

Data Science & AI & NIC - Param

Python-For Data Science

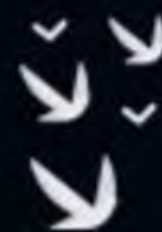
Language Fundamentals

Lecture No.- 01

By- Pankaj Sharma Sir



Topics to be Covered



Topic

Language Fundamentals - 01





Topic : Language Fundamentals

① Easy to learn

```
#include <stdio.h>
void main() {
    printf("Hello");
}
```

```
public class ____ {
    public static void main(String[] args) {
        System.out.println("Hello");
    }
}
```

```
print("Hello")
```

Guido van Rossum →

General purpose high level prog language

Python

Syntax

C & ABC

- ① funct. programming — C
- ② OOPs — C++
- ③ scripting lang — perl & shell script
- ④ Modular prog. — Modula-3

- ① Desktop application
- ② Web application
- ③ DB "
- ④ N/w "
- ⑤ ML }
- ⑥ DA }
- ⑦ IOT }

⋮

- ① Simple & easy to learn.
- ② High level.
- ③ Freeware and Open source.
- ④ Platform Independent
- ⑤ Dynamically typed.
- ⑥ Procedure oriented, OOPs
- ⑦ Interpreted

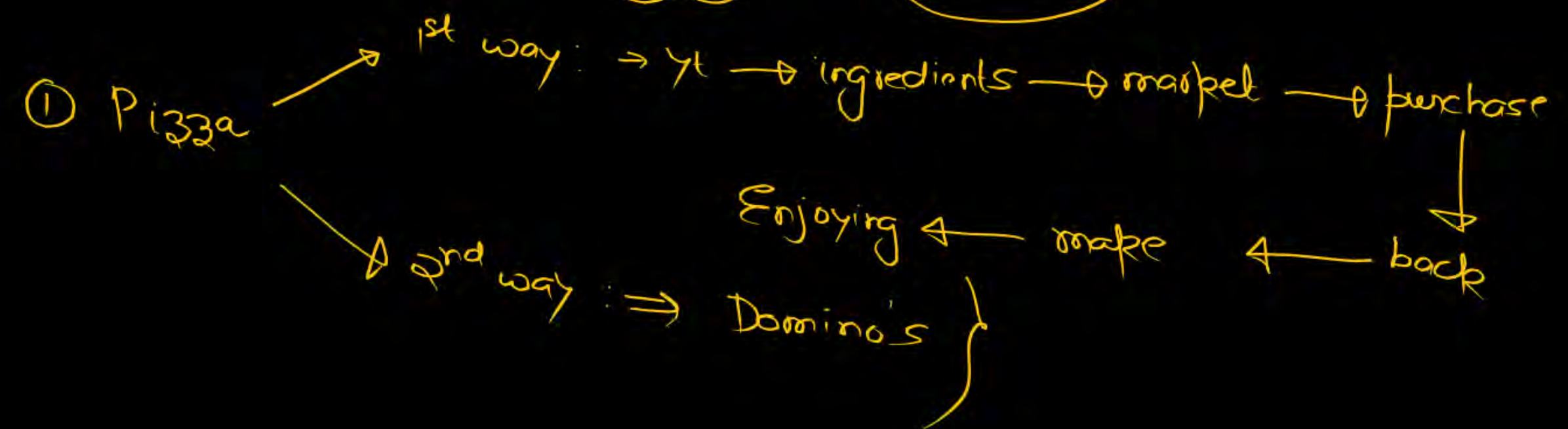
Python.org

C long
int c;

Limitations

Mobile application

① performance



Identifier

name

{
a-z, A-Z
0-9
underscore (_)
}

→ H₂O
→ Car₁₂
→

① can not start with a digit

4
variables

{
abc = 10
Abc = 20
ABc = 30
ABC = 40
}

labc = 10 Invalid

abc = 20 ✓

Ramayan = 10 ✓

② Case sensitive

Mango →
Apple →

Reserved words (keyword) latest version

3.12

→ 02 oct 2023

private var → class
↓
oops

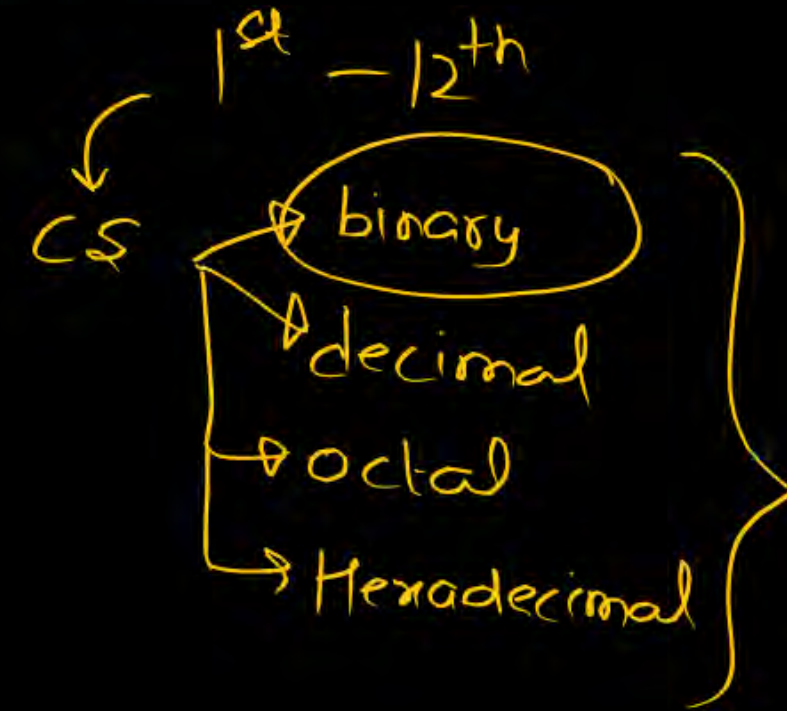
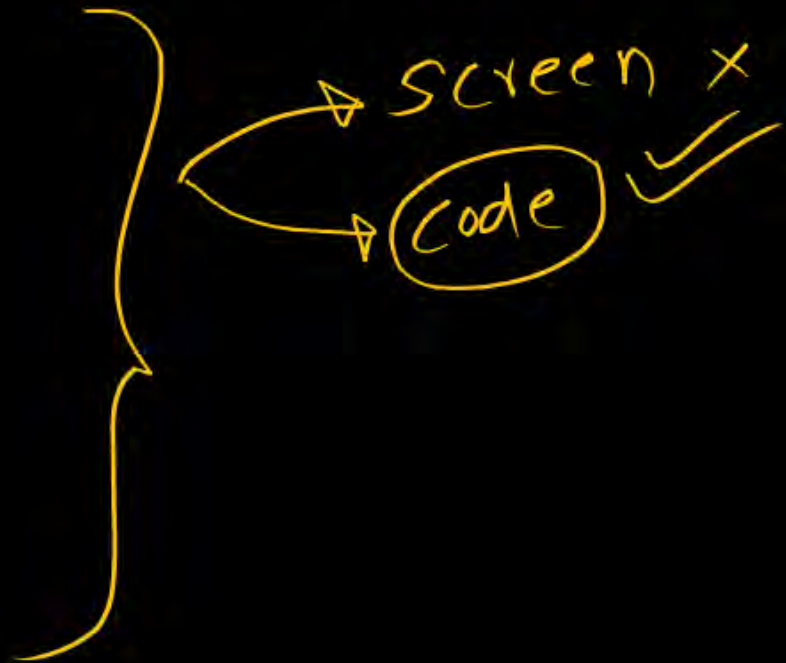
Data types

0 →
Mechanical

3 lecture {
→
→
→
}

Fundamental

- (i) int
- (ii) float
- (iii) string (str)
- (iv) boolean (bool)
- (v) complex



oops →
object

int

OB/ob

00/00

0x/0x

a = OB 1000 →

b = 0b100

1000
 $2^3 2^2 2^1 2^0$

$$\Rightarrow 1 \times 2^3 + 0 \times \text{---} + 0 \times \text{---}$$

$$= \textcircled{8}$$

1200

1.2 × 10³

a = 1.2e3

1.2e3

$$\frac{1.2}{10} \times 10^3 \Rightarrow 1200$$

Complex data type

$$\underline{2 + 3i} \rightarrow 12^{\text{th}}$$

$$\begin{array}{cc} 2 + 3j \\ \swarrow \quad \searrow \\ \text{real} \quad \text{imaginary} \end{array}$$

$$(3 + 4j)(2 + 5j)$$

$$6 + 15j + 8j + 20 \textcircled{j^2}$$

\downarrow
-1

$$6 - 20 + 23j$$

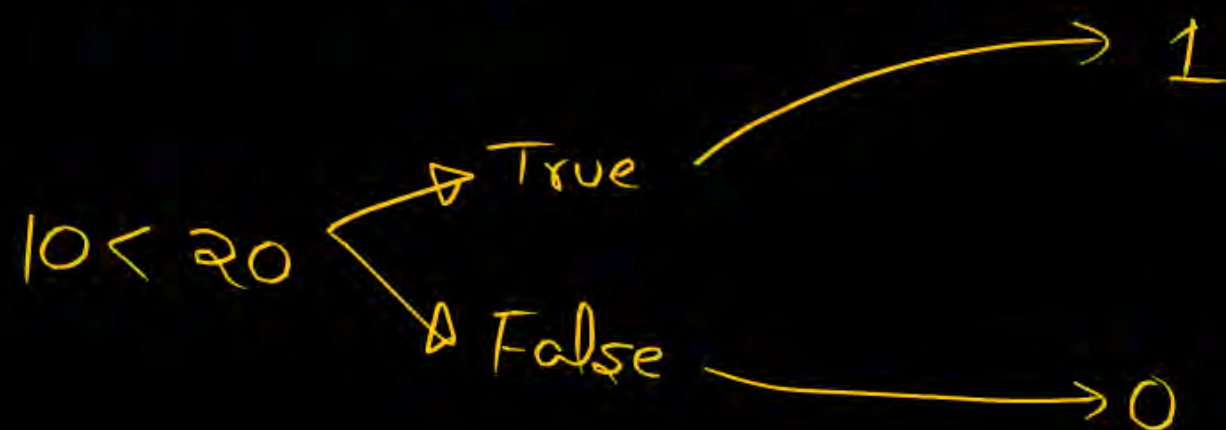
$$\Rightarrow \underline{\underline{-14 + 23j}}$$

bool

True

False

Internally



```
[ a = 10 < 20  
  print(a)
```

$a = \overset{1}{\text{True}} + \overset{0}{\text{False}}$

$a = \overset{1}{\text{True}} + \overset{1}{\text{True}}$

$a = \text{False} + \text{False}$

0

Paragraph

Python — so class
↓
1 question

Storing ✓✓

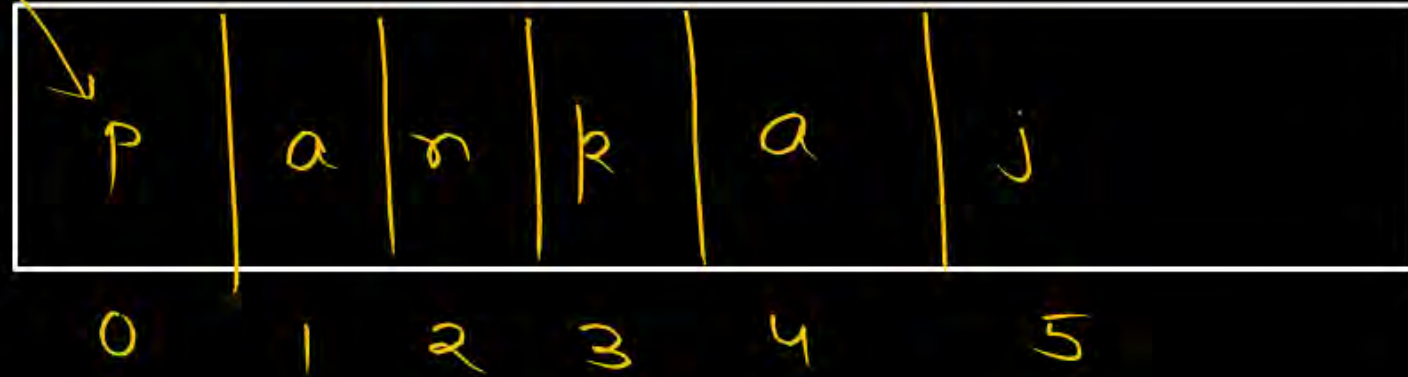
char data type

s = "Pankaj"

s[0]

s[1] ⇒ a

s[5] ⇒ j



"welcome to Panpaj's world of programming"

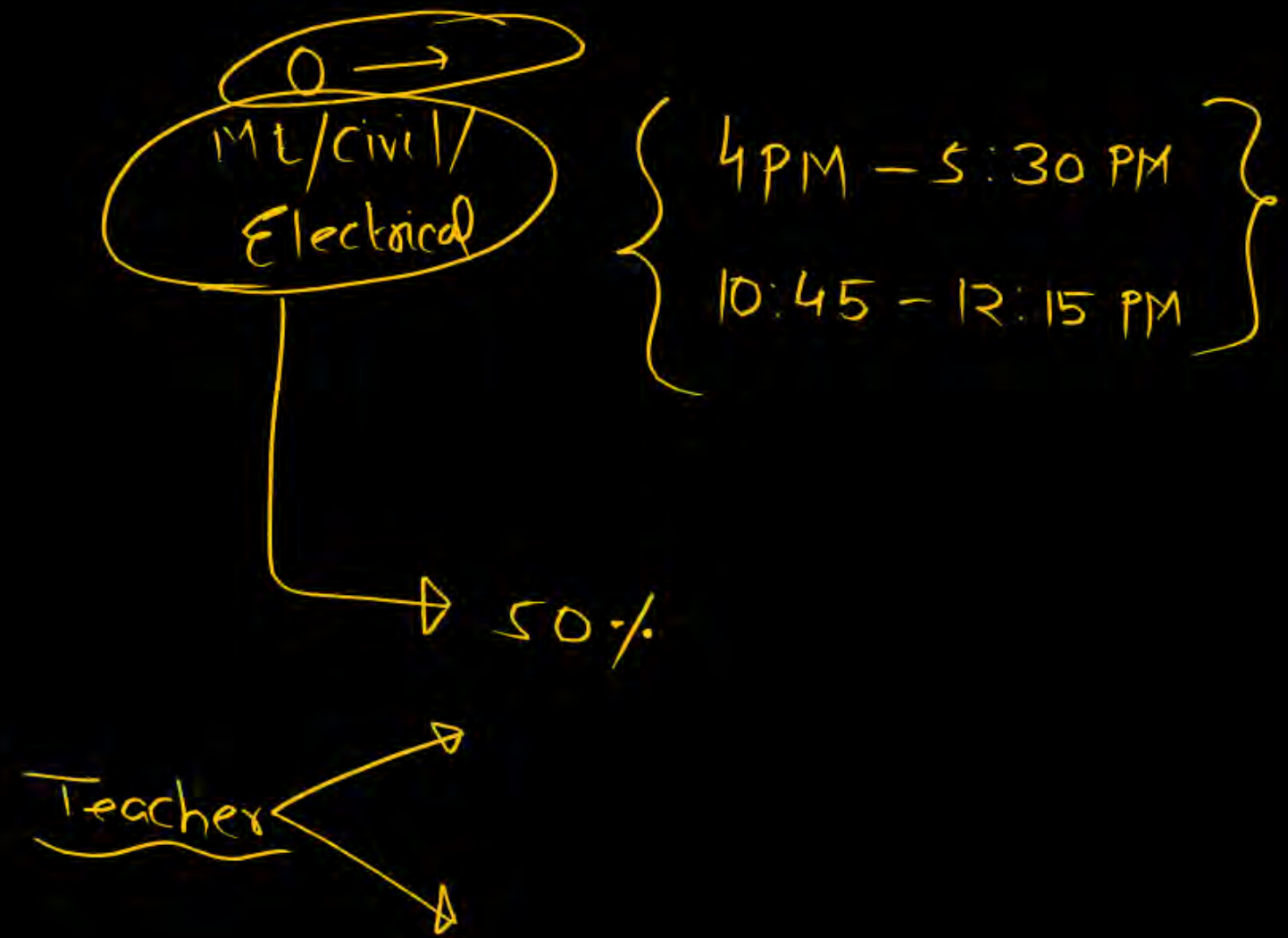
'Everyone "welcome"'

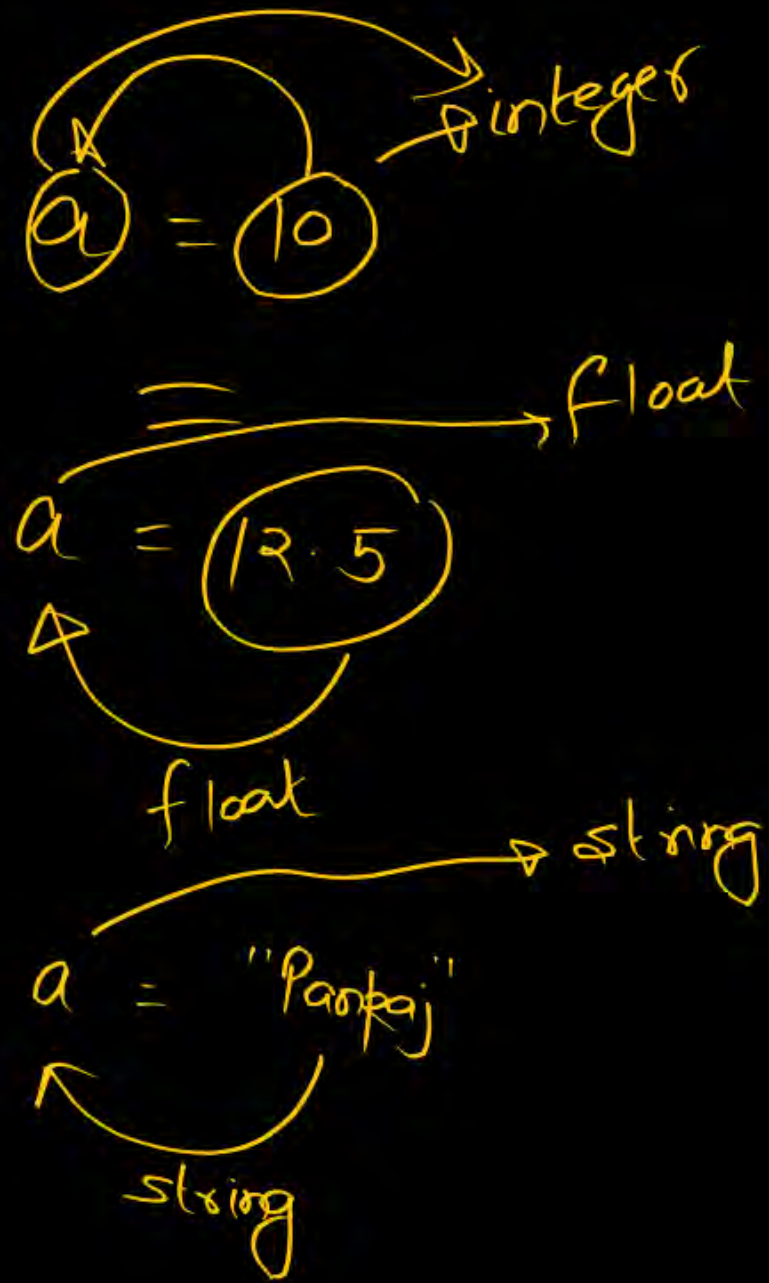
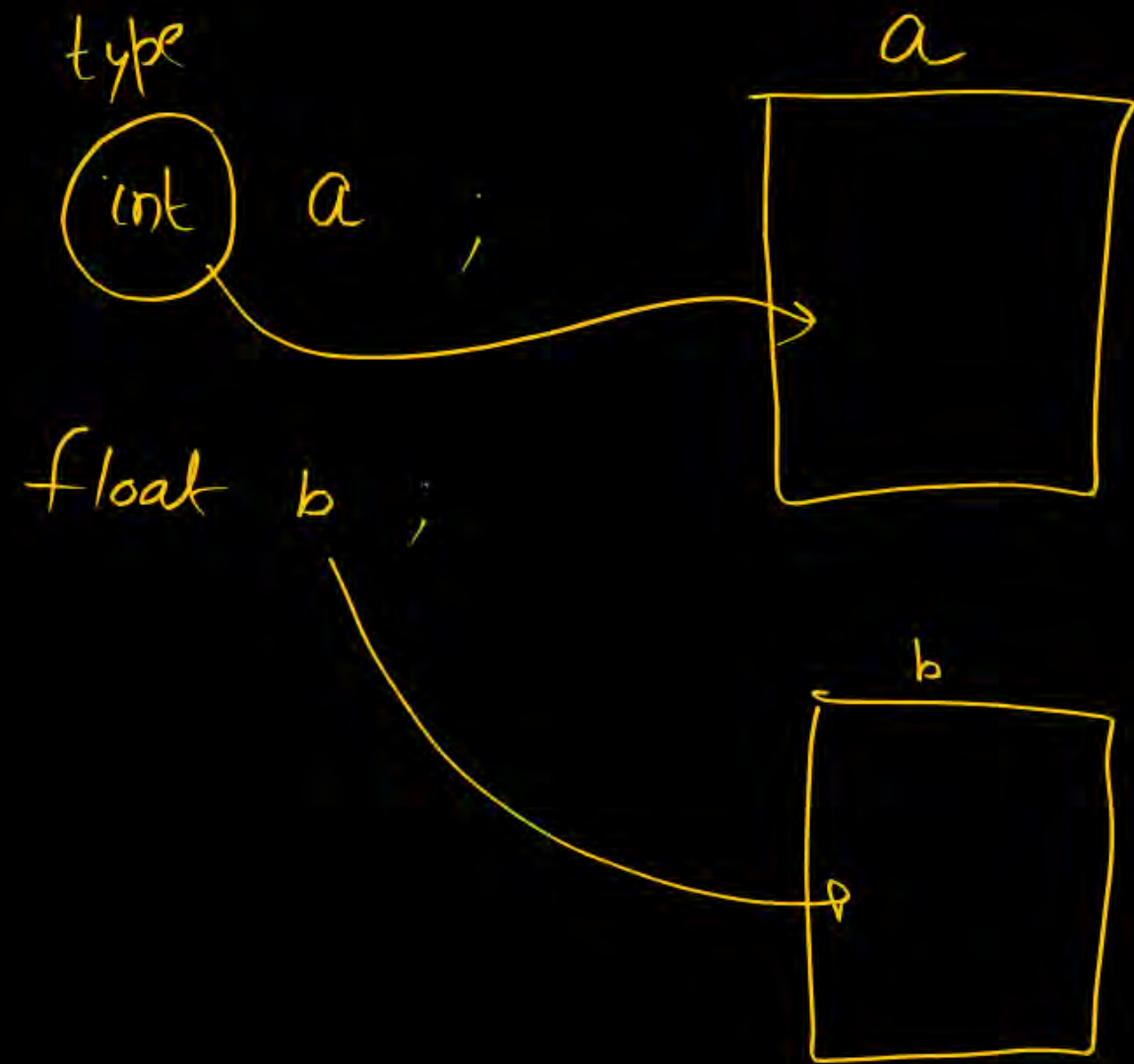
...

→ Multi-line string

...

t. mr/pwpankaj sir P





THANK - YOU