

# Reference guide: Python concepts from module 2

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## User-defined functions

The following keywords are used when creating user-defined functions.

**def**

Placed before a function name to define a function

```
def greet_employee():  
    Defines the greet_employee() function
```

```
def calculate_fails(total_attempts, failed_attempts):  
    Defines the calculate_fails() function, which includes the two parameters  
    of total_attempts and failed_attempts
```

## **return**

Used to return information from a function; when Python encounters this keyword, it exits the function after returning the information

```
def calculate_fails(total_attempts, failed_attempts):  
    fail_percentage = failed_attempts / total_attempts  
    return fail_percentage
```

Returns the value of the `fail_percentage` variable from the `calculate_fails()` function

## Built-in functions

The following built-in functions are commonly used in Python.

### **max()**

Returns the largest numeric input passed into it

```
print(max(10, 15, 5))
```

Returns 15 and outputs this value to the screen

### **min()**

Returns the smallest numeric input passed into it

```
print(min(10, 15, 5))
```

Returns 5 and outputs this value to the screen

### **sorted()**

Sorts the components of a list (or other iterable)

```
print(sorted([10, 15, 5]))
```

Sorts the elements of the list from smallest to largest and outputs the sorted list of [5, 10, 15] to the screen

```
print(sorted(["bmoreno", "tshah", "elarson"]))
```

Sorts the elements in the list in alphabetical order and outputs the sorted list of ["bmoreno", "elarson", "tshah"] to the screen

## Importing modules and libraries

The following keyword is used to import a module from the Python Standard Library or to import an external library that has already been installed.

**import**

Searches for a module or library in a system and adds it to the local Python environment

```
import statistics
```

Imports the `statistics` module and all of its functions from the Python Standard Library

```
from statistics import mean
```

Imports the `mean()` function of the `statistics` module from the Python Standard Library

```
from statistics import mean, median
```

Imports the `mean()` and `median()` functions of the `statistics` module from the Python Standard Library

## Comments

The following syntax is used to create a comment. (A comment is a note programmers make about the intention behind their code.)

**#**

Starts a line that contains a Python comment

```
# Print approved usernames
```

Contains a comment that indicates the purpose of the code that follows it is to print approved usernames

## """ (documentation strings)

Starts and ends a multi-line string that is often used as a Python comment; multi-line comments are used when you need more than 79 characters in a single comment

```
"""
The estimate_attempts() function takes in a monthly
login attempt total and a number of months and
returns their product.
```

```
"""
Contains a multi-line comment that indicates the purpose of the
estimate_attempts() function
```