Packages and modules

What is a module

```
  - collection of functions,methods,classes....etc
  - python code
  - .py
  - we have 2 types of modules
        - 1.builtin modules  :- os,math,keyword,random........etc
        - 2.user defined modules :- It can be created by the users
```

What is a package

```
- collection of modules is called a package
```

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

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

```
import math
print(math.sqrt(25))
print(math.ceil(7.8))
print(math.floor(7.8))
print(math.factorial(5))
```

```
5.0
8
7
120
```

```
print(dir(math),end=' ')
```

```
['__doc__', '__loader__', '__name__', '__package__', '__spec__',
'acos', 'acosh', 'asin', 'asinh', 'atan', 'atan2', 'atanh', 'cbrt',
'ceil', 'comb', 'copysign', 'cos', 'cosh', 'degrees', 'dist', 'e',
'erf', 'erfc', 'exp', 'exp2', 'expm1', 'fabs', 'factorial', 'floor',
'fmod', 'frexp', 'fsum', 'gamma', 'gcd', 'hypot', 'inf', 'isclose',
'isfinite', 'isinf', 'isnan', 'isqrt', 'lcm', 'ldexp', 'lgamma',
'log', 'log10', 'log1p', 'log2', 'modf', 'nan', 'nextafter', 'perm',
```

```
'pi', 'pow', 'prod', 'radians', 'remainder', 'sin', 'sinh', 'sqrt',
'sumprod', 'tan', 'tanh', 'tau', 'trunc', 'ulp']
```

```
import random
n = random.randint(1,100)
print(n)
```

```
76
```

```
import random
numbers = random.sample(range(1, 100), 6)
print(numbers)
```

```
[62, 14, 98, 8, 18, 68]
```

```
import random
n = random.randrange(1,10,3)
print(n)
```

```
7
```

```
# Generate a 6-Digit OTP
import random
otp = random.randint(200000,999999)
print('Otp is: ',otp)
```

```
Otp is:  783282
```

```
print(dir(random),end=' ')
```

```
['BPF', 'LOG4', 'NV_MAGICCONST', 'RECIP_BPF', 'Random',
'SG_MAGICCONST', 'SystemRandom', 'TWOPI', '_ONE', '_Sequence',
'__all__', '__builtins__', '__cached__', '__doc__', '__file__',
'__loader__', '__name__', '__package__', '__spec__', '_accumulate',
'_acos', '_bisect', '_ceil', '_cos', '_e', '_exp', '_fabs', '_floor',
'_index', '_inst', '_isfinite', '_lgamma', '_log', '_log2', '_os',
'_pi', '_random', '_repeat', '_sha512', '_sin', '_sqrt', '_test',
'_test_generator', '_urandom', '_warn', 'betavariate',
'binomialvariate', 'choice', 'choices', 'expovariate', 'gammavariate',
'gauss', 'getrandbits', 'getstate', 'lognormvariate', 'normalvariate',
'paretovariate', 'randbytes', 'randint', 'random', 'randrange',
'sample', 'seed', 'setstate', 'shuffle', 'triangular', 'uniform',
'vonmisesvariate', 'weibullvariate']
```

```
# User defined modules
from package import module1

module1.evenodd(5)
```

```
odd
```

```
module1.evenodd(4)
```

```
even
module1.palindrom('mom')
palindrom
module1.palindrom('dad')
palindrom
module1.palindrom('abcd')
not palindrom
from package import module1,module2
module2.add1(5,7)
12
module2.multiplication(45,6)
270
module2.sub(9,5)
4
from package import module2
module2.sub(7,3)
4
module2.multiplication(45,16)
720
```