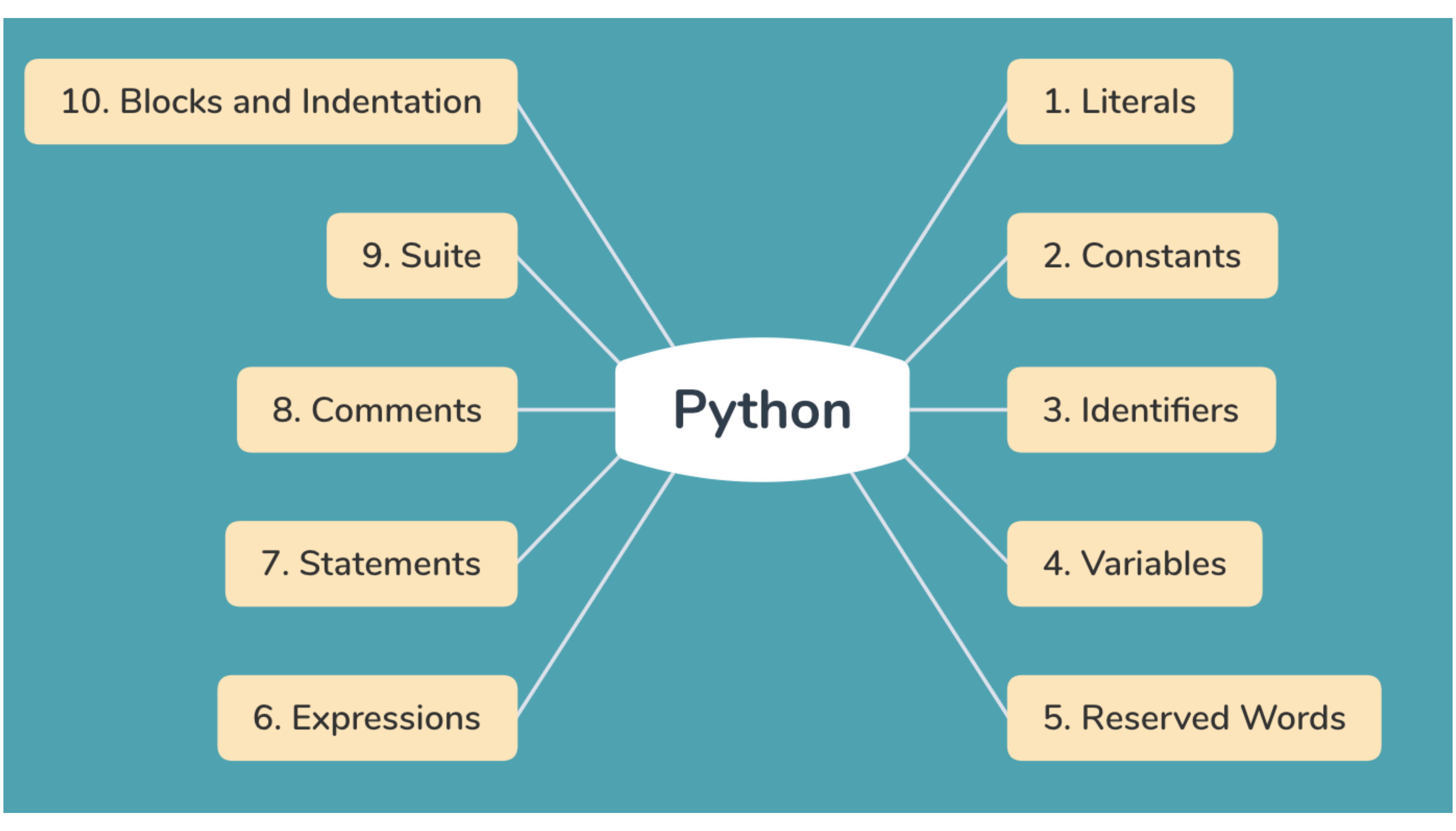

1. Literals in Python:-

```
>>> a = 15
```

- Data or constant value stored in a variable.
- In the above example, constant value '15' is stored in a variable 'a'. 15, here is literal.
- 15 is integer value so it is also called integer literal.

Python supports different type of literals:-

1. **Numeric Literals**
    - Integer Literals - 200, -15
    - Binary Literals - 0b1010
    - Octal Literals - 0o12
    - Hexadecimal Literals - 0xa
    - Float Literals - 10.20, -20.6
    - Complex Literals - 10+20j, 10-20j
2. **Boolean Literals**
    - True, False
3. **Special Literal**
    1. None

In [3]:

```python
a = 100
print(a)

b = None
print(b)

c = [10,20,30]
print(c)

d = [None, None, None]
print(d)
```

```
100
None
[10, 20, 30]
[None, None, None]
```

4. **String Literals**
    1. Sequence of characters enclosed between single quotation, double quotation or triple quotation.

In [1]:

```python
s1 = 'Python is general purpose, high level programming language.'
print(s1)

s2 = "Python is general purpose, high level programming language."
print(s2)

s3 = '''Python is general purpose, high level programming language.'''
print(s3)

s4 = """Python is general purpose,
high level programming language."""
print(s4)

s5 = "Python is general purpose, \
high level programming language."
print(s5)

s6 = "This is Python's class."
print(s6)

s7 = 'This is "Python" class'
print(s7)

s8 = '''This is 'Python' & "Java" class'''
print(s8)

def f1(a, b, c = 0):
    '''This function takes two positional arguments (a,b) and one default argument[c]. It adds all the numbers and
    returns their summation. a,b,c should be numbers.'''
    return a+b+c
print(f1.__doc__)
```

```
Python is general purpose, high level programming language.
Python is general purpose, high level programming language.
Python is general purpose, high level programming language.
Python is general purpose,
high level programming language.
Python is general purpose, high level programming language.
This is Python's class.
This is "Python" class
This is 'Python' & "Java" class
This function takes two positional arguments (a,b) and one default argument[c]. It adds all the numbers and
    returns their summation. a,b,c should be numbers.
```

2. Identifiers in Python:-

- A name given to a variable, function, class or object.
- Allowed Characters in Python:-
    - Numbers - 0-9
    - Underscore - (_)
    - Alphabets Capital(A to Z) and small (a to z)
- Not Allowed:-
    - Special Symbols are not allowed - ($,#,@)
- Rules to define an Identifier:-
    - Identifier should not start with a number.
    - Identifiers are case sensitive.
    - Never use reserved words as identifier.
    - Not recommended to take lengthy identifier.
    - Identifier starting with _ - Private
    - Identifier starting with __ - Strongly Private
    - Identifier starting and ending with __ - Language defined special identifier

Variables in Python:-

- A variable in python is a name which may change the data associated with it over time in a program as and when required.
- Rules to define a variable is same as that of an identifier.
- It is just a name which is used to create a reference for the data or object associated with in a given program.
- Variable always refers to the memory location in heap where the data associated with it is stored.
- Once user changes the data associated with a variable then the memory address of the variable also changes.
- Variable are used to store the data in the memory and pass them to processor to process the data.

Constants in Python:-

- A constant value is similar to variable with one exception that it can not be changed once it is set.
- In Python, You may change the value associated with a constant.
- So, how constant is different from variable in Python:-
    - Constants in Python should follow the same rule used to define an identifier.
    - Constants in Python should use only capital letter.
    - Do not use generic name like NUM, you may use MAX_NUM or MIN_NUM.
    - Use a different "constant.py" file to define all of your constants in your application and use them by importing this module into your main module.

[NOTE:- Remember, all these are recommendations, and following them will make you a good programmer in Python.]

In [ ]:

```python
#Variable and constants in python
num = 100
MAX_NUM = 1000
```

Reserved words in Python:-

- Words with special meaning and task associated with it.
- There are total 35 reserved words in python.
- There are two types of reserved words:-
    - Reserved Literals:- True, False, None
    - Keywords:- Reserved words associated with some functionality. Apart from reserved literals, all reserved words are keywords.
- All reserved words contains only alphabet characters.
- All keywords contains only lowercase letters.

In [4]:

```python
import keyword
print(keyword.kwlist)
```

```
['False', 'None', 'True', 'and', 'as', 'assert', 'async', 'await', 'break', 'class', 'continue', 'def', 'del', 'eli
f', 'else', 'except', 'finally', 'for', 'from', 'global', 'if', 'import', 'in', 'is', 'lambda', 'nonlocal', 'not', 'o
r', 'pass', 'raise', 'return', 'try', 'while', 'with', 'yield']
```

Comments in Python:-

- Writing comments in python is a very good programming practice.
- Writing comments in your program helps your peer coder to understand the reason of including the part of your code in your program.
- To create a single line comment we use #.
- Multiline comments are written inside triple quotation.
- Triple quotations are also used for writing the doctoring.

In [1]:

```python
# This is single line comment and Example of multi line comment is below
'''
import gc
print(dir(gc), '\n')
print(gc.isenabled(),'\n')
gc.disable()
print(gc.isenabled(), '\n')
gc.enable()
print(gc.isenabled(), '\n')
'''
```

Expressions in Python:-

- An expression is a combination of values, variables, operators and call to functions.
- Expressions needs to be evaluated.
- If you use print function for an expression then it evaluates the expressions and prints the result.
- Expression generally evaluates to a value, which is why expression are written on the right hand side in an assignment statement.
- A single value itself is a simple expression.

Statements in Python:-

- Instructions written in the source code for execution are called statements.
- Different types of statements in python are:-
    - Assignment Statements
    - Compound Assignment Statements
    - Conditional statements
    - Loop Statements
    - Statements in python cam be extended to one or more lines using parenthesis(), braces{}, square brackets[], semi colon ;, continuation character \.

In [ ]:

```python
#Example of python expression and statements

a = 10
b = 20
c = a+b
if a<b:
    print(c)
```

Blocks or suites and indentation in Python:-

- A combination of statements in python is called block or suites.
- In other programming languages like C, C++, Java we use flower brackets to make a block in python.
- We use whitespaces to make indentation and indentations are used to make block or suite in python.

In [79]:

```python
# Blocks, suites and indentation in python
# if , for, fun, class, method - 4,8, tab
a = 10
b = 20
c = b+a
if a\
<b:
    print(a)
    print(b)
    print(b-a)
    print(a+b)
    if a+b == c:
        print(c)
        print(a)
        print(b)
        print(a+b)
```

```
10
20
10
30
30
10
20
30
```

Escape sequence in python:-

Few important escape sequences are mentioned as below:-

Sl No	Escape sequence	Used for
1	\	Using this you may write a single line string into multi line string.
2	\\	To print \
3	\n	new line
4	\t	Horizontal tab
5	\v	Vertical tab
6	\'	To consider single quote(‘) as string character
7	\"	To consider double quote(") as string character

Heading 1