised, but loop got complicated.
Finally you are total,
the sum of the list is total.
You'll get one 50.
Now here observ, in the programming we have written
five, four steps.
1, 2, 3, 4.
This is a 3.1, which is a SubT statement of this part.
This is the power style of I program.
Instead, Python fundamentally follows

programming Paradise
of course as a beginner
fast write program programs in.
So according to this explanation, what exactly the meaning
of em, step by step instruction at each, at each step, what
to do, what should be done.
We are giving instructions just
so when you submit this program
or when you execute this program, as for our instructions,
that the program line by line way basically, okay,
of course this kind of bism is available
with all the languages, with all word languages.
And there is uh, one more uh, programming style here.
What is that last we discussed about
the second programming style
is functional programming style.
For example, same list I'm taking here.
Previous values, 10, 20, 30, 40, 50.
This list, this is a collection. I have five elements. Okay?
For each element I want to, I want to add a hundred.
I want for each element, I want to add a hundred.
For example, for the 10,
if I add a hundred, what is expected?
One 10 is expected. Same for the 2000.
I wanna admins that will pick up one 20.
So generally to do this in I
style, you have to write a funnel.
Okay? In the functional programming style,
what is a way just observe.
That's a wise quality map
of lambda.
XEX plus input is thanks.
Already here, the name A is here just to check,
give a different name.

Automatically each value of A is coming into a for the A.
What will happen? The
ation a value.
10, 10 plus this will become one.
This kind of programming style is
called functional programming.
So based on this, Python is supporting reto programming
and also functional program.
Got it. Nowadays, uh, for some typical logics
and complex, uh, logics,
dysfunctional programming is most widely used, okay?
And there is another style of programming.
Also declare I do program.
Uh, this is the third programming paradigm. Declare.
I do program generally as all your skills statements,
all this kind of model.
So about in the case of square databases,
we keep our data into tables.
Suppose our table is employee. We have some of employees.
Suppose if I want all employees
who sell this greater than one line.
Generally in sql, what is your style?
You are not going to write any formula in sql.
The programming style is like select
start from what is the column name?
Yeah, where, what is the
what employees you want who sell the greater than Oracle?
So here we did not write any far loop.
Understood. So suppose data file plus you need to, you need
to read the data from the file.
All the records criteria to write Far loop.
I teach it recently how to scan one record
and how to check whether that is greater article
that a thousand are one laptop.

But here he did not write any follow simply from EMP
where S is greater than article two one.
This kind of programming style is called declarative
programming style in Python.
Also, this kind of style is available. In what way?
Just absorb. Suppose my data is in on file,
which is employee T.
I'm creating on data frame here.
3D for
read, CSV.
I'm going to read data from that file thing
that I have thousand regards here,
thousand employees listings here.
What I want, I want two s greater than Oracle two.
One like simply year of year
of salary
greater than Article two.
One, like I said, I got
only the implies two sal greater than Article two,
one lack, okay?
Here also, I did not write in one
this kind of programming style.
Also supported by, by that you program
one more four, programming paradise, which is more popular,
more widely used up widely used in
all application developments.
That is object to oriented program
about the class and about object.
Once we step into the object work,
the programming more deeply we'll discuss.
But now just a rate. The class is a blueprint.
Object is a instance of that blueprint. Okay?
So here the programming style is like this.
Some I want to create some employee plus class

EMP, okay?
And I'm creating one constructive here.
So forget about this construction and all these things
because if I start explaining this again,
it'll take another one hour time.
So that's why like I don't want
to go into the paper about this object oriented programming.
Now just observe that programming style.
Here I'm constructive method for this.
I'm going to pass some values, some arguments.
Idea of the employee name. Of the employee.
Salary of the employee.
So here I'm going to ascend.
Values equal
to some Id sell.
Do name equal to name
sell is equal to sell.
And one more. If any other method, like I want like a define
suppose add tax, the tax related functionality.
I will write and define add HRA,
the HR related functionality.
I write this kind of programming
style at Paradise called object oriented program
based on all these explanations, totally,
we have seen four paradises here.
One is
second one is
declarative, of course.
Second, we discussed as a functional in the thought press,
I'm writing as functional
and finally a single programming language.
Python is supporting all these features. Okay?
Being a developer, sometimes I code in the integrated style,
sometimes declarative style, sometimes functional style.

In most cases I use object rated profile. Okay?
So it doesn't matter whether you are a new one to the Python
or already you are, you have been into this python.
It doesn't matter from basics to hero level.
We'll be teaching you everything with simple examples.
That means with the simple, basic examples
of two master level examples.
Okay? Let's have a journey
once we started the course.
Okay, we'll get the invitation. Let's meet in the class.
Bye-bye. Thank you all.
Thank you very much. Bye-bye.

Video: Coding Rules

Start our journey with very basic.
I'm going to start off with uh, Python coding rules.
First, a simple execution.
I'm going to demonstrate I'm opening Google collab.
So Google collab provides you python runtime, okay?
Without installing any stuff, we can practice directly.
Okay? So in the form of notebooks,
we'll be writing Python coding.
This time starting a new notebooks.
So I'm going to connect with runtime after here.
After here, one statement.
I'm new, this is my first step
and one more statement.
If I execute this, the first line is perfect,
but second line I got at,
okay, that means I did not follow coding ruling
here after here.
I'm going to modify this. Now it is wrong.

So what is here? This is rule number one.
You can say it as a indentation.
The rule one is each python statement
should start at
column position one,
ELL or code editor.
This is rule number. So if I give
like this, the first one is value
hash is the comment line here.
Second is inval.
I keep this into our notes.
Look into rule number two.
Aha. Please observe this. So this
is the variable declaration style in the python.
What is the variable name here? Y the value tag.
You are as assigning 10 to the yin.
No need to say you need data.
Type in Python based on assigned values.
Automatically data types will be created.
Okay, so let me modify the first line.
First sale A value
10 B value 20.
I'm going to write some condition A greater than
B condition.
True or false is true.
If the given condition is true, I want to print something.
Suppose given condition false
Print B is big.
If I execute this,
I got error totally.
Here in the code there are six slides
at which line you got error.
Third line. So here the rule is
if it's a condition, whatever the condition you give

condition can be true.
Condition can be false. If true,
I'm expecting some sub statement.
If false. Also I'm expecting some subst statement.
If any statement line is expecting a SubT statement,
the line should end with the column understood.
Now I said Colin here at a risk clear again, running this,
I got one more error at the L spot
because LC is also expecting a substrate.
That's why a l also, I have to say,
okay, now error got cleared.
Now what is the biggest value here?
So validate this condition. 10 greater than 20.
Rule or false? False.
Because of false you came to the control, came to yes.
So this sub statement is executed.
For example, I'm giving 30.
Here I'm giving 30
a value, 30 B value 20.
What about this condition to our false?
Because of truth, this statement will be executed. Right?
So based on this, what is the rule number two?
The rule two, if any,
he is expecting sub statement.
The line should end with
Code.
So example for this, this is the quote, right?
Okay. Now I'm coming to the rule number three.
Once again, I, I'm repeating the same
B 200 if you greater than B.
20 is B. Yes.
Again, never see it. What is the title error? Fourth line.
In the fourth line is a
main statement or sub statement.

Sub statement should be in a forward position to parent
at least one space, two space, three space.
Your wish. Suppose the parent statement
is starting at column one.
Sub statement should start at minimum two, two
or three or four your wish.
Understand. Come on, do the same thing here.
Y is also expecting a sub statement so
that the sub statement should start at in a forward position
to parent clear.
Got it. Please comment. The rule three,
sub statement
of a parent line.
Should we fail
forwarded Which question?
Two parent lines
start, which
I'll have you clear about this.
Let's go with rule number four.
Now, once again, I repeat all these things for you.
We value a hundred be value 200
later will modify the values my condition,
yay, greater than B.
Say that print yay is big.
If yay big means who is small, which is small.
B. B is small.
Upper here, wanted lamb keeping like this?
Yes else if the condition
enforcements B is big,
yes.
Small.
Again, I got, well I have only one
sub statement, condition two or false?
I have only one sub statement here.

Multiple subs statements. That means more than one.
What is the error here? Here?
Subs, statements started at which equation?
1, 2, 3, 4.
At column version four, the fastest sub statement started.
Second sub also should be started in same column.
Understand, come to the Ls here.
L fastest sub. We started here.
Second also should be in same column position.
Understand.
Now check this. Yes, perfectly.
Got that please. As for this, what is the rule number four?
All sub statements of a parent line
should be in same
column position.
Got it. That is all.
Suppose here these two are sub statements of the
these two are the sub statements, sir?
Y Okay. Yeah.
Started at column position four.
No need to start Y spot in the column four.
You can start with column three Ls,
but all sub statements
of the deal should be in same understood.
These four rules we need to follow.