

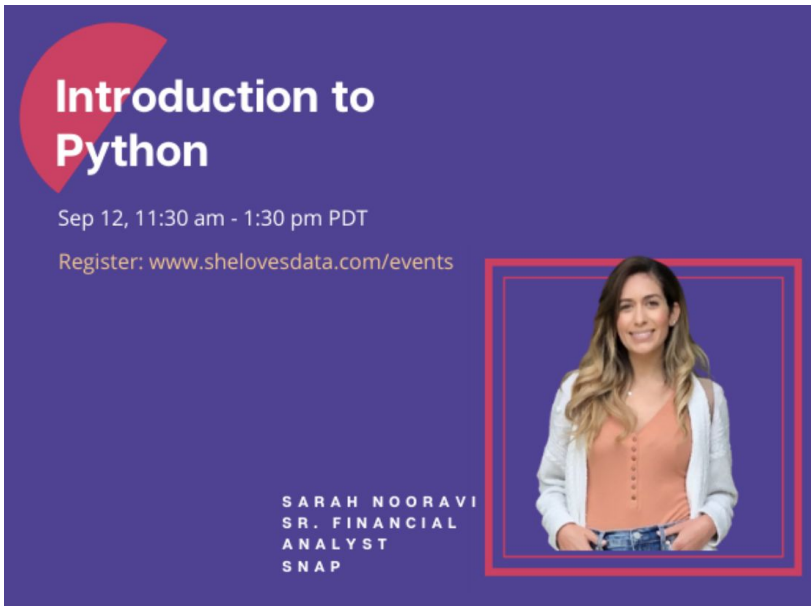
SHE LOVES DATA



Introduction to Python

September 2020 | Virtual Workshop

INTRODUCTION




Introduction to Python

Sep 12, 11:30 am - 1:30 pm PDT

Register: www.shelovesdata.com/events

SARAH NOORAVI
SR. FINANCIAL
ANALYST
SNAP



- B.S. Math/Econ
- M.S. Mechanical Engineering
- Marketing Analytics
- Python for 4+ years
- Programming for much longer
 - Matlab & R

zoom

Meiro

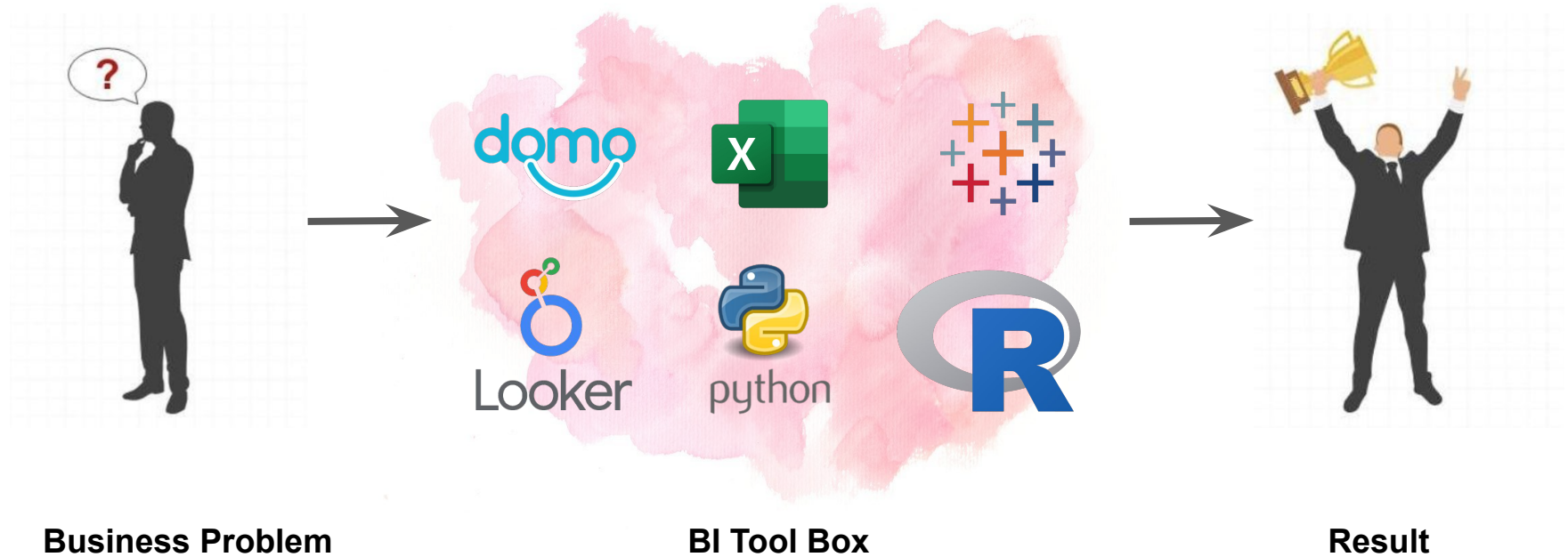


AGENDA

- Introduction to Python Basics
- Breakout Session 1
- Live Coding
- Breakout Session 2
- Live Coding
- Project



PYTHON AS A TOOL FOR DATA ANALYSIS

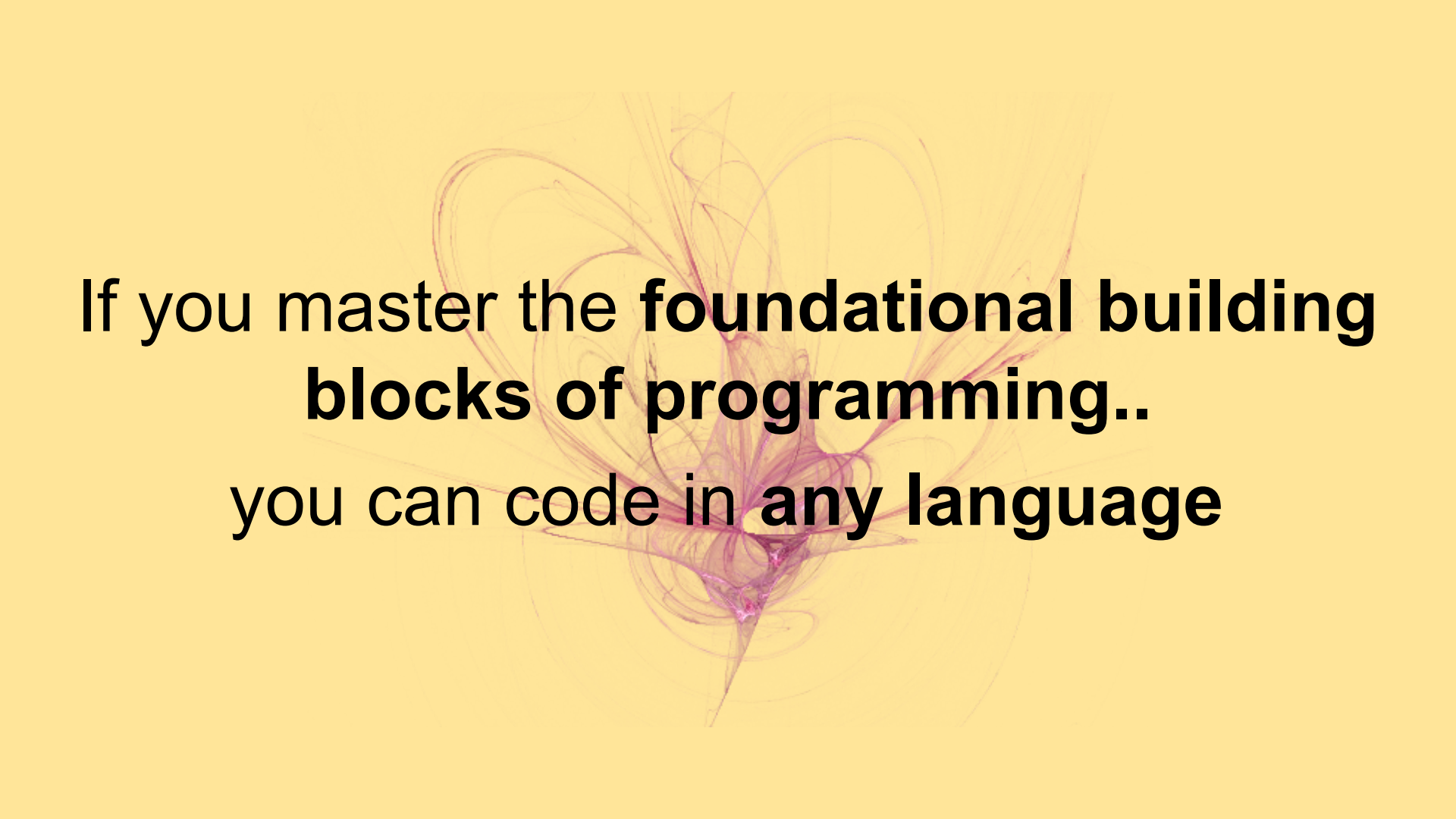


The background of the slide is a solid light yellow. Overlaid on this background is a complex, abstract pattern of thin, translucent lines in shades of purple and pink. These lines swirl and loop around a central point, creating a sense of dynamic movement and depth. The lines vary in opacity, with some appearing more vibrant and others fading into the background.

What do all these tools have in
common?



CODING

The background of the slide is a solid light yellow. Overlaid on this background are several thin, translucent, swirling lines in shades of purple and pink. These lines form a complex, organic pattern that resembles a stylized flower or a nebula, centered behind the text.

If you master the **foundational building blocks of programming..**
you can code in **any language**

WHY PYTHON?

- General purpose language

You can build..

- Desktop / Mobile Applications
- Web Applications
- Visualizations
- Predictive Models
- Automation



WHY PYTHON?

- General purpose language
- Easy to learn

The cleanliness of Python's syntax has led some to call it **"executable pseudocode"**

"Hello, World"

- C

```
#include <stdio.h>

int main(int argc, char ** argv)
{
    printf("Hello, World!\n");
}
```
- Java

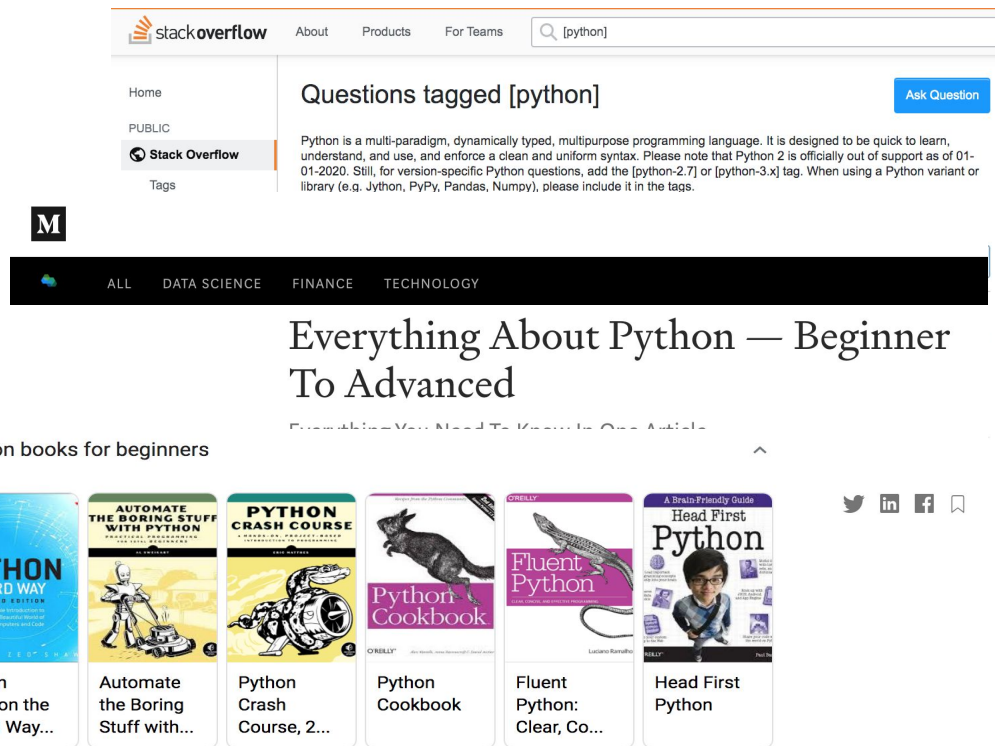
```
public class Hello
{
    public static void main(String argv[])
    {
        System.out.println("Hello, World!");
    }
}
```
- now in Python

```
print "Hello, World!"
```



WHY PYTHON?

- General purpose language
- Easy to learn
- Large active community



The screenshot shows the Stack Overflow website. At the top, the navigation bar includes the Stack Overflow logo, links for 'About', 'Products', and 'For Teams', and a search bar containing '[python]'. Below the navigation bar, the left sidebar shows 'Home', 'PUBLIC', 'Stack Overflow' (selected), and 'Tags'. The main content area is titled 'Questions tagged [python]' and features a blue 'Ask Question' button. Below the title, a paragraph describes Python as a multi-paradigm, dynamically typed, multipurpose programming language. A dark horizontal bar below the main content area contains the letters 'ALL', 'DATA SCIENCE', 'FINANCE', and 'TECHNOLOGY'. Below this bar, the article title 'Everything About Python — Beginner To Advanced' is displayed, followed by the subtitle 'Everything You Need To Know Is One Article'. Under the article title, the text 'Python books for beginners' is visible. Below this text, a row of six book covers is shown: 'Learn PYTHON the HARD WAY', 'Automate the Boring Stuff with PYTHON', 'PYTHON CRASH COURSE', 'Python Cookbook', 'Fluent Python', and 'Head First Python'. To the right of the book covers, there are social media sharing icons for Twitter, LinkedIn, Facebook, and a bookmark icon.



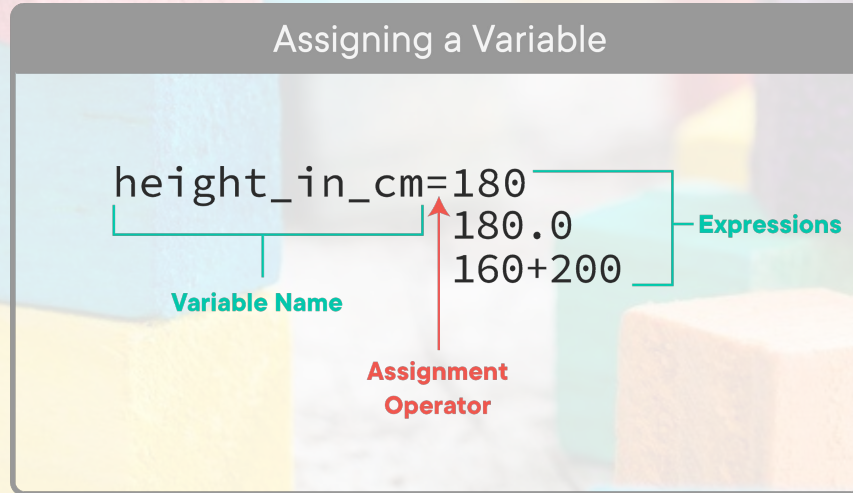
FOUNDATIONAL BUILDING BLOCKS

- Variables
- Sequences
- Loops
- If/Then (or Case/When)
- Functions



VARIABLES

Variables are containers for storing data values. A variable is created the moment you first assign a value to it.



DATA TYPES

Variables can store data of different types. Python has the following data types **built-in by default**:

Text Type: `str`

Numeric Types: `int`, `float`, `complex`

Sequence Types: `list`, `tuple`, `range`

Mapping Type: `dict`

Set Types: `set`, `frozenset`

Boolean Type: `bool`

Binary Types: `bytes`, `bytearray`, `memoryview`

Example	Data Type
<code>x = "Hello World"</code>	<code>str</code>
<code>x = 20</code>	<code>int</code>
<code>x = 20.5</code>	<code>float</code>
<code>x = 1j</code>	<code>complex</code>
<code>x = ["apple", "banana", "cherry"]</code>	<code>list</code>
<code>x = ("apple", "banana", "cherry")</code>	<code>tuple</code>
<code>x = range(6)</code>	<code>range</code>
<code>x = {"name" : "John", "age" : 36}</code>	<code>dict</code>
<code>x = {"apple", "banana", "cherry"}</code>	<code>set</code>
<code>x = frozenset({"apple", "banana", "cherry"})</code>	<code>frozenset</code>
<code>x = True</code>	<code>bool</code>



VARIABLES CONT.

- Data types will expand if/when you load in different modules (ex. Pandas DataFrame, datetime objects, etc)
- Variables do not need to be declared with any particular type and can **change type** after they have been set.
- String variables can be declared either by using **single** or **double** quotes

#Legal variable names:

```
myvar = "John"           # letters
my_var = "John"          # underscore between letters
_my_var = "John"         # underscore at the beginning
myVar = "John"           # caps
MYVAR = "John"           # all caps
myvar2 = "John"          # mix with numbers
```

*# Note: Python is case sensitive,
meaning myvar and myVar are not the same variables*

#Illegal variable names:

```
2myvar = "John"
my var = "John"
my-var = "John"
my%var = "John"
```



SEQUENCES

There are four collection data types in the Python programming language:

- **List** is a collection which is **ordered** and **changeable**. Allows duplicate members.
- **Tuple** is a collection which is **ordered** and **unchangeable**. Allows duplicate members.
- **Set** is a collection which is unordered and unindexed. No duplicate members.
- **Dictionary** is a collection which is unordered, changeable and indexed. No duplicate members.



IF/THEN



- Equals: `a == b`
- Not Equals: `a != b`
- Less than: `a < b`
- Less than or equal to: `a <= b`
- Greater than: `a > b`
- Greater than or equal to: `a >= b`



LOOPS

We can iterate over a sequence using a **for** loop.

Have a look at the recipe for the “for loop.”

```
for var in seq :  
    expression
```

```
collection = ['hey', 5, 'd']  
for x in ['hey', 5, 'd']:  
    print(x)
```

```
1 collection = ['hey', 5, 'd']  
2 for x in collection:  
3     print(x)
```

```
hey  
5  
d
```



FUNCTIONS



A **function** is a block of code which only runs when it is called. You can pass data, known as parameters, into a function.

A function can return data as a result.

Example

```
def my_function():  
    print("Hello from a function")  
  
my_function()
```



POINT A TO POINT B

**Business
Problem**



- Variables
- Sequences
- Loops
- If/Then (or
Case/When)
- Functions



Result

**Foundational Blocks of
Programming**



The background of the slide is a solid, bright yellow. Overlaid on this background is a complex, abstract pattern of thin, translucent lines in shades of purple and pink. These lines swirl and curve in a symmetrical, somewhat floral or star-like arrangement, creating a sense of movement and depth. The lines are most concentrated in the center and fade out towards the edges.

Breakout Session



“

INTRODUCE YOURSELF IN THE CHAT

1.

Name

2.

Where are you located?

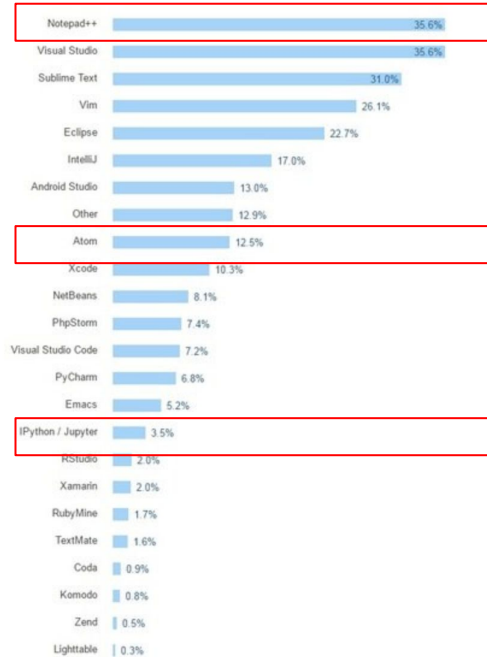
3.

Fun thing you've been
doing in quarantine

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Let's start coding...

PYTHON IDE SELECTION



IDE stands for Integrated Development Environment. It's a coding tool which allows you to write, test, and debug your code in an easier way, as they typically offer code completion or code insight by highlighting, resource management, debugging tools

1. [Python IDE's selection](#)
2. [Datacamp's Top 5 Selected IDEs](#)

