Unit 2

Math operations

It is called math module

Math module:- It contains different types of mathematical functions.Most of the functions in this module returns a float value.

SO
In order to use these mathematical operations and functions for that we have to import the math module package
Some of inbuilt functions name

Like printf and int and input.

Module

Some of functions are wrapped into the modules as all math operations are inbuilt in math module.

Similarly all statistical operations are inbuilt into statistics module.

Random related functions are built in random module.

What is importing math module

It can be included in a program by using the following statement:-

Import math

Either we can use the following statement like:
From math import functioname

1.sqrtx)
It returns the squareroot of x for x>0.
X may be positive integer or floating point number

IDLE

Import math
Math.sqrt(144)

Result =12.0

Math.sqrt(146)

result=12.0830

Math.sqrt(-144)
It will give you valuerror

Math.sqrt(0)
Ans is 0

Operations of Math

1. Ceil(x)
2. Floor(x)

1.Ceil:- It return the smallest number but not less than the x
X may be an integer no. or floating number

Math.ceil(2.6)

Answer is it will not do round off of your value. As result will be 3 that is top value of given number
Math.ceil(2.1)
Answer is 3 again

Ceil and floor

1. Math.ceil(2)
2. Asnwer 2

Math.ceil(-2.6)
Ans ??

Floor—
Math.floor(6.8)
Ans is 6
Math.floor(6.000044)

Ans ??

What is smallest integer value for math.ceil(6.5)

{7,8,9,10,11…}
So ans will be 7

floor

Math.floor(4.5)

{0,1,2,3,4}
Ans will be 4

Power function

Pow(x,y)
It returns the value of x^y
Means x raised to th epower of y
** is the operator for this
X and y may be positive integer number or the floating pointno.

power

Math.Pow(2,4)

Ans will be 16

Math,pow(2.5,4.5)

Ans >??

Difference between pow and math.pow()

Pow(x,y[z])
X raised to th epower of y if z provided then (x power y)%z

Pow()

Python has inbuilt fubction that is pow() without math module

IDLE:--

Pow(2,4)

It will return the integer value

Pow(2,4,5)

16%5

Answer is 1

Math.pow(2,5,4) will not work

Fabs function

- F means floating value
- Abs means absolute value
- It returns the absolute value of float x
- X may be an integer and float value as well

- Abs is built in functions

Idle

- Abs(-96)

- Answer will be 96
- Abs(95.34)
- ans???

- Math.fabs(96)
- Answer is 96.0

Fabs

- Math.fabs(-96.6)
- Ans??

- Degrees

- It converts the angle x from the radians to degree
- X must be numeric value.

degrees

- Math.degrees(3)
- Ans: wil be in radians like 171.88733
- Math.radians(171.88733)

Constants

- Pi and e is called Eular’s
- Math.pi
- It is a constant return the value of pi is 3.14
- Mathematicallyit is represnted by ??

- Math.e

Help function

- For any help regarding function and constant then you can use help function

- Help(math)
- For particular help
- Help(math.sqrt)

Trignometric function

- Sin(x)
- It return the sine of x in radians.
- X may be an integer or floatin point number in radians
- As sin 30= ½ is degree value
- Sin 3o =pi/6 in radians

- Help(math.sin)

sin

- math,.sin(30) return you the radians

- To check the degree value of sin 30
- Math.sin(math.pi/6)
- Tan(45) answer is 1
- Math.tan(math.pi/4)