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# APSSDC

Andhra Pradesh State Skill Development Corporation



## Day 14 Modules and Packages in Python

### Recap

- Call by value
- Call by reference
- Variable length arguments
- Modules and Packages

### Day Objectives

- Modules and Packages
  - Pre-defined/ in-built
  - User-Defined/ 3rd party

In [1]:



```
1 import random
```

In [2]:



```
1 print(random.random())
```

0.5371613768087516

In [3]:



```
1 print(random.random())
```

0.8227023481261443

In [7]:



```
1 print(round(random.random(), 2))
```

0.74

In [9]:



```
1 a = 5.5
2
3 ceil = 6
4 floor = 5
5
6 import math
7
8 print(math.ceil(5.5), math.floor(5.5))
```

6 5

In [10]:



```
1 random.random()
```

Out[10]:

0.9027255381595464

In [11]:



```
1 random.seed(55)
2
3 random.random()
```

Out[11]:

0.09033985426934954

In [15]:



```
1 random.seed(100)
2
3 random.random()
```

Out[15]:

0.1456692551041303

In [16]:



```
1 random.seed(1000000)
2
3 random.random()
```

Out[16]:

0.9241408041681706

In [17]:



```
1 random.randint.__doc__
```

Out[17]:

```
'Return random integer in range [a, b], including both end points.\n'
```

In [20]:



```
1 print(random.randint(0, 100))
```

5

In [26]:



```
1 print(random.randint(0, 6))
```

6

In [27]:



```
1 for i in range(6):
2     print(random.randint(0, 6))
```

4  
1  
1  
1  
5  
0

In [28]:



```
1 print(ord('A'), ord('Z'))
```

65 90

In [29]:



```
1 for i in range(10):
2     print(chr(random.randint(65, 90)))
```

M  
C  
M  
J  
X  
W  
J  
F  
Q  
O

In [33]:



```
1 li = ['head', 'tail']
2
3 print(random.choice(li))
```

head

In [35]:



```
1 li = ['head', 'tail']
2 for i in range(6):
3     print(random.choice(li))
```

tail  
tail  
head  
head  
tail  
head

In [36]:



```
1 li = [1,2,3,4,5,6,7]
2 random.shuffle(li)
```

In [39]:



```
1 random.shuffle(li)
2 print(li)
```

[7, 6, 2, 1, 4, 3, 5]

In [43]:



```
1 random.shuffle(li)
2 print(li)
```

[2, 5, 1, 7, 3, 6, 4]

In [44]:



```
1 # random.gauss(mu, sigma) -> mu = mean, sigma = std
2
3 print(random.gauss(0, 1))
```

-0.7774591305763382

In [47]:



```
1 for i in range(10):
2     print(random.uniform(5, 10))
```

```
7.144456058349938
7.670983477419868
8.154743166289004
8.162593217836559
5.2051290853667975
6.153058019018136
8.528796621208931
7.851741517503576
9.189532854547217
5.262431441942137
```

In [51]:



```
1 random.randrange(1, 15)
```

Out[51]:

11

In [52]:



```
1 import calendar
```

In [53]:



```
1 print(calendar.month(2021, 6))
```

```
    June 2021
Mo Tu We Th Fr Sa Su
   1  2  3  4  5  6
  7  8  9 10 11 12 13
14 15 16 17 18 19 20
21 22 23 24 25 26 27
28 29 30
```

In [54]:



```
1 print(calendar.month(2035, 6))
```

```
    June 2035
Mo Tu We Th Fr Sa Su
           1  2  3
  4  5  6  7  8  9 10
11 12 13 14 15 16 17
18 19 20 21 22 23 24
25 26 27 28 29 30
```

In [55]:



```
1 import calendar as cal
```

In [56]:



```
1 print(cal.month(2035, 6))
```

```
    June 2035
Mo Tu We Th Fr Sa Su
          1  2  3
 4  5  6  7  8  9 10
11 12 13 14 15 16 17
18 19 20 21 22 23 24
25 26 27 28 29 30
```

In [60]:



```
1 dir(cal)
```

Out[60]:

```
['Calendar',
 'EPOCH',
 'FRIDAY',
 'February',
 'HTMLCalendar',
 'IllegalMonthError',
 'IllegalWeekdayError',
 'January',
 'LocaleHTMLCalendar',
 'LocaleTextCalendar',
 'MONDAY',
 'SATURDAY',
 'SUNDAY',
 'THURSDAY',
 'TUESDAY',
 'TextCalendar',
 'WEDNESDAY',
```

In [61]:



```
1 cal.weekday.__doc__
```

Out[61]:

```
'Return weekday (0-6 ~ Mon-Sun) for year, month (1-12), day (1-31).'
```

In [62]:



```
1 help(cal.weekday)
```

Help on function weekday in module calendar:

```
weekday(year, month, day)
    Return weekday (0-6 ~ Mon-Sun) for year, month (1-12), day (1-31).
```

In [66]:



```
1 print(cal.weekday(2021, 6, 6))
```

6

In [67]:



```
1 help(cal.week)
```

Help on method formatweek in module calendar:

```
formatweek(theweek, width) method of calendar.TextCalendar instance
    Returns a single week in a string (no newline).
```

In [74]:



```
1 print(cal.calendar(2021))
```

```

                2021

    January          February          March
Mo Tu We Th Fr Sa Su Mo Tu We Th Fr Sa Su Mo Tu We Th Fr Sa Su
      1  2  3      1  2  3  4  5  6  7      1  2  3  4  5  6  7
  4  5  6  7  8  9 10      8  9 10 11 12 13 14      8  9 10 11 12 13 14
11 12 13 14 15 16 17      15 16 17 18 19 20 21      15 16 17 18 19 20 21
18 19 20 21 22 23 24      22 23 24 25 26 27 28      22 23 24 25 26 27 28
25 26 27 28 29 30 31      29 30 31

    April           May           June
Mo Tu We Th Fr Sa Su Mo Tu We Th Fr Sa Su Mo Tu We Th Fr Sa Su
      1  2  3  4      1  2      1  2  3  4  5  6
  5  6  7  8  9 10 11      3  4  5  6  7  8  9      7  8  9 10 11 12 13
12 13 14 15 16 17 18      10 11 12 13 14 15 16      14 15 16 17 18 19 20
19 20 21 22 23 24 25      17 18 19 20 21 22 23      21 22 23 24 25 26 27
26 27 28 29 30      24 25 26 27 28 29 30      28 29 30
31
```

In [81]:

```
1 cal.datetime.date(2021, 6, 8)
```

Out[81]:

```
datetime.date(2021, 6, 8)
```

- from package import module
- from package import module as alias
- import package.module as alias

In [87]:

```
1 import os
```

In [82]:

```
1 ls
```

```
Volume in drive C has no label.  
Volume Serial Number is 7866-1790
```

```
Directory of C:\Users\Jesus\Desktop\Data Science Internship May-2021
```

```
08-Jun-21  05:26 PM    <DIR>          .  
08-Jun-21  05:26 PM    <DIR>          ..  
08-Jun-21  04:29 PM    <DIR>          .ipynb_checkpoints  
08-Jun-21  05:26 PM                17,063 Day 14 Modules and Packages in Python.ipynb  
26-May-21  06:59 PM                5,605 Day03_Markdown_Syntax.ipynb  
26-May-21  07:09 PM            286,289 Day03_Markdown_Syntax.slides.html  
26-May-21  07:09 PM            286,289 Day03_Markdown_Syntax.slidesa.html  
29-May-21  09:54 PM            17,953 Day06_Python_Basics.ipynb  
31-May-21  07:46 PM            29,748 Day07_Conditional_Statements_Loops_S  
trings.ipynb  
01-Jun-21  06:46 PM            39,036 Day08_Strings_and_StringMethods.ipyn  
b  
02-Jun-21  08:00 PM                52.775 Dav09 Lists and Tuples in Python.ipv
```

In [83]:

```
1 pwd
```

Out[83]:

```
'C:\\Users\\Jesus\\Desktop\\Data Science Internship May-2021'
```

In [84]:

```
1 mkdir newFolder
```



In [85]:

```
1 ls
```

Volume in drive C has no label.  
Volume Serial Number is 7866-1790

Directory of C:\Users\Jesus\Desktop\Data Science Internship May-2021

```
08-Jun-21  05:29 PM    <DIR>          .
08-Jun-21  05:29 PM    <DIR>          ..
08-Jun-21  04:29 PM    <DIR>          .ipynb_checkpoints
08-Jun-21  05:29 PM                19,945 Day 14 Modules and Packages in Python.ipynb
26-May-21  06:59 PM                5,605 Day03_Markdown_Syntax.ipynb
26-May-21  07:09 PM            286,289 Day03_Markdown_Syntax.slides.html
26-May-21  07:09 PM            286,289 Day03_Markdown_Syntax.slidesa.html
29-May-21  09:54 PM            17,953 Day06_Python_Basics.ipynb
31-May-21  07:46 PM            29,748 Day07_Conditional_Statements_Loops_S
strings.ipynb
01-Jun-21  06:46 PM            39,036 Day08_Strings_and_StringMethods.ipyn
b
02-Jun-21  08:00 PM            52.775 Day09_Lists_and_Tuples_in_Python.ipv
```

In [88]:

```
1 os.mkdir('folderFromPython')
```

In [90]:

```
1 os.remove('file9.txt')
```

In [91]:

```
1 os.listdir()
```

Out[91]:

```
['.ipynb_checkpoints',
'Day 14 Modules and Packages in Python.ipynb',
'Day03_Markdown_Syntax.ipynb',
'Day03_Markdown_Syntax.slides.html',
'Day03_Markdown_Syntax.slidesa.html',
'Day06_Python_Basics.ipynb',
'Day07_Conditional_Statements_Loops_Strings.ipynb',
'Day08_Strings_and_StringMethods.ipynb',
'Day09_Lists_and_Tuples_in_Python.ipynb',
'Day10_Dictionary_in_Python.ipynb',
'Day11_Sets_and_Functions_in_Python.ipynb',
'Day12_File_Handling_in_Python',
'Day13_Files_and_Functions_Contd',
'dummy',
'File Handling in Python.ipynb',
'file.txt',
'file1.txt',
```

In [92]:



```
1 os.getcwd()
```

Out[92]:

```
'C:\\Users\\Jesus\\Desktop\\Data Science Internship May-2021'
```

In [93]:



```
1 os.chdir('newFolder')
2
3
4 os.getcwd()
```

Out[93]:

```
'C:\\Users\\Jesus\\Desktop\\Data Science Internship May-2021\\newFolder'
```

- import module/package -> all the functions/classes/attr will be import
- from package import module -> all the functions/classes/attr which are available in that module
- from package.module import method -> only functions/class/attri will be imported from package/module
- from module import method -> module

In [94]:



```
1 import math
```

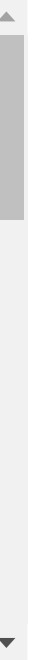
In [95]:



```
1 dir(math)
```

Out[95]:

```
['__doc__',
 '__loader__',
 '__name__',
 '__package__',
 '__spec__',
 'acos',
 'acosh',
 'asin',
 'asinh',
 'atan',
 'atan2',
 'atanh',
 'ceil',
 'comb',
 'copysign',
 'cos',
 'cosh',
```



In [96]:



```
1 import math as m
2
3 print(dir(m))
```

```
['__doc__', '__loader__', '__name__', '__package__', '__spec__', 'acos', 'acosh', 'asin', 'asinh', 'atan', 'atan2', 'atanh', 'ceil', 'comb', 'copysign', 'cos', 'cosh', 'degrees', 'dist', 'e', 'erf', 'erfc', 'exp', 'expm1', 'fabs', 'factorial', 'floor', 'fmod', 'frexp', 'fsum', 'gamma', 'gcd', 'hypot', 'inf', 'isclose', 'isfinite', 'isinf', 'isnan', 'isqrt', 'ldexp', 'lgamma', 'log', 'log10', 'log1p', 'log2', 'modf', 'nan', 'perm', 'pi', 'pow', 'prod', 'radians', 'remainder', 'sin', 'sinh', 'sqrt', 'tan', 'tanh', 'tau', 'trunc']
```

In [97]:



```
1 from math import ceil, floor
```

In [98]:



```
1 print(ceil(55.66), floor(66.66))
```

56 66

In [99]:



```
1 from math import *
```

In [100]:



```
1 print(sin(60), factorial(5))
```

-0.3048106211022167 120

In [101]:



```
1 from math import * # floor
2 from random import * # floor
```

In [102]:



```
1 os.chdir('../')
```

In [103]:



```
1 os.getcwd()
```

Out[103]:

'C:\\Users\\Jesus\\Desktop\\Data Science Internship May-2021'

In [104]:



```
1 import anil
```

In [105]:



```
1 anil.__doc__
```

Out[105]:

```
'Hey welcome to my module called anil...'
```

In [106]:



```
1 dir(anil)
```

Out[106]:

```
['__builtins__',  
'__cached__',  
'__doc__',  
'__file__',  
'__loader__',  
'__name__',  
'__package__',  
'__spec__',  
'factorial',  
'gravity',  
'isEven',  
'pi']
```

In [107]:



```
1 anil.isEven.__doc__
```

Out[107]:

```
'Check whether a number is even or not'
```

In [108]:



```
1 anil.isEven(5)
```

Out[108]:

```
False
```

In [109]:



```
1 anil.factorial(5)
```

Out[109]:

```
120
```

In [110]:



```
1 anil.pi
```

Out[110]:

3.14

In [1]:



```
1 import anil
2
3 dir(anil)
```

Out[1]:

```
['__builtins__',
 '__cached__',
 '__doc__',
 '__file__',
 '__loader__',
 '__name__',
 '__package__',
 '__spec__',
 'factorial',
 'gravity',
 'isEven',
 'isOdd',
 'pi']
```

In [2]:



```
1 anil.isodd(5)
```

```
-----
AttributeError                                Traceback (most recent call last)
<ipython-input-2-e12826e6d010> in <module>
----> 1 anil.isodd(5)
```

**AttributeError:** module 'anil' has no attribute 'isodd'

In [3]:



```
1 import anilkumar
```

```
-----
ModuleNotFoundError                            Traceback (most recent call last)
<ipython-input-3-78ca4fcc19a7> in <module>
----> 1 import anilkumar
```

**ModuleNotFoundError:** No module named 'anilkumar'

In [4]:



```
1 anil.isOdd(5)
```

Out[4]:

True

In [5]:



```
1 from anil import pi
2
3 print(pi * 5 **2)
```

78.5

In [6]:



```
1 import package
```

In [7]:



```
1 dir(package)
```

Out[7]:

```
['_doc__',
 '__file__',
 '__loader__',
 '__name__',
 '__package__',
 '__path__',
 '__spec__']
```

In [12]:



```
1 import package.module1
2 from package import module1 as m
```

In [13]:



```
1 m.isEven(5)
```

Out[13]:

False

In [14]:



```
1 m.isOdd(5)
```

Out[14]:

True

In [15]:



```
1 from package import module2 as m
```

In [16]:



```
1 m.isOdd(5)
```

Out[16]:

True

## Task

### Contact application `contact.py`

Create a module with diff function

- createContact -> for creating the contact of the user -> name, ph, email
- DeleteContact -> Delete the contact given by the user -> name
- editContact -> Modify the existing contact -> ph/email/name
- getContact -> show the details of the user -> name
- save the contacts into a file -> contacts.txt

In [18]:



```
1 def createContact(name, ph, email):
2     f = open('contacts.txt', 'a')
3     f.write(name + '\t' + ph + '\t' + email)
4     f.close()
```

In [20]:



```
1 import os
2 os.getcwd()
```

Out[20]:

'C:\\Users\\Jesus\\Desktop\\Data Science Internship May-2021'

In [21]:



```
1 os.listdir()
```

Out[21]:

```
['.ipynb_checkpoints',  
'anil.py',  
'Day 14 Modules and Packages in Python.ipynb',  
'Day03_Markdown_Syntax.ipynb',  
'Day03_Markdown_Syntax.slides.html',  
'Day03_Markdown_Syntax.slidesa.html',  
'Day06_Python_Basics.ipynb',  
'Day07_Conditional_Statements_Loops_Strings.ipynb',  
'Day08_Strings_and_StringMethods.ipynb',  
'Day09_Lists_and_Tuples_in_Python.ipynb',  
'Day10_Dictionary_in_Python.ipynb',  
'Day11_Sets_and_Functions_in_Python.ipynb',  
'Day12_File_Handling_in_Python',  
'Day13_Files_and_Functions_Contd',  
'dummy',  
'File Handling in Python.ipynb',  
'file.txt',  
'file1.txt',  
'file10.txt',  
'file2.txt',  
'file3.txt',  
'file4.txt',  
'file5.txt',  
'file6.txt',  
'file7.txt',  
'file8.txt',  
'folderFromPython',  
'newFolder',  
'package',  
'python-logo-master-v3-TM-flattened.png',  
'Sample_Projects.ipynb',  
'Untitled.ipynb',  
'__pycache__']
```

In [ ]:



```
1
```