Experiment 06

Aim:
Write a python program to create user-defined modules/packages and import them in a program -
A) math module
B) os module
C) sys module
D) random module
E) regular expression module

Programs:

A. Math module

1. Standard math module:

Code:
```
# to import standard module math


import math
print("The value of pi is", math.pi)
```

Output:
```
import math
print("The value of pi is", math.pi)

The value of pi is 3.141592653589793
```

2. Importing module by renaming it.

Code:
```
# import module by renaming it
```

```
import math as m
print("The value of pi is", m.pi)
```

Output:

```
The value of pi is 3.141592653589793
```

3. Using a random module to generate a random number between a given range.

Code:

```
# ranndint function of the random module returns a random number between a given range, here (20 to 100)
import random
random.randint(20, 100)
print(random.randint(20, 100))
```

Output:

```
73
```

4. Using the math module, find the value of sine of any degree.

Code:

```
import math
math.sin(0.52)
print(math.sin(0.52))
```

Output:

```
0.49688013784373675
```

B. OS module

1. Using the OS module to fetch the current working directory.

Code:

```python
# Python program to explain os.getcwd() method
# importing os module
import os


# Get the current working directory (CWD)
cwd = os.getcwd()


# Print the current working directory (CWD)
print("Current working directory-", cwd)
```

Output:

```
# Print the current working directory (CWD
print("Current working directory-", cwd)

Current working directory- /content
```
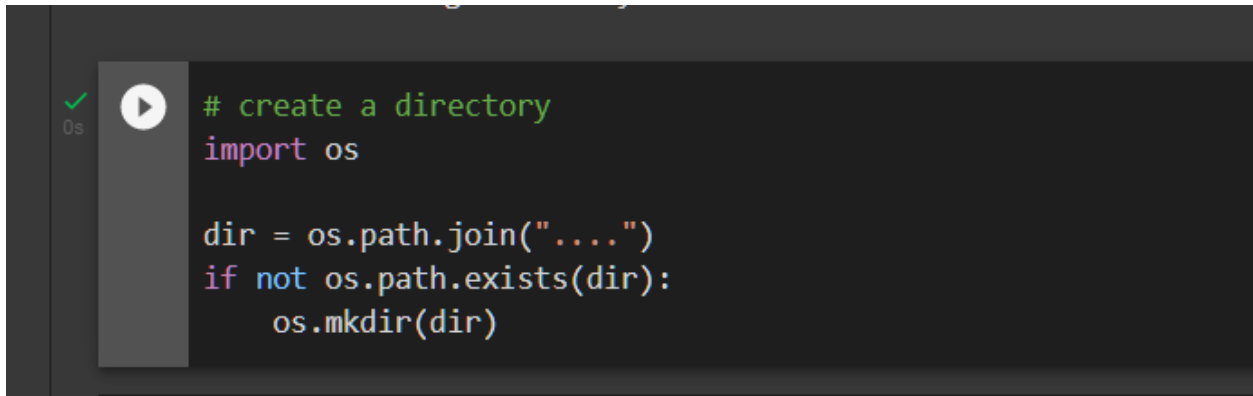
2. Creating a directory

Code:

```python
# create a directory
import os

dir = os.path.join("....")
if not os.path.exists(dir):
    os.mkdir(dir)
```

Output:

```
        # create a directory
  Os    import os

        dir = os.path.join("....")
        if not os.path.exists(dir):
            os.mkdir(dir)
```

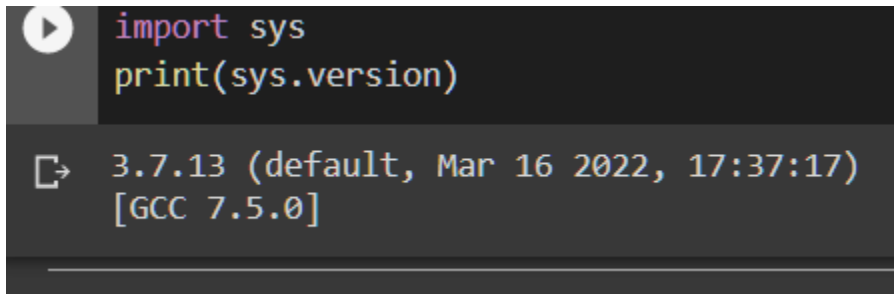Here the green tick indicates that the directory is created.

C. SYS module

1. Using this command we fetch the system version.

Code:

```
import sys
print(sys.version)
```

Output:

```
import sys
print(sys.version)

3.7.13 (default, Mar 16 2022, 17:37:17)
[GCC 7.5.0]
```

2. Using this command we fetch the maximum size of the system.

Code:

```
import sys
sys.maxsize
print(sys.maxsize)
```

Output:

```
print(sys.maxsize)

9223372036854775807
```

D. Random module

1. Using a random module to generate a random number between a given range.

Code:

```
# ranndint function of the random module returns a random number between a given range, here (20 to 100)
import random
random.randint(20, 100)
print(random.randint(20, 100))
```

Output:

```
73
```

2. It used to generate any random number from -∞ to +∞.

Code:

```
import random
random.random()
```

Output:

```
0.12110853437770486
```

E. Regular Expression Module

1. Using this command we will split the regular expression.

Code:

```
#re.split
import re

string = 'Twelve:12 Eighty nine:89 Nine:9.'
pattern = '\d+'

# maxsplit = 1
# split only at the first occurrence
result = re.split(pattern, string, 1)
print(result)
```

Output:

```
['Twelve:', ' Eighty nine:89 Nine:9.']
```

2. Using this method we can search that does the given string lies in the range of patterns.

Code:

```
import re

pattern = '^a...s$'
test_string = 'abyss'
result = re.match(pattern, test_string)
```

```
if result:
  print("Search successful.")
else:
  print("Search unsuccessful.")
```

Output:

```
Search successful.
```

Conclusion:

We have successfully understood and performed the aim of this experiment.