## **Modules and Packages**

Python modules are files containing Python code. Packages are directories containing multiple modules.

### **Importing Modules**

*# Importing the entire module*  
**import** math  
print(math.sqrt(16)) *# 4.0*  
  
*# Importing specific functions or variables*  
**from** math **import** sqrt, pi  
print(sqrt(16)) *# 4.0*  
print(pi) *# 3.141592653589793*  
  
*# Importing with alias*  
**import** math **as** m  
print(m.sqrt(16)) *# 4.0*  
  
*# Importing all (not recommended)*  
**from** math **import** \*  
print(sqrt(16)) *# 4.0*

### **Creating and Using Your Own Modules**

Suppose you have a file named mymath.py:

*# mymath.py*  
**def** add(a, b):  
 **return** a + b  
  
**def** subtract(a, b):  
 **return** a - b  
  
PI = 3.14159

Using your module:

*# main.py*  
**import** mymath  
  
print(mymath.add(5, 3)) *# 8*  
print(mymath.subtract(5, 3)) *# 2*  
print(mymath.PI) *# 3.14159*

### **Standard Library Modules**

Python comes with a rich standard library:

*# Random module*  
**import** random  
print(random.randint(1, 10)) *# Random integer between 1 and 10*  
print(random.choice(["apple", "banana", "cherry"])) *# Random item from list*  
  
*# Datetime module*  
**import** datetime  
now = datetime.datetime.now()  
print(now.strftime("%Y-%m-%d %H:%M:%S")) *# Formatted date and time*  
  
*# OS module*  
**import** os  
print(os.getcwd()) *# Current working directory*

### **Third-Party Packages**

You can install third-party packages using pip:

pip install package\_name

For example:

pip install requests

Using the installed package:

**import** requests  
response = requests.get("https://api.example.com/data")

**Exercise 13**: Create a simple program that uses the random module to simulate rolling dice, with the user specifying how many dice to roll and how many sides each die has.