1. Program to Create Modules

a. Mymodule1.py

```
def greeting(name):
           print("Hello, " + name)

person1 = {
  "name": "John",
  "age": 36,
  "country": "Norway" }
```

b. Mymodule2.py

```
def sum(x,y):
   return x+y

def average(x,y):
   return (x+y)/2

def power(x,y):
   return x**y
```

main program

```
import mymodule1
mymodule1.greeting("John")
```

 Output:

John

```
from mymodule1 import person1
a = person1["age"]
print(a)
```

Output:

36

```
import mymodule2
mymodule2.sum(10, 20)
```

Output:

30

1 b.Program to create Packages
1.Goto file → new project→ Rename(pack1) →create →new window
2.Right click on pack1→select file→new directory→ rename (dir1)
3.Right click on dir1→select file → new package→ renameit.
4.Create modules (both the below modules) in dir1 directory & write package program in pack1 package directory

a.mod1.py
```
def greeting(name):
  print("Hello, " + name)

person1 = {
 "name": "John",
 "age": 36,
 "country": "Norway" }
```

b.Mod2.py
```
def sum(x,y):
   return x+y

def average(x,y):
   return (x+y)/2

def power(x,y):
   return x**y
```

main package python program to run the above modules
```
from pack1. import greeting
print(greeting("John"))
```

output:
 john

```
from pack1.mod2 import sum,power
print(sum(23,25))
print(power(2,5))
```
output:
48
32

2. Programs using built-in modules
a.Math module
```
import math
a = 30
print(a)
print("The value of sine is : ", math.sin(a))
print("The value of cosine is : ", math.cos(a))
a = math.pi / 6
b = 30
print("converted value from radians to degrees is : ")
print(math.degrees(a))
print("converted value from degrees to radians  is : ")
print(math.radians(b))
a=5
b=15
print ("The gcd of 5 and 15 is : ", (math.gcd(b, a)))
x=-25
print ("The absolute value is : ",(math.fabs(x)))
print("The Square root  is ", math.sqrt(4))
```

Output:
```
30
The value of sine is :  -0.9880316240928618
The value of cosine is :  0.15425144988758405
converted value from radians to degrees is :
29.999999999999996
converted value from degrees to radians  is :
0.5235987755982988
The gcd of 5 and 15 is :  5
The absolute value is :  25.0
The Square root  is  2.0
```

b.Random module
```
import random
random.seed(2)
print(random.random())
print(random.random())
print(random.random())
list1 = [1, 2, 3, 4, 5, 6]
print(random.choice(list1))
r1 = random.randint(5, 15)
print("Random number between 5 and 15 is % s" % (r1))
r2 = random.randint(-10, -2)
print("Random number between -10 and -2 is % d" % (r2))
sample_list = [1, 2, 3, 4, 5]
print("Original list : ")
print(sample_list)
# first shuffle
random.shuffle(sample_list)
print("\nAfter the first shuffle : ")
print(sample_list)
```

```
# second shuffle
random.shuffle(sample_list)
print("\nAfter the second shuffle : ")
print(sample_list)
```
output:
0.9560342718892494
0.9478274870593494
0.05655136772680869
1
Random number between 5 and 15 is 10
Random number between -10 and -2 is -8
Original list :
[1, 2, 3, 4, 5]

After the first shuffle :
[2, 1, 4, 5, 3]

After the second shuffle :
[1, 5, 4, 2, 3]

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c. program to print emojis using emojize() function with the short CLDR names of Emojis
```
import emoji
print("Following are emojis ")
print(emoji.emojize(":grinning_face_with_smiling_eyes:"))
print(emoji.emojize(":grinning_face_with_sweat:"))
print(emoji.emojize(":beaming_face_with_smiling_eyes:"))
print(emoji.emojize(":grinning_face:"))
```

Output:
Following are emojis
☐
☐
☐
☐