

Lecture 27

Student Symbol table

2
3

```
1  class Student:
2      def __init__(self, name, year):
3          self.name = name
4          self.year = year
5
6      def getName(self):
7          return self.name
8
9      def getYear(self):
10         return self.year
11
12     def setYear(self, newYear):
13         self.year = newYear
14
15
16  if __name__ == '__main__':
17      # Symbol table example
18      jane = Student('Jane', 2024)
19      print(jane.getYear())
20      jane.setYear(2023)
```

0
↓
1
4
5)

0) Create symbol table for Student class and add entry in main table, connecting the two.

0)

Name	Type	Value
Student	<Class>	

< Student Class >

Name	type	Value
--init--	method	
getName	"	
get year	"	
Set year	"	

1) jane = Student('Jane', 2024)

Constructor call

- ⇒
- Create --init-- function symbol table
 - Create Object symbol table for jane.

< Student object > jane

Name	type	Value
--init--	method	
getName	"	
get year	"	
Set year	"	
Name		'Jane'
year		2024

--init--

★ Self = connection to Object symbol table that we are "in"/referencing

- in --init-- : Self = object we are in — jane.

Name	Value
Self	
name	'Jane'
year	2024

- 2) line 3: Self.name = name
- 3) line 4: Self.year = year

Remember: dot notation means hop between symbol tables

⇒ we currently are doing like 3, so inside `--init--`

`self.name = name`

└─

hop to 'self' table (jane), check variable name. Assign

value name, the parameter passed into `--init--` constructor

— 'jane'.

Before 4) Starts:

- `--init--` table goes away
- jane variable added to main, connection to jane object table

Ma.h

<u>Name</u>	<u>Type</u>	<u>Value</u>
Student	<Class>	
jane	Object	

< Student Class >

<u>Name</u>	<u>type</u>	<u>Value</u>
--init--	method	
getName	"	
get year	"	
Set year	"	

< Student object > jane

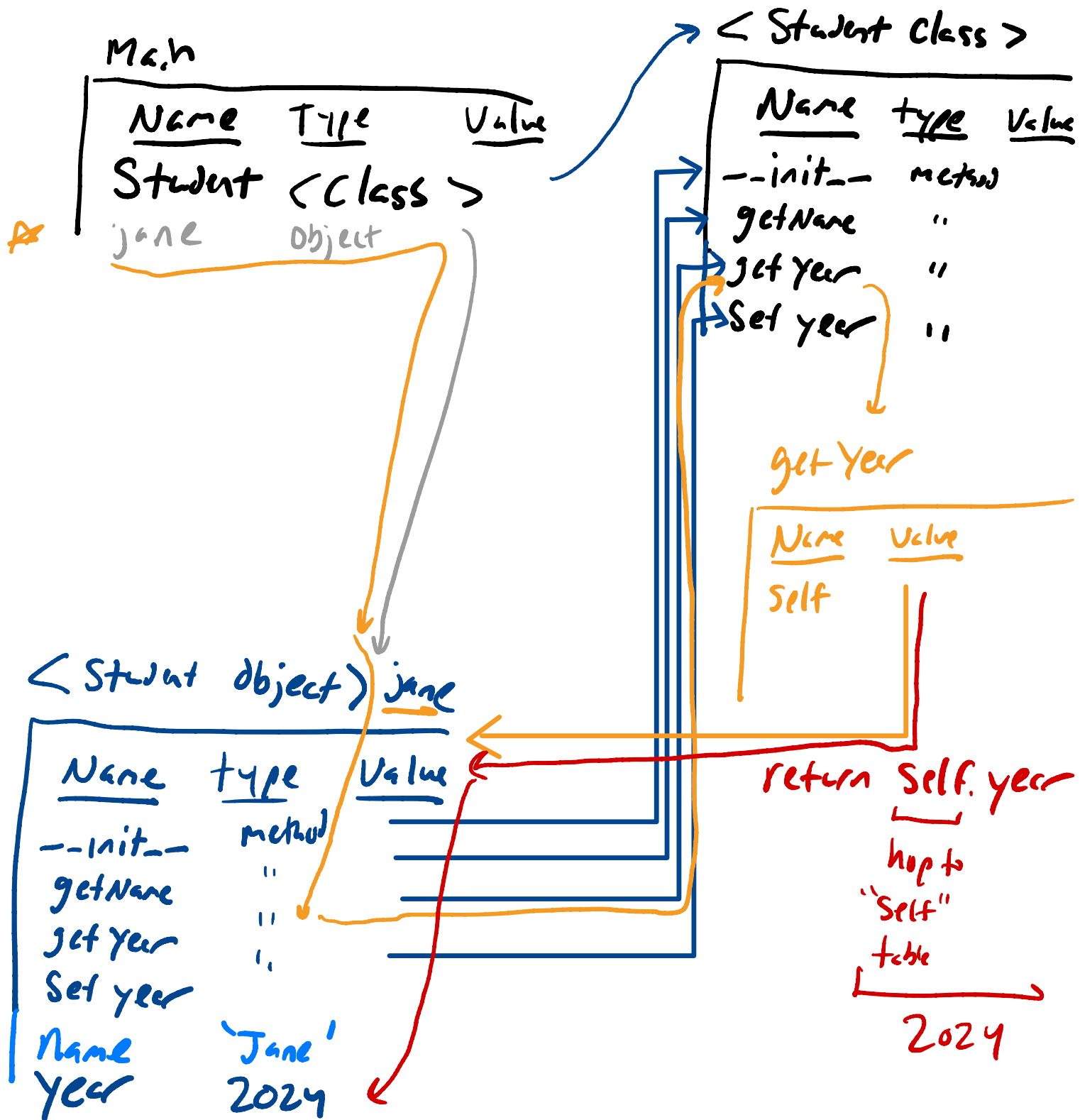
<u>Name</u>	<u>type</u>	<u>Value</u>
--init--	method	
getName	"	
get year	"	
Set year	"	
Name	'Jane'	
Year	2024	

--init--

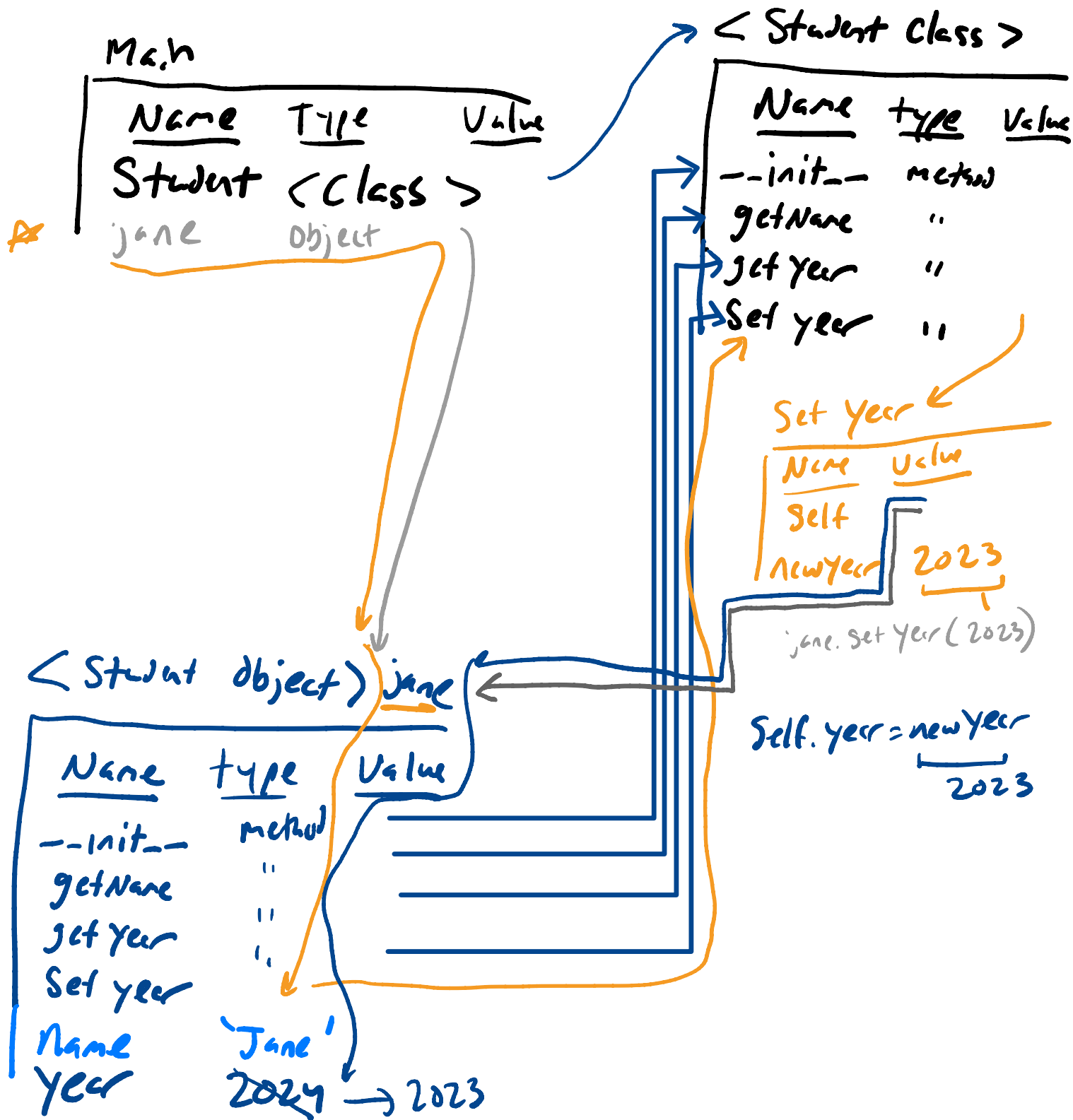
<u>Name</u>	<u>Value</u>
Self	
name	'Jane'
Year	2024

4) 'jane.get Year()'

⇒ Start in main table, hop to jane → get year



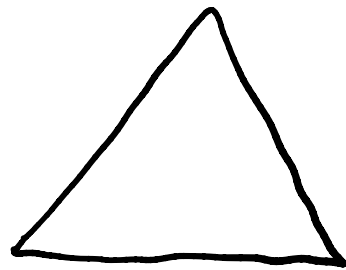
5) 'jane.set Year (2023)
⇒ Start in main table, hop to jane → Set Year



Lecture 27: L-systems

Koch Snowflake

- Start with **Initial Shape** in mind that turtle will draw:



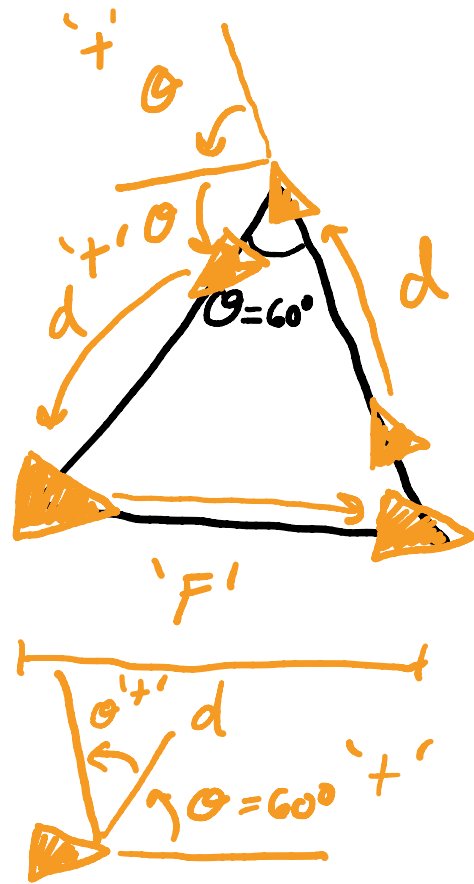
- Represent initial shape using a String: 'F++F++F']

draws initial shape

Each character is interpreted as a Command used to move turtle:

- 'F' means turtle move forward by a **distance d**
- '-' means turtle turn right by an **angle θ** .
- '+' means turtle turn left by an **angle θ** .

Symbols represent **L-system alphabet**



- d Can be anything for Koch Snowflake
 - θ Should be **60°**
- different for different L-systems
- for Koch Snowflake