Basics of Python Programming:

- format(value,format_specifier)
  format_specifier:
  1. '<' :Left Justify
  2. '>' :Right Justify.
  3. '^' :central align.
- Reserved words:
  In any programming language there will certain words with predefined meaning those words are called as Reserved words or key words.All python contains lower keywords.
- List of keywords

and	assert	break	class	continue	def
else	elif	del	except	exce	finally
for	from	global	if	import	in
is	lambda	not	or	pass	print
raise	return	try	while	with	yield

- All the statments inside block should be at same indentation level
- Operators and Expression:
  - Arithmetic Oprators
  - Relational Operators
  - Assignment Operators.
  - Logical Operators.
  - Unary Operators.
  - Bitwise Operators.
  - Membership Operators.

    - Identity Operators.
- Bitwise operator can not be applied to float and double variables.
- Membership Operator:
    - in
    - not in
- Identity operator:
    - is
    - is not
- Expression is legal combination of symbols(like variables,constants and operators) that represent a value
- Python support different type of expression
    - Based on position of operator:
        1. Infix Expression :
           operator placed in between operands
        2. Postfix Expression:
           operator placed before operands
        3. Prefix Expression
           operator placed after operand
    - Based on the data type of the result after evaluating the expression
        1. Constant Expression
        2. FloatingPoint Expression
        3. Relational Expression
        4. Logical Expression
        5. Bitwise Expression
        6. Assignment Expression
- String Operations
    - Concatenation
    - Repetition

        - Multiply a string with a number , the order of string and integer doesn't matter ,but string usually comes first.
            - 11 * format('Hello ','*^20').split('*'*15)
    - Slicing
        - extract substring using slice operator [] or [:]

- Other Data Types:
    - List:
        1. list is similar to an array where in array contains same data type values but in list can have values of different type
        2. Values are separated by commas enclosed in ([ ])
    - Dictonary:
        1. key-value pairs.
        2. The key-value pair can be enclosed in ({ })
    - Tuple:
        1. Tuple is read only data-type.
        2. values are separated by commas and enclosed with in paranthesis (( )).
- Converting value from one type to another type.
- Type Casting:
    Explicit conversion from one type to another.
- Type Coercion:
    Implicit converion from one type to another.

Decision Control Statments:

- The three fundamental methods of control flow in any programming language are
  - Sequential
  - Selection
  - Iterative
- Selection/Conditional Branching Statments:
  - if statment
  - if-else statment
  - Nested if statment
  - if – elif – else statment
- Iterative / Basic Looping Statments:
  - while loop
  - for loop
- loops can be of different types
  - entry-controlled(pre-test)
  - exit-controlled(post-test)
  - counter-controlled:
    Number of times the loop has to be executed is known in advance
  - condition-controlled(sentinel-controlled)
    Number of times the loop has to be executed is not know in advance
- break
  - The break statment is used to terminate the execution of the nearest enclosing loop which it appears.
  - Using break or continue out side loop causes an error.
- continue

- The continue statment stops the current iteration and continue with next one.

- pass
  - pass statment is used when statment is requried syntactically but no command has to be executed

1. python -m calendar [YEAR] : Command to display calendar in cmd or terminal
2. python -m calendar [YEAR] [MONTH]: Command to display motnth in cmd or temonal

Funtions and Modules:

- A function is a block of organized and reuseable program code that perform a single,specific,and well-defined task.
- Function header and function body
- Before calling a function , you must define it just as you assign variables before using them.
- List of variables used in function call know as actual parameters list.The actual parameter list may be names,expression,contants
- Variable scope and lifetime:
  - **Scope of the variable:** Part of the program in which variable is accessible is called scope of a variable.
  - **Life time of variable:** Duration for which variable exists is called lifetime.
- Global and local variables
  - Global variables can be accessed throughout the program.

    - Local variable can be accessed from the point of its definiition until end of the block in which it is defined.
- To define a variable defined inside a function as global,you must use global stament.
- More on Defining Functions:
    - Requried Arguments
    - Keyword Arguments
    - Default Arguments
    - Variable-length Arguments
- In nested function ,the inner function can access variables defined in both outer as well as inner but outer function can access variables defined only in outer function.

- **Lambda function:**
    - lambda function or anonymous function are so called because they are not declared as other function using def keyword.
        - Lambda function can not access **global variables**
        - Lambda function has no name.
        - Lambda function can take any number of arguments.
        - Lambda function returns only one value as an expression.
        - Lambda function does not have explicit **return** statment.
- Modules
    - Modules are pre-written pieces of code that are used to peform common task like generating random numbers , performing mathematical operations etc.

- import sys
- sys.path
- sys.argv: command line argumnets

Strings:

- Python Strings are immutable that means once created they cannot be changed.
- A string Formating Operator (%)

Funtction	Usage
capitalize()	Used to capitalize first letter of a string
center(width,fillchar)	Returns a string with the original string centeredto a total width columns and filled with fillchar in cloumns that not have characters.
count(str,beg,end)	Counts number of times str occur in a string,you can specify the beginning and ending values.
endswith(suffux,beg,end)	Check if the string ends with suffix if yes return True else False

startswith(suffix,beg,end)	Check if string start with suffix if yes return True else False
find(str,beg,end)	If str present in the string return a position at which str present else return -1.
rfind(str,beg,end)	Same as find but starts searching from the end.
rindex(str,beg,end)	Start Searching from right raise an exception if str not found
len(string)	Returns length of String.
lower()	Converts all characters in the string into lower
Upper()	Converts all characters in the string into upper
lstrip()	Removes leading whitespaces
rstrip()	Removes trailing whitespaces

strip()	Removes leadind and trailing white spaces
max(str)	Returns the highest alphabetical character from the string str
min(str)	Returns the lowset alphabetical character from the string str
title()	Returns string in title case
swapcase()	Toggles the case of every character
split(delim)	Returns a list of substrings separated by the specified delimiter
join(list)	The function joins a list of string using delimiter with which the function is invoked

The String Module:

1. String Constants
   - string.ascii_letters
   - string.ascii_lowercase
   - string.ascii_uppercase
   - string.digits
   - string.hexdigits

- string.lowercase
- string.octdigits
- string.punctuation
- string.printable
- string.uppercase
- string.whitespace