



Core Template Syntax

VARIABLES & EXPRESSIONS

<code>{{ variable }}</code>	Outputs the value of a variable. Jinja2 automatically escapes HTML by default (autoescape).
<code>{{ user.name }}</code>	Accesses attributes of an object. <pre><p>Hello, {{ user.name }}!</p></pre>
<code>{{ items[0] }}</code> <code>{{ data['key'] }}</code>	Accesses elements of a list by index or dictionary by key. <pre>First item: {{ items[0] }} Key value: {{ data['my_key'] }}</pre>
<code>{{ 1 + 2 * 3 }}</code>	Supports basic arithmetic operations.
<code>{{ 'Hello ' ~ name }}</code>	String concatenation using the <code>~</code> operator.
<code>{{ text upper }}</code>	Applies a filter to the variable's value. <pre><h1>{{ title upper }}</h1></pre>
<code>{{ list length }}</code>	Filter with an argument (or no arguments). <pre>Total items: {{ items length }}</pre>
Pro Tip	Keep expressions simple. For complex logic, prepare data in your Python view function before passing to the template.

CONTROL STRUCTURES

<code>{% if condition %}</code>	Basic conditional statement. <pre>{% if user.is_active %} Welcome back! {% endif %}</pre>
<code>{% if ... %} {% else %} {% endif %}</code>	If-else block for alternative content. <pre>{% if user %} Hello, {{ user.name }}! {% else %} Please log in. {% endif %}</pre>
<code>{% if ... %} {% elif ... %} {% else %} {% endif %}</code>	Multiple conditional branches.
<code>{% for item in items %}</code>	Iterates over sequences. <pre> {% for product in products %} {{ product.name }} {% endfor %} </pre>
<code>{% for ... %} {% else %} {% endfor %}</code>	An <code>else</code> block for <code>for</code> loops executes if the sequence is empty. <pre>{% for user in users %} {{ user.name }} {% else %} No users found. {% endfor %}</pre>
<code>loop.index</code> , <code>loop.index0</code>	Current iteration of the loop (1-based, 0-based). <pre>Item {{ loop.index }}: {{ item.name }}</pre>
<code>loop.first</code> , <code>loop.last</code>	Boolean, true if current item is the first/last in the iteration.
Common Pitfall	Using <code>break</code> or <code>continue</code> inside Jinja2 loops is not directly supported. Filter or pre-process data in Python.

COMMON FILTERS (DATA MANIPULATION)

<code>{{ value default('N/A') }}</code>	Provides a default value if the original value is undefined or false.
<code>{{ list join(', ') }}</code>	Joins elements of a list with a specified separator. Tags: <code>{{ ['python', 'web', 'dev'] join(', ') }}</code> {# Output: Tags: python, web, dev #}
<code>{{ text replace('old', 'new') }}</code>	Replaces all occurrences of a substring. <code>{{ 'Hello World' replace('World', 'Jinja') }}</code> {# Output: Hello Jinja #}
<code>{{ text trim }}</code>	Removes leading and trailing whitespace.
<code>{{ string length }}</code>	Returns the number of items in a sequence or characters in a string.
<code>{{ number round(2) }}</code>	Rounds a number to a specified precision. <code>round(2, 'floor')</code> , <code>round(2, 'ceil')</code> .
<code>{{ 'hello' capitalize }}</code>	Capitalizes the first letter of the string.
Pro Tip	Chain filters: <code>{{ ' HELLO ' trim lower capitalize }}</code> . Filters are applied from left to right.

Template Organization & Reusability

INCLUDES & TEMPLATE INHERITANCE

<code>{% include 'header.html' %}</code>	Inserts the content of another template at the current location.
<code>{% include 'nav.html' with context %}</code>	Passes the current template's context to the included template. This is often the default behavior.
<code>{% include 'optional.html' ignore missing %}</code>	Prevents an error if the included template doesn't exist.
<code>{% extends 'base.html' %}</code>	Inherits from a parent template, typically the first statement in a child template.
<code>{% block content %} ... {% endblock %}</code>	Defines a block in the parent template that can be overridden by child templates. In <code>base.html</code> : <code><body>{% block body %}{% endblock %}</body></code> In <code>child.html</code> : <code>{% extends 'base.html' %}</code> <code>{% block body %}<h2>Child Content</h2>{% endblock %}</code>
<code>{{ super() }}</code>	Renders the content of the parent block within an overridden block in a child template.
Pro Tip	Use <code>extends</code> for overall page layout and <code>include</code> for smaller, reusable components like navigation bars or footers that don't change the layout.

MACROS & REUSABLE BLOCKS

<pre>{% macro input(name, type='text', value='') %} ... {% endmacro %}</pre>	Defines a macro (reusable function-like block of HTML) with arguments and default values. <pre>{% macro input(name, type='text', value='') %} <input type="{{ type }}" name="{{ name }}" value="{{ value }}"> {% endmacro %}</pre>
<pre>{{ input('username', 'text', user.name) }}</pre>	Calls a macro by passing positional arguments.
<pre>{{ input(name='password', type='password') }}</pre>	Calls a macro by passing keyword arguments. Useful for clarity with many arguments.
<pre>{% from 'forms.html' import input %}</pre>	Imports a specific macro from another template file.
<pre>{% import 'forms.html' as forms %} {{ forms.input(...) }}</pre>	Imports all macros from a file into a namespace. <pre>{% import 'forms.html' as forms %} {{ forms.input('email') }}</pre>
<pre>{% call card('Title') %} Content inside card {% endcall %}</pre>	Allows passing a block of content to a macro using the <code>call</code> statement. The macro receives this content via the special <code>caller</code> variable. Macro Definition: <pre>{% macro card(title) %} <div class="card"> <h3>{{ title }}</h3> {{ caller() }} </div> {% endmacro %}</pre>
Pro Tip	Macros are excellent for creating reusable UI components (e.g., form fields, buttons, cards) that maintain consistent structure and styling across your application.

COMMENTS & WHITESPACE

<pre>{# This is a single-line comment #}</pre>	Comments are ignored by the parser and do not appear in the final output.
<pre>{# This is a multi-line comment #}</pre>	For longer explanations or temporarily disabling blocks of code.
<pre>{{- variable -}}</pre>	Hyphens (<code>-</code>) after (<code>{{</code>) or before (<code>}}</code>) remove leading/trailing whitespace around the expression output. <pre><p> Hello, {{- name -}}! </p> {# Output: <p> Hello,John!</p> (if name='John') #}</pre>
<pre>{%- statement -%}</pre>	Hyphens after (<code>{%</code>) or before (<code>%}</code>) remove leading/trailing whitespace around the statement. <pre> {%- for item in items %} {{ item }} {%- endfor %} {# Output will have no empty lines or extra spaces around tags #}</pre>
<pre>{{ ' text ' trim }}</pre>	While whitespace control in tags affects the template output, the <code>trim</code> filter affects the actual string value itself.
Pro Tip	Use whitespace control (<code>-</code>) to prevent empty lines or unwanted spaces in your rendered HTML, especially important for inline elements or when rendering lists without extra newlines.

Advanced Filters & Tests

COMMON FILTERS (OUTPUT & LOGIC)

<code>{{ html_string safe }}</code>
Note: Jinja2 auto-escapes HTML by default. <code>safe</code> explicitly marks a string as safe, preventing escaping. Use ONLY with trusted HTML.
<code>{{ url urlencode }}</code>
Encodes a string for use in URLs (e.g., query parameters).
<code>{{ html_text striptags }}</code>
Removes all HTML/XML tags from a string.
<code>{{ long_text wordcount }}</code>
Counts the number of words in a string.
<code>{{ dictionary dictsort }}</code>
Sorts a dictionary by keys or values. Returns a list of (key, value) pairs. <pre>{% for key, value in {'b': 2, 'a': 1} dictsort %} {{ key }}: {{ value }} {% endfor %}</pre>
Common Pitfall: Over-using <code> safe</code> can introduce XSS vulnerabilities if applied to untrusted user input. Always validate and sanitize input on the server side.

TESTS

<code>{% if variable is defined %}</code>
Checks if a variable is defined (exists in the context).
<code>{% if variable is not none %}</code>
Checks if a variable's value is not <code>None</code> .
<code>{% if number is divisibleby(3) %}</code>
Checks if a number is divisible by another number.
<code>{% if 'hello' is equalto('hello') %}</code>
Checks for equality. Can also use <code>==</code> .
<code>{% if list is empty %}</code>
Checks if a sequence or mapping is empty.
<code>{% if value is number %}</code>
Checks if a value is a number (integer or float).
<code>{% if 'item' in my_list %}</code>
Checks for membership (can also be used in <code>if</code> statements, not just <code>is</code>).
Pro Tip: Tests are powerful for conditional rendering without writing complex expressions. Use them to check variable states, types, and properties cleanly.