# Python Built-in Functions Documentation

## Overview

This Colab file serves as a comprehensive documentation of essential built-in functions in Python for strings, lists, sets, and dictionaries. Each section explores commonly used functions, providing detailed explanations, syntax, parameters, and examples for their usage.

## Contents

### String Functions

- `len()`: Returns the length of a string.

- `str()`: Converts an object into a string.

- `lower()`: Converts all characters in a string to lowercase.

- `upper()`: Converts all characters in a string to uppercase.

- `strip()`: Removes leading and trailing whitespace from a string.

- `split()`: Splits a string into a list of substrings based on a delimiter.

- `join()`: Joins elements of an iterable into a single string using the string as a delimiter.

- `find()`: Searches a string for a specified substring and returns the index of the first occurrence.

- `replace()`: Replaces occurrences of a specified substring with another substring.

- `startswith()` / `endswith()`: Checks if a string starts/ends with a specified substring.

### List Functions

- `len()`: Returns the number of elements in a list.

- `append()`: Adds an element to the end of a list.

- `extend()`: Extends a list by appending elements from an iterable.

- `insert()`: Inserts an element at a specified position in a list.

- `remove()`: Removes the first occurrence of a specified value from a list.

- `pop()`: Removes and returns the element at a specified position in a list.
- `clear()`: Removes all elements from a list.
- `index()`: Returns the index of the first occurrence of a specified value in a list.
- `count()`: Returns the number of occurrences of a specified value in a list.
- `sort()`: Sorts the elements of a list in place.
- `reverse()`: Reverses the order of the elements in a list.

## Set Functions

- `len()`: Returns the number of elements in a set.
- `add()`: Adds an element to a set.
- `remove()`: Removes a specified element from a set.
- `discard()`: Removes a specified element from a set if it is present.
- `pop()`: Removes and returns an arbitrary element from a set.
- `clear()`: Removes all elements from a set.
- `union()`: Returns a new set containing the union of two or more sets.
- `intersection()`: Returns a new set containing the intersection of two or more sets.
- `difference()`: Returns a new set containing the difference between two or more sets.

## Dictionary Functions

- `len()`: Returns the number of key-value pairs in a dictionary.
- `keys()`: Returns a view of all keys in a dictionary.
- `values()`: Returns a view of all values in a dictionary.
- `items()`: Returns a view of all key-value pairs (tuples) in a dictionary.
- `get()`: Returns the value for a specified key. If the key is not found, it returns a default value (or None).
- `pop()`: Removes and returns the value for a specified key.
- `update()`: Updates a dictionary with key-value pairs from another dictionary or iterable.

- `clear()`: Removes all key-value pairs from a dictionary.