

8-th 12-th

DAY

PYTHON

OOPS

PART-1

PYTHON

OPPS CONCEPT

PART- 1

* So, we are trying to write a code but that pattern of code is called as Scripting.

Python allows us to write a code in a scripting mode as well as by using a ~~to~~ OOPS Concept. So, Python follows both. If we talk about Java or Scala these programming language just allow us to write any piece of a code just by using a OOPS Concept, these language never allow us to write a code by using a scripting, without classes and object.

But in Python both these pattern are a variable as beginner scripting is fine, one liner code is fine, without using any concept of classes and object, but real time is concern, in corporate if we are working on a real project without classes & object we'll not be able to get any kind of project.

* So, in case of OOPS concept its a way of writing a code. Its a pattern by which we able to write a code, I can write code even by using a method that we have applying so far so forth, is called as python scripting.

Its not fine, If I am not going to convert anything in classes & object I will not be able to do a coding, I will able to write a logic or able to create a methods & functions.

I will be able to implement exception handling, logging monitoring each & everything, there is doubt about it.

python cover scripting as well as OOPS Concept, its cover both.

Big project OOPS Concept is very much important, without OOPS Concept we can't do that.

* OOPS (Object oriented programming)

→ when we talked about OOPS programming,
inside these OOPS we will be
able to find out classes, objects inheritance,
polymorphism, Extraction, constructor &
destructor etc.

- (1) Classes
- (2) Objects
- (3) Inheritance
- (4) Polymorphism
- (5) Extraction
- (6) Constructor
- (7) Destructor etc.

(1) Classes :-

whenever we are talking about maybe a Animal, what kind of understanding we will be get.

we will be able to understand yes, these species with may be four (4) legs, (2) Ear, & (1) Head kind of structure we will be able to thing about.

whenever I talk about Car, what kind of Car, I am talking about. maybe I am talking about Tata, volvo, Mercedes & Audi.

when we say just car, we will be understand that. Yes, we are talking about kind of Intentity, maybe with 4 wheel, body, interior design, engine etc.

But we did not understand that what specific car I am talking about, but we will get certain understanding.

when we are talking about Human person wise, good one, bad one, male, female etc.

we will not able to understand anything when we talked about human.

when I talked about software, yes, we can understand that something that we can run in our system, but what kind of software.

There is lack of lack software which is available in market.

class is nothing but it just a entity, which we can define may be not completely.

So, we can just define a blue print of it or maybe we will able to get some short of a sense about some of the entity which exist on these planet, something

call as a classes. virtualization

So, its kind of real world entity or we can that class is nothing but just a classification or segmentation of a particular real world entity, that is something call as a class for ex a example car.

yes, we will be able to get some idea but we will be not able to get a specification about it.

Car basically, which one, I don't know,
I am just talking about car, with may be
four wheels, engine etc.

If I am talking about animal,
what kind of animal I am talking about.
Human, what kind of human I am
talking about. If I am talking about software,
what kind of software I am talking about,
I am not getting a complete understanding
or previous definition of a particular
things.

But, I will be able get some
situation, I will be get some classification
or segmentation that one ok fine, I am
talking about these particular entity.

For Example :-

let's suppose, there is a question
that this is my car Can you please drive
that particular car. or Can you please
install that software?

Any one will say after this question, which one?

Then after he will explain that this is car.

Something, If I asked any question some body with option we will say which one first.

So, Class is nothing but just a classification of a real world entity, that is something called as a classes.

why we have class in programming language.

That is completely fine we are talking about car, human & software etc.

is fine.

why, we are talking about classes in programming language like "Python".

So, In programming language, when we are trying to build something, programming language, we are going to use to develop something, to develop some pipeline, to

automate some of the processes.

In corporate real time project; we have so many component, by which we can connect with multiple databases, we have some component, where I will just try to process a ~~file~~ file.

We have some component where we will be using to just to automate, some of the work.

In software industry we have some component by which, I will be able to expose some sort of a **API's**

We have certain component so, where I will just write some credential & password just for that one.

When we develop a software, we have a multiple segments, software is a whole thing that's fine. To develop that particular software, we have to ~~do~~ a multiple variety & variant inside this one, then we will end of writing millions ones of code to develop a particular software.

So, that next person who will going to develop new feature that person will able to go to that particular folder or file then they will be able to change it ~~file~~ that is the region, we need a 'classes'.

So, here inside a software industry again, we will do a classification, that OK whatever code, whatever module, whatever function that we are going to write, just q lot a databases.

Different different database is possible; MySQL, inside SQL system we have a -

- * Inside SQL system we have again
 - (1) MS SQL or Microsoft SQL server (T-SQL)
 - (2) Just SQL
 - (3) DB2 or IBM DB2
 - (4) PostgreSQL SQL

* NoSQL

1. MongoDB - NoSQL database
2. Cassandra database
3. Neo4j database
4. InfluxDB database
5. HBase database

Here, what we do is we try to create a classes, inside this class what I will do is I will just write about databases. In next class, I will talk about API's. Again, next class, I will talk about database or file handling. again next is utility.

In software industries, again segmentation or classification very much important when we are developing any big project or even a small one.

That is region class came into a picture or object oriented programming concept comes into a picture.

So, that it will be increase reusability of a code, that's the first thing. & maintainability of a code.

So, that next person is going to come they will be able to contribute and they will be easily able to find out that how we have written code in a modular fashion class by class and they will just go to the class and change something and it will be reflected.

Over here, we need a classification for different different component that we use to write, that is the region OOPS programming concept came into a picture.

that is the region, so we are even going to use it.

* why do we need a classification why do we need a segmentation in a software industry.

* 'class' is nothing but classification. classification of some of the

component, just like real world. classifying car, human, animals and softwares anything similar way.

Example:-

If we open ~~the~~ 'INEURON PORTAL'

In portal there are multiple things. Now, we have developed it, we have main portal, we have internship portal, we have blogging portal, job portal, there are multiple portal available inside

'INEURON'

In each and every portal we can find out a multiple segment, there is chat system, logging module, course & module available.

Information module available module which is available.

There are so many component clustering up, then only we will be able to see these entire system.

There is learning module, there is certificate module, discussion module.

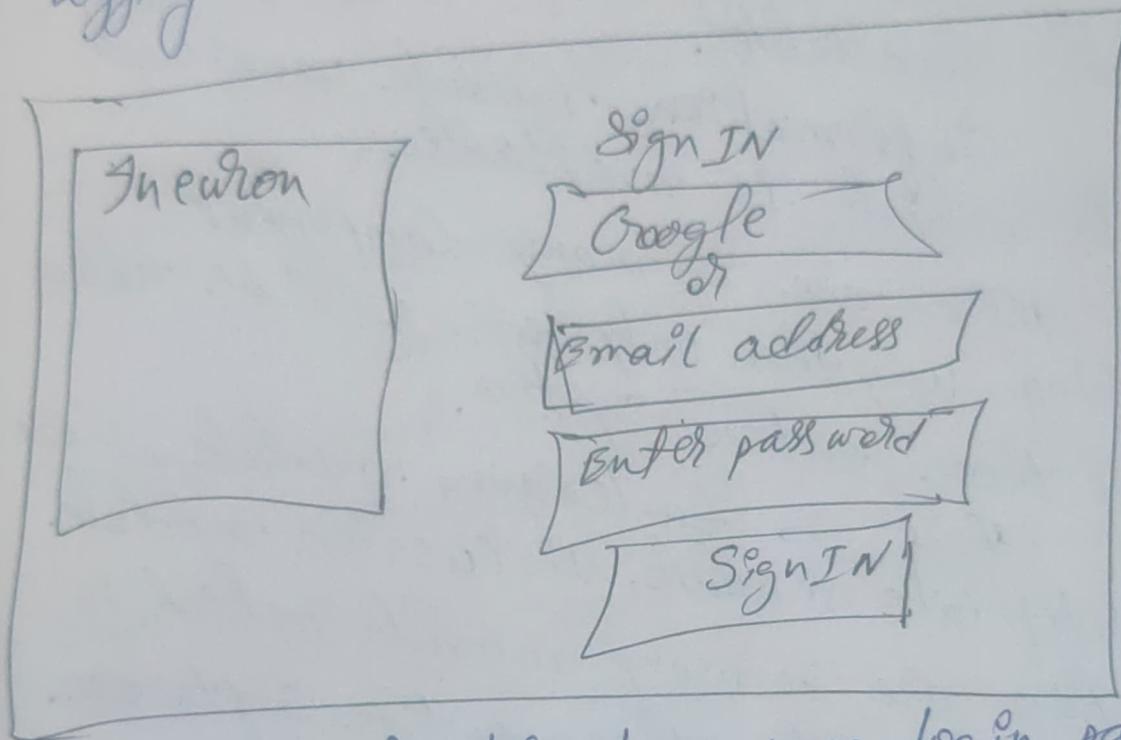
There are so many module which is available inside these entire software.

The platform that we have created.

Let's suppose, new developer will come old one goes, that case he/she will add some new modules into that one.

If we have written 1 million line of code 10 lakh line of code, which is required to develop these kind of system.

Now, next person or new developer come,
if ~~she~~ will ask him inside 'INEURON'
logging module.



So, here home page log in page
they have not provided logging for
'Apple or Mac' ID logging.
Only provided ~~she~~ Google
logging.

please add 'Apple ID' logging as well
or can you please try to add 'LinkedIn'
logging as well.

In 'Hall of Fame' there is provided already ~~LinkedIn~~ logging module available.

where we can see old batch people and there ~~LinkedIn~~ ID click and direct visit there ~~LinkedIn~~ profile.

So, sir will ask that developer that can you please try to add inside 'Hall of Flame' 'Apple' logging, Github logging also.

Developer will get confused there is 1 million or 10 lakh line of code where, I will go and where I will make changes, but if we have design a code in a such a way, there is logging class.

So, the person will click & go to the logging classes they will try to understand what and all logging modules are there how all of these logging module working and connected and simply they will add one more module over here. That case life of developer will be simple, it will easy to find out. Here we have doing programmatic way.

So, here entire platform, we have multiple modules we have thousand of modules, thousand of components then only we are able to build a particular ~~particular~~ platform.

Again, there is admin module, inside admin module there are of more than 10050 component classes, which is available, inside our admin module, real time development happen this way.

So, that I will scale it up, I can add new feature. and each modify existing one, bug come between that.

This is how any kind of a software development happen whether, its a 'data science', oops, Github apps, ~~mobile~~ mobile Apps etc.

whatever we develop we follow same exact same approach, classified each and every modules and inside that we keep writing a code.

(2) OBJECTS

If I will give you piece of a code or if I will talk about just a car or just a animal, we will not understand, that which specific car talking about.

whether its a Mercedes-Benz again inside that, Mercedes-Benz is again a classes inside that there are models there are variance or like that. I am talking about some car from Toyota again inside Toyota.

Again inside Toyota we have a Fortuner, Land Cruiser and we have a Innova there are multiple variants, which is available.

So, objects are nothing but object always represents a entity which is real one which does exists. class is just do a classification or segregation or segmentation this is what class does.

Objects :-

when we talked about object. object is nothing but it is actually a real entity or real data or real method or a real function that we used to call with the help of our classes that is something called as object.

For Example :-

In case of Car, which car I don't know but If I am talking about Innova (Toyota). we will be get some information that OK fine, I am talking about Toyota car basically inside taking about Toyota car basically inside a car. I am talking about model from Toyota Company. 'innova' is car inside which Innova there is multiple variable which is available then we will able to drill down.

Same as software, let's suppose, I am just talking about databases. I have a databases module. I have database class.

Question :-

Question is now. OK database classes completely fine. I am able to understand but which database, that will be a question.

Then, I will tell you, I am using 'MS SQL' or I am using 'DB2' or I am using just a SQL or 'SQL Lite' may be 'NOSQL' or may be using 'MongoDB' etc.

Then we will be understand, on backend we have used these particular databases, inside Database class we have used these and these database.

Then we will be start working OK these is the database we are using so, may be I am suppose to get some short of a knowledge about these database then only, I will be able to contribute in to these one.

Then we will get clear ~~segm-~~ segregation and separation and we will be able to get real entity, because database basically generic things.

when we talk about SQL it will be a specific one.

when I talk about MongoDB it will be a specific one.

So, whatever function is written inside these database class, actually its written for a MongoDB or SQL or HBS or MySQL or Google Big Query etc.

* **objects** :- are nothing but a real world entity, that is something called as object.

* **classes** :- are nothing but just a segmentation or a separation or a ~~or classification~~ of a real world dataset.

Object is something which is very very real which does exist on top of object, we will be able to do any kind of operation.

PYCHARM

let's open up - pycharm

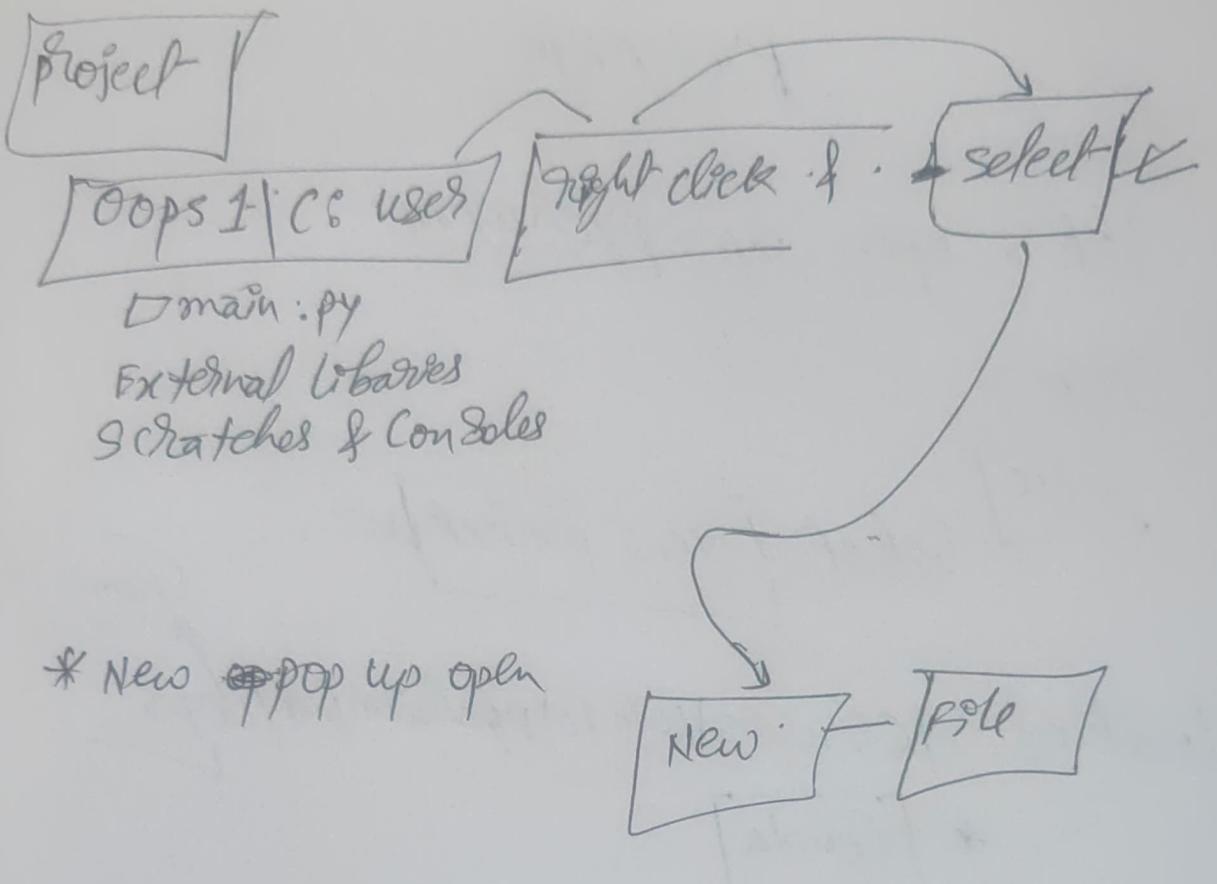
Steps :-

select ✓

location :- C:\users\win10\pycharmproj\oops
name it

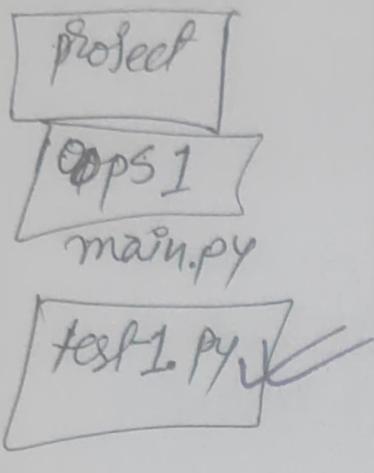
*

location :-
python version



oops1 - right click & select, pop up open
then name as a Test1.py

1st code :-



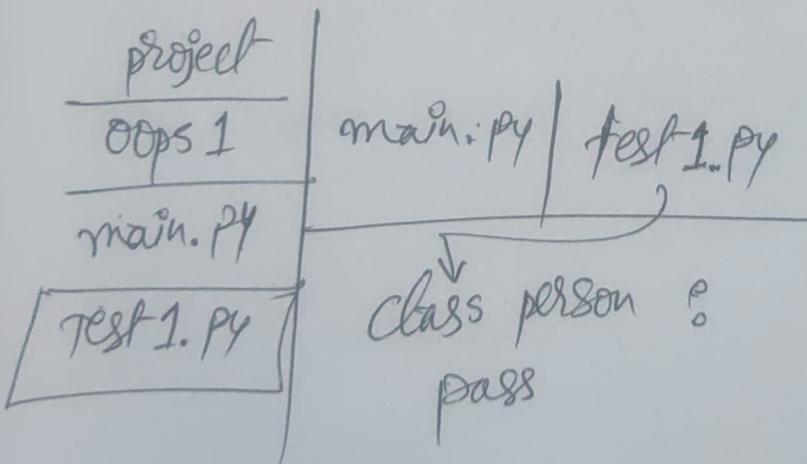
By default
main.py

test1.py

use this



In python class we try to create a class by using very simple reserved key word called as class inside a python.



1st Code :- No.1

Test1.py

* class person :

 pass

In python what we do is we create a class. By using very simple reserved keyword inside a python called as 'class'.

Let suppose, I am going to create a person class, 'person' is a class but what kind of person, what is the name of the person, what is the 'surname', what is year of birth of the person.

person.

I am not able to understand such kind of a thing, class is just a classification; trying to create a class classification over here.

So, the class is equal ($=$) to person.
let's suppose, I have created
over here.

class person:-

Now, let's suppose, I don't want
to add anything in a body of these
class.

I have declared the class, but I don't
want to add anything in a body of a
the classes.

what I am suppose to do, 'pass' is
a keyword.

If I don't want to define a body
of the 'classes'. So, in that cases I can
write a keyword - called as a 'pass',
this way it will be happy if I am
going execute it.

Not in

debug 'test', Run it

in the Run 'test1' mode

Show context
paste

Run 'test1',
Debug 'test1'

test1.py

project
oops
main.py

class person:
 pass

test1.py

execute it (ctrl + Enter)
select → Run 'test1'

test1

C:\Users:...
process finished with exit code 0

As a outcome we can see nothing happened, it is not even going to complain, if I will not write 'pass' and execute it that case sure 'Error' will get or some error message will show.

So, I have just created a class called that completely fine. Inside that, I have not written anything. I have not mentioned a body of anything that is completely fine.

So, I have created a ~~class~~ class, so sure I am suppose to write something inside that one.

So, that I will be able to justify a meaning of classes.
let's write that particular part.

class person:-

So, here class person, I am going to write & then inside that, for a particular class, let suppose, these person class, which is generic one, generic information which I will be get.

OK here I am just talking about a person class, but I don't the name of

the person, 'Sersname' of the person or
any kind of thing.

So, that case may be I can try
to create it.

* let's example, today class here lots
of joined the class FSJS classes.
whoever joined these class for
sure everyone must be having a name,
Email ID, sersname, date of Birth, etc.
which is very generic all of you.

So, that case I will try to create
a class, which will be able to take
all the information based on that
information may be we will process
it.

may be I will be able process, may
be I can do something with that.

So, let's try to take a generic information from everyone.

Because, class is just a template or just a blue print, that we are trying to create.

Now, to take each & every information a generic information, not a specific one. from each & everyone.
what we can do is we can try to create may be constructor, what is constructor?

Constructor:-

Constructor is nothing but an interface or a function or a built-in default method by which we will able to pass a data or information to a classes.

Because we created person class class but what we will do with that nothing.

So, we will not able to do anything. So, let's try to create a basic

function inside it by which it will be take some data, unless if unfill we are not taking a data what we will able to do really nothing. So, input is required.

Now, to provide a data to a classes generic information to a classes what we can do is.

Project

Code No: 2

OOPS 1
main.py

test1.py

class person:

def __init__(self, name, surname,
email_id, year_of_birth):

self.name = name

self.surname = surname

self.email_id = email_id

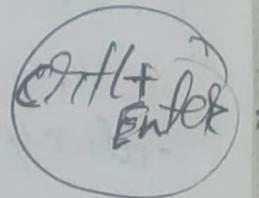
self.year_of_birth = year_of_birth

anuj_var = person("Anuj", "Bhandari",
"anuj@gmail.com", 1994)

print(anuj_var.name)

print(anuj_var.surname)

print(anuj_var.email_id)



test1

C:\users\win10\anaconda3\envs\oops\Python.exe

Anuj

Bhandari

anuj@gmail.com

Explanation :-

Now, to provide a data to a classed generic information to a classes what we can do is.

Here, we can try to create a method, different kind of method.

* `def __init__(self, name, surname, emailId, year_of_birth)`

`def underscore(_), underscore(_) init`
`init` is what, `init` nothing but initialisation
of a particular variable to a classes.

when ever, we are writing (`init`)
always write this way (`__init__`)

Then,

let's suppose, I have to take person name, person emailID, person surname, & year of birth, how I will be able to take those particular information.

self, name, surname, emailID, year-of-birth).

Now, then come to the next one, I am creating a function, by using (init) method over here.

(Init) is inbuilt function, which is available which is been used to pass a data to a classes, ideally its call as constructor.
Because we are just trying to pass a data to a class.

* self.name = name

self.surname = surname

self.emailID = emailID

self.year-of-birth = year-of-birth

This is something we can write.

Now, we can simply say that, class is a person.

person must have some kind of entity, identify all those things.

There is a possibility, I am talking about thousand person millions of person, trillions of person at a time.

I am not suppose to write each and every time a new new function; what I will do is.

This structure is define, I will just try to pass these data and then we will start evolving, it will start taking about same thing.

* `anuj-var` = person ("anuj", "bhandari", "anuj@gmail.com"; 1994)

`print(anuj-var.name)`

`print(anuj-var.surname)`

`print(anuj-var.emailid)`

`Ctrl + Enter`

Outcome :-

C:\users\win10\anaconda3

{ anuj

bhandari

anuj@gmail.com

Explanation :-

let's suppose,

as Anuj bhandari.

'Anuj' must have some sort of

'emailid', 'name', 'year of birth' etc.

If I am talking about 'Anuj'

over here.

Here,

I am going change name

* Anuj - variable or "var"

* So, 'Anuj' must having name, title is -
"bhandari."

* He must have emailID - "anuj@gmail.com."

* He must have year-of-birth - "1994".

Now, then I am going to "print" what.

* print(anuj_var.name) - print, anuj_variable
var.

* print(anuj_var.surname) - print Anuj variable
var, del(.) surname.

* print(anuj_var.emailID) - print Anuj variable
var, del(.) emailID

Now,
we can see over here, As a outcome
it is able to print.

Anuj
bhandari
anuj@gmail.com

✓

It is able to print everything that I have mentioned over here; How? & why?

Let's understand :-

I have done simple thing, I have created a person class.
person can be anything, Rahul, Harris, Ramu etc.

There must be something common between all the person.

All person individual have these name, emailID, surname etc.
which I have to take from users.
user can be 1, or 100 or 1000,
there is a high chance, user will be available any number.

* class person :-

These class trying to represent a very very generic template that is OK.
I will take, name, surname & emailID each and everything.

```
def __init__:  
    ""  
    ""  
    ""
```

Now,

Here,

I have declared one variable I am trying to pass a data.

```
* anu_var = person ("anu", "", "", 1994)  
print , "
```

"

,

,

Then ~~one~~ one by one, I am able to call it. How I am able to pass a data what we have done over here.

Here we are able to print 'Name', 'surname', 'emailID'. that is something, we are trying to understand.

* So, the "class person" is fine, it is creating a template inside that. I have created ("__init__") method as I said.
 "__init__" is nothing but default inbuilt method, which is available. what is use of __init__, use of these (__init__) is to pass the data to my classes.

So, that for a particular 'object' or 'variable' or for a particular 'instance' to pass a data inside this one, so that it will be able to give me some sort of a return.

Earlier, we have created.

$a = 10$ (integer)

$v = "vijay"$ (string)

$v = 45.1$ (floating point)

All we have done this operation earlier, when we create a variable $a = 10$ & then when we say $\text{type}(a)$ then as a outcome system will return 'integer'.

$a = 10$
 $\text{type}(a)$
int

whatever variable you have declared. type of that variable is 'integer' that is what system return.

So, the system does not know what kind of integer 'int' we are going to enter it may. 1, 2, 100 or 100000. Does know.

whatever number we will enter system will know all of these integers.

$$q = 10$$

Whenever we say, I have declared the integer (int) variable whether its 10 or 100 or 101. System will be able to understand that it is a integer, which I am talking about.

* Some one has created a kind of integer (int) class, so that whenever we are trying to pass a data inside that integer class, it is able to understand that integer class, it belong from integer classes.

Same thing goes for string (str). Someone must have created, defined the properties of a string (str). How I what string (str) look like.

How it suppose to store a data as a string inside a system or

RAM.

How it suppose to store a data as a string inside a system or RAM.
How to give a outcome, whenever someone use this string etc.

Similar way,

Here I am talking about 'person'

class person:

Class is method

So, the person having this many variables
is short of a input.

```
def __init__(self " " " ")  
    self.name = ""  
    "  
    self.year_of_birth = "
```

Now, I will be able to provide input to my classes by using a (- - init - -) method.
'init' is nothing but its a

constructor:

'Constructor' been used to pass the data to a class, but how it is passing a data to a class. that,

we are suppose to understand.

```
def __init__(self):
    """
    self
```

Inside these 'Constructor' there is very first variable that we are able to find out as a 'self'.

'self' is not a served keyword we can use any one name or anything. As a standard process I am using as a 'self' later stage we will remove that 'self' and use what name, I want to use there.

* def __init__(self, name, surname "...")

As a standard procedure we are using a 'self' later stage, we are going to remove that ~~the~~ 'self'.

"self"

Here whatever function we are going to create, whether its inbuilt one or custom function that we are going to create.

At any point of a time we are going to create a very first variable here it is

"self" as a pointer.

pointing to a particular class, this is meaning of a very first variable.

So, far so forth we have created a

function. let's suppose, I have to put end number of input. "ABCDE". write a parameter inside function.

Here,

```
def __init__ - self name
```

In general whenever I write def & function name, I just pass end number of parameter.

But whenever we create any function inside a class its a procedure inside a 'python'.

Whenever we create a very 1st variable here it is 'self'; it will treated as pointer.

pointer to whom to a 'class'.

So, OK these variable.

class person :

~~self~~ __init__(self; name "")

These variable 'self' going to point each & every thing to a classes.

oops
main.py

test1.py

main.py | test1.py

class person:

def __init__(self, name, surname,
emailid, year-of-birth):

self.name = name

self.surname = surname

self.emailid = emailid

self.year-of-birth = year-of-birth

anijs-var = person("anijs", "bhandari",
"anijs@gmail.com", 1994)

print(anijs-var.name)

print(anijs-var.surname)

print(anijs-var.emailid)

test1

C:\Users\

```
def __init__(self, name, surname, emailID,  
year-of-birth):
```

Here, I have define my variable
* name, surname, emailID, & year-of-birth.
meaning is that whenever we are trying
to call these 'class'. [class person.]

we are suppose to provide a
information about a name.

we are suppose to provide a information
about a surname, emailID. & year-of-birth.
etc.

If we are not provide, it is not going
to work, it will going to give me an
issue.

* `anuj-var = person ("anuj", "Bhandari", "anuj@gmail.com, 1994")`

let's suppose,

Here `anuj-var` I am trying to create a one variable.

This is my ~~one~~ variable, The way we declare `a = 10`

'a' is just a variable & it is trying to pass these '10' to something, then only we are able to call 'a'.

`a = 10`, it is going to give

me a result.

Basically, it is a integer variable Integer type variable, we are trying to create.

Integer also a class inside a python.

Similar way, we created `anuj-var`. This is nothing but, its again variable name.

`anuj-var`. It's a variable like `a=10`
we can give anything over here.

`anuj-var` This is a variable of what
variable of basically a person class.

* `anuj-var = person("anuj", "bhandari", 1994)`

class `person`:
`anuj-var = person("anuj", "...")`

Here, I have called same person class
over here.

`anuj-var` is nothing but, variable
of a person ~~etc~~ class.
what is the role and responsibility of
a variable is to take a data or assign
something for a particular class.
That variable does.

when we write

`a=10`

It assigns 10 to 'a'. This is what it does.
& we try to allocate this things into
a integer classes.

anuj_var = person

Here, I am trying to create a variable, but I am trying to create class variable.

a = 10

Here, when we try to create integer class variable, where 'python' will understand automatically. In other language, we have to define $\text{int} + a = 10$

But, in python itself type caste python will understand each & everything automatically.

* anuj_var = person

But, if I talk about 'class' over here, I am just trying to create a class variable just like these variable

$\text{int} + a = 10$

class variable; I am trying to create
thus - var = person & then I am trying
to pass a data, which is
("anuj", "bhandari", "anuj@gmail.com", 1994).

Now, class can take one data, class can
take multiple data.

As I have defined over here is
this class will take 4 data, what I have
defined inside these integer.
name, surname, emailID, year-of-birth
1 2 3 4

Inside my constructor.

Constructor is nothing but
it responsible to provide a data to
particular class.

I am trying to pass these
4 data ("anuj", "bhandari", "anujbhandari@gmail.com",
1 2 3
1994)

to a person class.

* def - < Pub - / (self, name, surname, email ID
 ↓ ↓ ↓
 (Anuj) (Bhandari) (anuj@gmail.com)
year - of - birth
 ↓
 1994

- * ① Anuj go as a 'Name'
- ② Bhandari go as a 'surname'
- ③ Anuj@gmail.com go as a 'Email ID'.
- ④ 1994 go as a ~~as~~ 'year - of - Birth'.

So, my all the data will be here.

```
def __init__(self, name, surname, emailID,  
year-of-Birth)
```

once, I am going to call below line code

```
anuj_var = person ("anuj", "bhandari",  
"anuj@gmail.com", 1994)
```

* So, If I call these * Anuj_var
Code, my entire variable will pass over
here.

```
def __init__(self_name, surname, "  
" ")
```

Now, we have name, surname, emailID &
year-of-Birth.

So, the 'self' is just behaving as
a pointer & in a conveniences in python.
whenever, we try to create any
function or method we are suppose to
keep a very 1st variable as a 'self or'
any other name we want to use or
take.

* Name - Surname — EmailID —
↓ ↓ ↓
Anuj Phandari anuj@gmail.com

year - of - Birth
1994

Now, my dataset is available over here.
But how my class will be able to get
these data, I am not able to connect it.
Dataset is available here,
whenever I am going to call and object
of these class this is completely fine.
How it is going to pass, how
my class will get to know that 'Anuj'
variable, name, surname, emailId, year - of
birth.

How my system will be able to know
that or understand that particular
part. ~~From n~~ How my class will understand.
It will be understand with the
help of these below 4 lines.

self.name = name

self.surname = surname

self.emailId = emailId

self.year-of-Birth = year-of-Birth

1. self.name = 'name'

here, I have written

self.name = 'name'

So, whatever name data, I am passing this will try to take data from here.

def __init__(self, name, surname, " ")

self.name = name

self.surname = surname

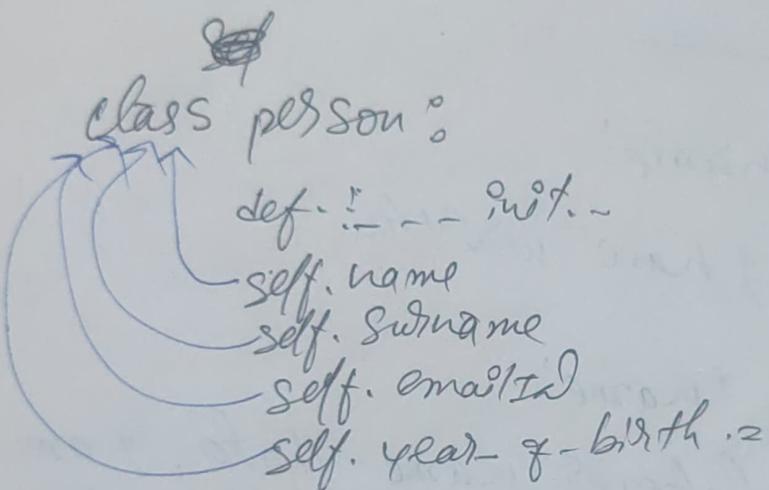
"

"

goes so on like

*'self'

'self' is basically a pointer.
pointing to my class.
So, here,



Here,
* 'self.name' is pointing toward \rightarrow class
* 'self.surname' is " " \rightarrow class
* " "
* " "
* " "

Note :

Here, def __init__ - (self, name, surname, "")
self.name = name

self.name is again not these upper name.

So, these

Self. name

Name is a specific variable for a class.

With the help of these Self. name
~~it is available~~ to pass the value.

class. person:

def __init__(self, name):

 self.name = name

"

"

ann - var. = person("anuj", "bhandari")

From "anuj"

↓
self.name

↓
class

- * for 'Anuj' variable, what is ~~Self. name~~ ~~Self. name~~
- * For 'Anuj' variable " " ; is ~~Self. name~~ ~~Self. name~~
- * For 'Anuj' " " " " " " self. ~~name~~ ~~name~~ ~~email~~
- * " " " " " " " " " " year-of-birth

So, these is how the control follow
it will come from here)

* anuj_var = person "

* Class. person :-

def __init__(self, name, ...)

self.name = name

self.Surname = "

",

①

* anuj_var = person

This is a fellow we always try to ~~to~~
maintain.

* So, the class person :- will be able to

understand, I have a one person called
as anuj variable, this is person name.

like similar other. Let's mention

Surname

emailID

year-of-birth

all short of thing it will understand.

* Note:-

Now, we have discussed that this is just one variable, single But person can be millions or trillions depends.

1: 04: 07

Project

oops

main.py

test1.py

main.py | test1.py

class person:

def __init__(self, name, surname,
emailid, year_of_birth):

self.name = name

,

,

anuj_var = person("anuj", "bhandari",
"anuj@gmail.com", 1994)

Sudh = person("Sudhanshu", "Kumar",

"Sudhanshu@gmail.com" 234 24)

gargi = person("gargi", "xyz", "gargi@
gmail.com", 234 242)

print(anuj_var.name)

234 242

test1

(1)

(.:|users|win10|anaconda3|

→ print(Sudh.name)

print(gargi.name)

anuj

Sudhanshu

gargi

Explanation :-

So, here, what we will do is
we will create another variable of classes

- * `anuj_var = person ("anuj", "Bhandari",
 "anuj@gmail.com", 1994)
- * Sudh = person ("Sudhanshu", "Kumar",
 "Sudhanshu@gmail.com", 23424)
- * `gargi = person ("gargi", "xyz", "gargi@gmail.com",
 234242)

we have already "Anuj".
we have created another 2 more variables

① Sudh

② Gargi

Here total we have created 3 variables
of classes "person classes."

I am trying to pass data to my
classes - this one - class person :

- * print (annu_var.name)
- * print (Sudh.name)
- * print (gargi.name)

outcome

annu ✓
Sudhanshu ✓
gargi ✓

Now,

If I am going to print or call over here. If we ran this, as a outcome, we can see over here:

whatever data, I have provided as a name. Yes, I am able to access it.

* ~~This~~ Here; we have taken just 3 variable this way we can do 3 million data variables.

All of these variable try to do one this thing, they are trying to pass a data to my classes. & that data whenever, I would like to call. I will be able to call it.

That is pretty much similar to
declaration of a variable
as a integer, as a string, as a list,
dictionary, set or tuples etc.

Everytime, what we do is we create
a variable, try to pass a data.
then again, we create a variable
we try to pass a data.

Here, we are doing exact same thing,
we have created a template over here,
which is called as a 'class'.
& then we try to create a
variables over with respect to that class.
whatever input that class needed for
a respective variable, we can try to
provide.

116: 53

Q! Can you tell me, what is the email ID of 'Gargi'.

" " 'Sonal'

" " 'Anuj'

yes, we can call it variable name. email.

* variable_name. email.

* variable_name. Surname

* variable_name. Year-of-Birth

then we will get that information.

we are trying to change, dynamic of doing a programming.

This is any point of time, I can create any number of own type of the variable.

~~I can create~~

* Can you please create different kind of integer value variable?

yes, is how & what, person is already created Integer type variable.

But, here I am able to create a my own data type. I am trying to create my own definition of it.

I am trying to make my own "Type" of
it. Yes it is working.

* project

oops

main.py

test1.py

main.py / test1.py

class person:

def __init__(self, " " "
" "
" "

anuj_var = person ("anuj", " " "

Sudh = person (" " " " " "

gargi = person ("gargi", " " " "

print(anuj_var.name)

print(Sudh.name)

print(gargi.name)

print(type(sudh))

test1

anuj

Sidhghum

gargi

<class '__main__.person'>

right click
select 'Run'
execute it

Explanation :-

Now suppose,

I am going to print.

*

what is Type of 'such' variable.

when we are going to declare $a = 10$

~~#~~ $a = 10$

`type(a)`

It gives us as a outcome `integer(int)`

Now, If I am checking what is the type
of "such" is
'person':

right click select
Run Test 1
execute it

Last earliest we have done $a = 10$, similar
`type(a)`, similar
way co-relate, here also we are trying
to do same thing, but we are trying to
defined our own kind of a variable.
This is something we are trying
to create.

* Now, technically this variables are called as; this class variables we have created is technically called as 'object'.

objects: are nothing complex, object are 'class variable'.

Here, 'Anuj' variable
'Sush' variable
'gargi' variable

This all are technically a class 'variable'

Similar way, we try to create a integer (int) variable

list "

dictionary "

set "

Tuples "

String "

Float "

Boolean "

"None"

Similar way, we are trying to create a 'class variable'.

* Some one was created integer (int) or type of integer (int), float we are using.

* amit_var = person ("amit", "bhandari",
] amit@gmail.com, "1994")

Now, these set of data set basically called as 'person' dataset. This is actually called as 'object'.

* Sudh_amit_var = person "
Sudh = person "
" "
" "
" "
" print (type(Sudh))

So, these is called as 'object', these is defining the real thing, it is talking about particular person.
This above are real entity, when I say 'person', its not real there can be millions person, name I can generate over here.

* NO, If I am talking about this 'object'
It's a real world 'entity':
'class' is just classification of
the data.

But, here when I talked ~~about~~ about
the object or class variable its a real
entity or real thing that we are
talking about.

* anuj_var = person (" " " ")
Such = person (" " " ")
gargi = person (" " " ")

Here, This 'Constructor' is been used
to pass a data if I have to, it's not
mandatory to create a 'Constructor' all
the time.

Later some classes, we will going
to create constructor ~~that~~ that is fine.
To pass the data

There is a possibility that, I don't have
to pass a single data, maybe I can keep
function is one inside classes. that is
completely fine.

* class person :

(1)

def __init__(self, name, surname,
emailid, year-of-birth):
 self.name = name
 self.surname = surname

" "

anuj_var = person ("anuj", "bhandari",
 "anuj@gmail.com", 1994)
Such = person "

" "

* ~~Self~~ self :- is basically pointer, follow
of data we can see above how it
happened.

Self self is behaving as a pointer,
So, it will point entire data to
[class person :]

That is only region we are
able to understand & we are able to
Called.

~~QUESTION~~
print (anuj.var.name)

Anuj variable name is called (=) equal
to Anuj we are able to get.

print (anuj.var.name) = anuj
" (sudh.name) = Sudhanshu
" (gargi.name) = gargi
outcome as a can
see.

* Classperson :

def __init__ (self, name, surname,
 " " ,)

Self. name = name
Self. surname = surname

Self. emailId = "
 " "

anu_var = person ("anu", "bhandari",

Sudh = person ("Sudhanshu",
 " " ")

" print(anu_var.name)
 " - "

test1

users | anu

Error: ✓

print (anu_var.name)

Attribute Error: 'person' object has no
attribute 'name'

Explanation :-

Def -> self.name (self, name)

* $\boxed{\text{self.name} = \underline{\text{name}}}$

Here, we confused that above these 2 names is same.

* $\boxed{\text{self.name1} = \underline{\text{name}}}$

Here, we have make small change that it was earlier self.name to

self.name1

Rest all code don't change same

as it. Now, If I run this code, as a outcome, we can see we are getting an Error.

Attribution Error: 'person' object has no attribute 'name'?

If telling me person object or person variable has no attribute called 'name'?

I can see name over here, & trying to pass Lata also.

But system giving me an Error
These "person" person is class. ;s
not able to understand that "name".

How,

I made small change just
Self. name1 } System is not understanding
& giving me an Error.

self.name = name

* In general whenever people try to write a class object they try to keep both as a same.

Majority of books also other platform people try to give same name itself. It creates a confusion.

class person:

def __init__(self, name, person):

self.name1 = name

Self.Surname = Surname

The above both self.name1 = name

is not not same

~~self~~ self.name1 →

This is basically a class variable.
class will understand only from
left side part only.

self.name1 = name

This right part is ~~the~~ name is just
referring to assigning some short of data
* left side part 'class' will understand.
 \downarrow information

* But right hand side information
we can use anything like
name
'xyz', my name or anything.
It will work.

* class person:

```
def __init__(self, name, surname,  
           " " " " )
```

```
self.name = name  
self.surname = surname  
" "  
" "
```

```
anuj_var = person ("anuj", "bhandari",  
                    anuj@gmail.com, 1994)
```

```
sudh = person (" ", " ", " ", " ", " ")
```

```
gargi = person ("gargi", "xyz", " ")
```

```
print(anuj_var.name)
```

```
print(sudh.name)
```

```
print(" ", "  
" , "
```

test1
C:\Users\wingol

```
"print(anuj_var.name)
```

AttributeError: 'person' object has no
attribute 'name'.

Explanation:

Now, here again I will make slight change over here, below part.

```
[print(anuj.var.name1)]
```

If I will call this with name1
Anuj variable with name1

As a outcome, we can see over here.

It's giving me an Error. & issue.

Attribute Error: 'person' object has no
attribute 'name'.

* class person:

def __init__(self, name, surname, " ")

Self. name = name

Self. surname = surname

" "

anuj-var. = person ("anuj", "bhandari",
" ", " ")

sudh " "

gargi " "

print(anuj.var. name1)

print(sudh. name1)

print(gargi. name1)

print(type(sudh))

test1
C:\Users\

: anuj

sudhanshu

gargi

<class '__main__.person'>

process finished with exit code 0

Explanation :-

let's suppose,

Here, 'class' is ^{not} aware about, 'class' is aware about name1 over here now.

If now I will make below changes put name1 to all ~~the~~.

If I will execute as a outcome we can see that.

make change in two places.

- * 1st in top ~~self. name1~~
- * 2nd in below print section (name1)

* class is understand just a data point or just a variable, which is been pointed towards dataset. not the assigned one. I can give 10, 20 whatever.

I want that is fine. That is region - 'self' is being used. 'self' is pointing towards the 'classes' that is the only information 'classes' will be understand data allocation wise.

whatever data we want at any point of time & it is going to be fine.

* 'Self'

self.name1 = name

Self is just a pointer or reference we can use anything like, ABCD, my name anything we can use.

whatever variable, we are going to put there in term of 'self' place that will treated as reference or pointer. That will help our 'class' to understand a variable & its respective information.

1:16:00