



PUG

The image features the word "PUG" in a bold, black, sans-serif font, centered horizontally. It is flanked by two large, black, L-shaped brackets. The bracket on the left is positioned in the upper-left area, with its vertical stem extending downwards and its horizontal arm extending to the right. The bracket on the right is positioned in the lower-right area, with its horizontal stem extending to the left and its vertical stem extending upwards. The entire composition is set against a plain, light gray background.

PUG

- Pug is a templating engine that uses template strings to create HTML.
- Has language aspects that allow it to modify the output of engine on the fly.
- You can find the documentation at <https://pugjs.org/api/getting-started.html>

PUG - Tags

- Text at the start of a line is typically a tag. Don't use angle braces. Don't need to close.
- Indented tags are nested.
- Read more [Reference](#)

```
div Content
```

```
  ol
```

```
    li Item 1
```

```
    li Item 2
```

```
    li Item 3
```

These are nested in the ol.

PUG – Plain text

- Put it on the same line as the tag. Can be html.
- Create a block using a . after the tag.
- Read more [Reference](#)

```
p Some text in <bold>my</bold> paragraph
```

```
p. This is  
  Some text  
  in a  
  paragraph.
```

These are all inside the paragraph
as its contents.

PUG – Plain text - Pipe

- If we start a line with a pipe | then it is combined with the previous. This is useful to mix text with inline tags.
- Also used for space control.

```
p. This is  
  | more text  
  | in a  
  | paragraph.
```

These are all inside the paragraph
as its contents.

PUG – Plain text block

- If we add a . on the end of a tag the rest will just be rendered as plain text.
- Need to indent by one level.

```
script.  
  const y = 10;  
  function best (x) {  
    if (x>y) then  
    {  
      x++;  
      console.log("keep going")  
    }  
  }
```

This is all rendered as is and is convenient for adding in java script to be executed on the client side.

- Pug is sensitive to indentation and spaces.

PUG – Plain text interpolation

- Anything inside of `#{ }` will be evaluated as a java script expression and escaped for safety.
- Read More [Reference](#)

```
- var x = 20  
p We are going around #{x+2} times.
```

PUG - Code

- We can use inline JavaScript in our templates
- Unbuffered code starts with `-`. It does not directly add anything to the output of the renderer.
- Buffered code starts with `=` and will be HTML escaped. Whatever follows the `=` will be evaluated as a javascript expression.
- Unescaped buffered code starts with `!=`. It will not be escaped and is not safe for input.

PUG - Code

■ Read more [Reference](#)

```
- for(var i=0; i<5; i++)  
  li item
```

Five copies of ` item `

```
-  
var list = ['one', 'two', 'three']  
each item in list  
  li= item
```

block unbuffered code

= triggers buffered evaluation of
JS expression item which gives
`one`
`two`
`three`

PUG - Comments

- Comments start with `//` or `//-`
- `//` Comments are buffered and result in an HTML comment.
- If you want a multiline comment, leave the rest of the line blank
- Read more [Reference](#)

```
//-  
  This is a multiline comment  
  That is not part of the HTML output  
//  This is a single line comment and is rendered
```

PUG - Attributes

- Attributes of elements are kept in ()
- We can use variables with concatenation or string interpolation with back-ticked strings.

```
div (id="happy" onClick="method()") Content
```

```
- var btnType = 'info'
- var btnSize = 'lg'
button(type='button'
  class='btn btn-' + btnType + ' btn-' + btnSize
) Button 1
```

```
button(type='button'
  class=`btn btn-${btnType} btn-${btnSize}`
) Button 2
```

PUG - Attributes

- Style attributes can be strings or an object
- Class attributes can be strings or a list
- Can use a selector style with . or # defaulting to div
- Read more [Reference](#)

```
p(style = {color:"green", background:"blue"} content
```

```
- var classes=['long', 'extra', 'foo']  
div(class=classes) more text
```

```
a.button  
a#my-link
```

```
div#contentid  
#contentid
```

These two are the same. Div is so common that it is taken as default.

PUG - Conditionals

- Don't need () on condition
- Don't use - with if/else
- Read more [Reference](#)

```
- var user = {description: 'foo bar baz'}
```

```
- var authorised = false
```

```
#user
```

```
  if user.description
```

```
    h2.green Description
```

```
    p.description= user.description
```

```
  else if authorised
```

```
    h2.blue Description
```

```
    p.description.
```

```
      User has no description,
```

```
      why not add one...
```

```
  else
```

```
    h2.red Description
```

```
    p.description User has no description
```

Gives <div id="user">

One of three yellow chunks will be rendered depending on the if

Render after . as plain text.

PUG - Conditionals

```
- var user = {description: 'foo bar baz'}  
- var authorised = false  
#user  
  if user.description  
    h2.green Description  
    p.description= user.description  
  else if authorised  
    h2.blue Description  
    p.description.  
    User has no description,  
    why not add one...  
  else  
    h2.red Description  
    p.description User has no description
```

We get the first with an inline evaluation of user.description.

```
<div id="user">  
  <h2 class="green">Description</h2>  
  <p class="description">foo bar baz</p>  
</div>
```

PUG - Loops

- Special constructs each/while don't use – and are unbuffered

- Read more [Reference](#)

```
- var my-list = [1, 2, 4]
each value in my-list
  li= value
```

```
each value,index in my-list
  div item #{value*index}
```

```
- var part = 0
while part<10
-   part += 1
  p paragraph count is #{part}
```

Gives

```
<li>1</li>
<li>2</li>
<li>4</li>
```

Gives

```
<div>item 0</div>
<div>item 2</div>
<div>item 9</div>
```

PUG - Loops

- Can add an else clause to each for empty loops

```
- var my-list = []  
each value in my-list  
  li= value  
else  
  p No values in list
```


PUG - Case

- No – needed for case/when/default
- Fall through only on empty when.
- Read more [Reference](#)

```
- var value = 10
case value%3
  when 0
    p Divisible by 3
  when 1
  when 2
    p Not divisible by 3
  default
    p Non integer remainder for #{value}
```

Fall through on when 1.

PUG - Doctype

- There are others, but for modern HTML 5 we will use html

```
doctype html
```

PUG - Include

- Includes the contents of some other file.
- If no extension, it is assumed to be pug
- If some other kind of file, the text is just included directly without being rendered.

PUG - Inheritance

- In a parent template, block name defines a part of the template that can be replaced by the child.
- The child template extends the parent
- Instead of replacement, we add to the parents definition
 - *block prepend name*
 - *block append name*
- Read more [Reference](#)

PUG - Mixin

- This effectively allows us to create a pug function that can be called to generate some HTML
- Read More [Reference](#)

```
mixin pet(name)  
  li.pet= name  
  
ul  
  +pet('cat')  
  +pet('dog')  
  +pet('pig')
```

Nothing rendered yet. It will create a listitem with class pet. The contents of the item will be interpolated.

+ is the mix-in “call”.

```
<ul>  
  <li class="pet">cat</>  
  <li class="pet">dog</>  
  <li class="pet">pig</>  
<\ul>
```

Routes – index.js Revisited

```
var express = require('express');  
var router = express.Router();
```

```
/* GET home page. */  
router.get('/', function(req, res, next) {  
    res.render('index', { title: 'Express' });  
});
```

Variable index is set to 'Express'

```
module.exports = router;
```

View – layout.pug Revisited

```
doctype html
```

```
html
```

```
  head
```

```
    title= title
```

Evaluate the expression title

```
    link(rel='stylesheet', href='/stylesheets/style.css')
```

```
  body
```

```
    block content
```

Parent. Could have defined default content to place here

View – index.pug Revisited

extends layout

Child

block content

Replace block content of parent

h1= title

p Welcome to #{title}

Uses sting interpolation for content

app.js Revisited

Set local variables that are visible to the Pug render engine

```
// error handler
app.use(function(err, req, res, next) {
  // set locals, only providing error in development
  res.locals.message = err.message;
  res.locals.error = req.app.get('env') === 'development' ? err : {};

  // render the error page
  res.status(err.status || 500);
  res.render('error');
});

module.exports = app;
```

Will use the error view

View – error.pug

extends layout

Child

block content

h1= message

h2= error.status

pre #{error.stack}

error and message are locals that can be evaluated and used to set the content.