**Stk1 WEB**

***1.0 WEB*** [***TECHNOLOGIES***](https://www.cnblogs.com/feng9exe/p/6126236.html)

[***W3S***](https://www.w3schools.com/default.asp)[***W3S-in***](https://www.w3schools.in/)[***W3S-cn***](http://www.w3school.com.cn/index.html)[***W3CS-cn***](https://www.w3cschool.cn/tutorial)[***IntelliJ***](https://blog.csdn.net/i_hanjt/article/details/78610462)[***Mattermost***](https://www.mattermost.org/mattermost-2-1-android-windows-linux-and-mac-apps-plus-portuguese/)

***1.1*** [***HTML / HTML5***](https://www.w3schools.com/html/default.asp) [***cn***](http://www.w3school.com.cn/h.asp)[***html***](https://www.w3cschool.cn/html/)[***html5***](https://www.w3cschool.cn/html5/)[***html vs html5***](https://www.cnblogs.com/melbourne1102/p/6361323.html)[***VS2015***](https://jingyan.baidu.com/article/219f4bf799c0ccde442d3811.html)

***Introduce Basic Nesting Practices The Header & Body Common Body Tags (lists, tables, etc.) Building Forms & Declaring Input Values***

***Containers, Elements, Attributes, & Classes HTML Best Practices Intro to HTML5***

***1.2*** [***CSS/CSS3***](https://www.w3schools.com/css/default.asp) ***/*** [***CSS3***](http://www.w3school.com.cn/css3/index.asp)[***cn***](http://www.w3school.com.cn/h.asp)[***c3-css***](https://www.w3cschool.cn/css/)[***c3-css3***](https://www.w3cschool.cn/css3/)[***css vs css3***](https://www.w3cschool.cn/css3/question-10231607.html)

***Intro to CSS CSS Selectors & Declarations Inspecting Element Inline, Block, Float, and Positioning Div Layout & Formatting***

***Styling Text & How Fonts Work Using Properties & Backgrounds Replicating Complete User Interfaces Optimizing & Cleaning Your Code***

***Intro to CSS3 & More Styling Properties How to Build Your Own Shapes\* Constructing Complex Tables\****

***1.3*** [***Basic Javascript***](http://www.w3school.com.cn/b.asp)[***cn***](http://www.w3school.com.cn/b.asp) [***c3***](https://www.w3cschool.cn/javascript/)

***Intro to JavaScript Fundamentals (ES5 & ES6) Declaring & Referencing Variables Variable Hoisting in JavaScript Conditionals, Operators, & Nested Loops***

***Using Arrays & Loops in JavaScript Objects, Functions, & Function Scoping Variable Hoisting with Scoping Return Statements in JavaScript***

***Function Hoisting JavaScript Object Oriented Programming (OOP) How to Use Object Constructors Common Constructors: ‘This’&‘New’***

***Private Methods & Variables Creating Prototype Objects in JavaScript Best Practices for JavaScript OOP Intro to JavaScript Advanced Topics***

[***How to Use Callbacks***](https://www.cnblogs.com/lishuxue/p/5999682.html)[***Delegating Functionality & Event Handling***](http://www.w3school.com.cn/jquery/event_delegate.asp)

***1.4*** [***Advanced jQuery***](http://www.w3school.com.cn/jquery/index.asp)[***cn***](http://www.w3school.com.cn/jquery/index.asp) [***c3***](https://www.w3cschool.cn/jquery/)[***c3-jQueryUI***](https://www.w3cschool.cn/jqueryui/)

***Intro to jQuery jQuery Functions & Debugging How to Use Parameters & Getters/Setters Essentials of the jQuery Library Troubleshooting jQuery***

***Intro Advanced jQuery Implementing Dynamic Content Callbacks in jQuery Traversing DOM Elements Using Forms in jQuery Using jQuery UI Library\****

***Extra jQuery Libraries\****

***1.5*** [***Git/Github & Terminal***](https://github.com/codepath/ios_guides/wiki/Using-Git-with-Terminal)[***for begineer-en***](https://blog.udacity.com/2015/06/a-beginners-git-github-tutorial.html)[***cn***](https://blog.csdn.net/Hanani_Jia/article/details/77950594)[***c3***](https://www.w3cschool.cn/git/)[***IntelliJ 配置 Github***](https://blog.csdn.net/zongzhankui/article/details/46341967)

***Intro to Git & Version Control Using Terminal Commands How to Create & Utilize a Repository Making, Tracking, & Reverting Changes***

***Git Workflow Overview & States Advanced Git Commands & Concepts Branching, Merging, & Conflicts Intro to Github How to Use a Github Repository***

***Forking, Cloning, & Pulling*** [***Github Collaboration & Workflow***](https://blog.csdn.net/qq_16912257/article/details/52998295)

***1.6*** [***Responsible Web Design (RWD)***](https://www.w3schools.com/css/css_rwd_intro.asp)[***cn***](http://www.w3school.com.cn/html/html_responsive.asp)[***cn2***](https://www.cnblogs.com/wangxinsheng/articles/3851223.html)[**Bootstrap**](http://www.runoob.com/bootstrap/bootstrap-intro.html)

***Intro to Responsive Web Design (RWD) Breakpoints, Units, & Media Queries Basics to Typesetting & Scaling Cross-device RWD***

***Grid System, Fluid Grids, & Adaptive Layouts Intro to CSS Frameworks*** [***Responsive Typography(排版)***](https://www.w3cplus.com/css3/a-more-modern-scale-for-web-typography.html)[***中1***](https://www.w3cplus.com/preprocessor/responsive-typography-with-sass-maps.html)[***中2***](https://www.w3cplus.com/responsive/responsive-typography.html)[***em & rem & px***](https://www.cnblogs.com/koubazhuanshu/p/6985331.html)

[***Using***](https://meyerweb.com/eric/tools/css/reset/)[***CSS Reset***](https://www.cnblogs.com/maggie-pan/p/6392185.html) ***& Boilerpoint***

***1.7*** [***Balsamiq mockups***](https://www.youtube.com/watch?v=pBYAigOvD7w)[***cn***](https://blog.csdn.net/qq_32962727/article/details/58181513)

***Intro to Wireframes Importance of Wireframes Intro to Balsamiq & How to Use It***

***1.8*** [***Bootstrap***](https://www.w3schools.com/bootstrap/default.asp)[***cn***](http://www.runoob.com/bootstrap/bootstrap-tutorial.html)[***c3***](https://www.w3cschool.cn/bootstrap/)

***Intro to Bootstrap\****

***1.9*** [***LESS & SASS (for css)***](https://www.youtube.com/watch?v=82Yb4YDWUTs&list=PL4DA73D68F0080AD4)[***cn***](https://blog.csdn.net/qq_26878975/article/details/72817197)[***W3CS-less***](https://www.w3cschool.cn/less/)

***CSS Preprocessors, LESS, & SASS\* Optional Frameworks, UI Assets, & Tools\****

***1- Web Topics***

***1-1*** [***Front-end Development***](https://www.youtube.com/watch?v=bsMtNF3SMjo)[***中***](http://www.maiziedu.com/course/web/)

***1-2*** [***Frameworks & Libraries***](https://www.merixstudio.com/blog/framework-vs-library-differences-web-development/)[***中***](https://www.sitepoint.com/10-javascript-web-ui-libraries-frameworks-toolkits/)

***1-3*** [***Wireframes & Mockups***](https://www.youtube.com/watch?v=ZAYgDPtohYw)[***https://moqups.com/***](https://moqups.com/)[***中***](http://www.wandoujia.com/apps-air.com.mockups.Mockups)

***1-4*** [***Code Version Control***](https://www.youtube.com/watch?v=u2rZLVWOWvs)[***中***](https://blog.csdn.net/mr_lp/article/details/64921008)

***1-5*** [***HTTP Request***](https://www.youtube.com/watch?v=vAuZwirKjWs)[***中***](https://blog.csdn.net/qq_37268201/article/details/70622563)[***for google***](https://blog.csdn.net/selinda001/article/details/79338766)

***1-6*** [***Dynamic Content***](https://www.youtube.com/watch?v=mtgKS7z9c8o)[***中***](https://wenku.baidu.com/view/df4435a42af90242a895e5d1.html)[***VS网站动态设计***](https://blog.csdn.net/erlian1992/article/details/49665603)[***foundation5***](https://www.w3cschool.cn/foundation/)

***1-7*** [***c3-Web Service***](http://www.w3school.com.cn/webservices/index.asp)

***{ brace / curly ( pa'renthesis ) [ bracket # pounds quotes "" comma , period . colon ： semicolon ；Palindrome Pangram Supervocalic(not repeat)***

* 1. [**Html**](http://www.w3school.com.cn/xml/xml_tree.asp)

* + 1. **IDES**

[**Crome**](https://blog.csdn.net/crper/article/details/48098625)*(F12 >debug window; F5 > start debug F10 > step debug) Ctr+Shift+R 清css缓存*

[**VS Code**:](https://jingyan.baidu.com/article/76a7e409ffa77ffc3b6e150a.html)*click icon ‘Extensions’ install or reload ‘****vsc view in browser’*** *alt > recall main menu Ctrl\_+字调大   
Alt+Shift=多行编辑 shift+del shift+arrow alt+arrow Ctrl+` =terminal* *File>preferences>settings> "view-in-browser.customBrowser": "chrome", "editor.fontSize": 16, File> preferences>shortcuts>view in browser>Ctrl+F1*

*Github: github: new newprj; cmd: git init cmd: git remote add origin* [*https://github.com/long-yong/newprj.git*](https://github.com/long-yong/newprj.git) *vsc: stage all changes > commit > … push*

[**Sublime**](https://jingyan.baidu.com/article/2d5afd693e768085a2e28ecf.html) **(*Add to explorer context menu****):* Preferences > [key binding](https://jingyan.baidu.com/article/624e745903214334e8ba5a39.html) > { "keys": [ "ctrl+f1" ], "command": "open\_in\_browser" } Preferences>font;

[**Atom**](https://segmentfault.com/q/1010000007440588?_ea=1353756)**:** *packages>settings view>install packages> ‘open-in-browser’(ctrl+alt+o)* [*File>keymaps*](https://blog.csdn.net/crper/article/details/45715807)*:* *'atom-workspace': 'ctrl-f1': 'open-in-browsers:toggle'*

**IntelliJ** **Idea Ultimate 2018**(*New static web project)*

**Eclipse for Java** *Help > Install new software >* [*install web dev plugins*](https://blog.csdn.net/zhangzihua789/article/details/54293514)*;*   
 [Run static html:](https://blog.csdn.net/qq_20916555/article/details/49532609) html file > mouse right > open with > Web Browser html file > run as server > manual > http preview

**Pycharm ctrl+alt+L** *aut format codes* ***new .gitignore*** *( \*/.git/\* /.settings/ /.sass-cache/ .gitignore \*.class )*

Renew github repository > rmove .git and repository > VCS > Import into VC > Share Project on github

**1.1.2 VS2017 配置 Git**

**1.1.3 W3-Color** aqua(浅绿)、fuchsia(紫红)、lime(绿黄)、maroon(褐红)

**1.1.4** [**Html 快速参考**](http://www.w3school.com.cn/html/html_quick.asp)

**1.1.5**  [**验证器检验 XHTML**](https://validator.w3.org/)

**1.1.6** [**GET & POST**](http://www.w3school.com.cn/html/html_forms.asp)

**1.1.7** [**Html Input属性实例 (常用)**](http://www.w3school.com.cn/html/html_form_attributes.asp)

**1.1.8 Five Browsers (google, IE, firefox, Safari, Opera)**

**1.1.9** [**样式指南和代码约定**](http://www.w3school.com.cn/html/html5_syntax.asp)

**1.1.10** [**canvas 绘图**](http://www.w3school.com.cn/html/html5_canvas.asp)canvas 插入图片 *<canvas id="myCanvas" width="100" height="100" style="border:1px solid #c3c3c3;">  
Your browser does not support the canvas element.  
</canvas>  
<script type="text/javascript">  
var cvs=document.getElementById("myCanvas");  
var cxt=cvs.getContext("2d");   
var Obj = new Image();  
Obj.src = "mydog.jpg";  
Obj.onload = function() { cxt.drawImage(this,0,0,100,100); }   
</script>*

**1.1.11** [**音频和视频**](http://www.w3school.com.cn/html/html_audio.asp)

**1.1.12** [**保存点击次数**](http://www.w3school.com.cn/html/html5_webstorage.asp)

**1.1.13** [**网页实时更新(股票)**](http://www.w3school.com.cn/html/html5_serversentevents.asp)[**例子**](https://www.jb51.net/article/83169.htm)

**1.1.14** [**Html 参考手册**](http://www.w3school.com.cn/tags/html_ref_byfunc.asp)

**1.1.15** [**XML**](http://www.w3school.com.cn/xml/xml_tree.asp)

# [*XMLHttpRequest 对象*](http://www.w3school.com.cn/xml/xml_http.asp) *special signs: &lt= < &gt= > &amp= & &apos= ' &quot= " 空格(&#x0020;) Tab(&#x0009;) 回车(& #x000D;)  换行(&#x000A;)*

*<?xml version="1.0" encoding="ISO-8859-1"?>  
<note>  
<to>George</to>  
<from>John</from>  
<heading>Reminder</heading>  
<body>Don't forget the meeting!</body>  
</note>*

* + 1. [**PHP 简介**](http://www.w3school.com.cn/php/php_intro.asp)
    2. [**Google Map**](http://www.baidu.com/link?url=1cMDOgzEkc-JV01AL7H_ffAMMP_17GsG7JlELEnKjVAz3_2GOqgZEc2PnAdD3NL5fOgqEm4Dyi2dkXggBoEZTi89L9JW1qbra4FHE2xRvO7&wd=&eqid=81d7d87f0002233e000000065b21a803)

# 1.1.17 HTML DOM Document Object

# 1.1.18 [Select Options](https://www.cnblogs.com/besty/p/4094951.html)

**1.2** [**CSS**](http://www.w3school.com.cn/css/index.asp)

**1.2.1** [**CSS 选择器**](http://www.w3school.com.cn/cssref/css_selectors.asp)

**1.2.2 Brief**DRY - Don’t Repeat Yourself UX - User Experience OOP - Object Oriented Programming  
sudo - Super User Do MVC - Models, Views, Controllers MTV - Models, Templates, Views  
TDD - Test Driven Development BDD - Behavior Driven Development JSON - JavaScript Object Notation  
NPM - Node Package Manager AJAX - Asynchronous JavaScript And XML  
CDA - Coding Dojo Academy API - Application Programming Interface

**1.2.3 Block  
Inline element:**  
span a b br button i input img label object abbr acronym bdo big cite code dfn em kbd map q samp script select small strong sub sup textarea time tt var   
**Block element:**  
div h1 h6 p li ol ul section table form canvas video article header footer dl dt dd hr   
address aside blockquote fieldset figcaption figure main nav noscript output pre tfoot  
**Body** { vertical-align: top; }  
position: relative ( top,left,right,bottom**相对现在位置偏移**)  
padding 次序 top,right, bottom,left

[How to Center Anything With CSS](https://designshack.net/articles/css/how-to-center-anything-with-css/)  
div.baby { margin: auto; position: absolute(also for pa); lrtp:0,0,0,0; w;h; }  
**不同浏览器可能缺省值不同，导致视图不同，需要 'RESET' and 'NORMALIZE'**   **用**normalize.css  
***When positioning elements please use:******margin, padding, display, vertical-align, width, and height****;****NOT use:******float, position: relative or position: absolute****;* ***Avoid using:******Stack Overflow especially early on*Outline是一个有用的属性，可以用于观察所有元素。p { border: red solid thin; outline:#00ff00 dotted thick; }**

<input placeolder=”search”>

Vertical center > line-height: height (of div))

.main p,h2 { color: red; }

Border:2px bold red;

Text-decoration: none;

Background: linear-gradient(red,yellow);

<button type="button">Browser Store</button> button 应该加上 type

<img class=”myimg” src=”” alt=””> img 属性设置应该使用class 而不是 id

[**Critical CSS**](https://www.smashingmagazine.com/2015/08/understanding-critical-css/)

https://www.smashingmagazine.com/2015/08/understanding-critical-css/  
css3新增加了元素和字体的阴影，元素的圆角度以及对元素标签的动画处理，动画包括平滑，旋转，缩放，3D倾斜等，总之

利用css3能让页面视觉感更强烈  
vendor profix   
-ms- Microsoft.

mso- Microsoft Office.

-moz- Mozilla Foundation (Gecko-based browsers)

-o-, -xv- Opera Software.

-atsc- Advanced Television Standards Committee.

-wap- The WAP Forum.

-webkit- Safari, Chrome (and other WebKit-based browsers)

-khtml- Konqueror browser.

[**10 Critical Elements for Web**](https://mayvendev.com/blog/10-crucial-elements-for-any-website-design)Take care designing with space, simple navigation, about us, contact information, calls to action, search, footer information, buttons, images and web fonts.

**Bootstrap** [**Demo**](https://www.cnblogs.com/yc-755909659/p/5928213.html) [四种 Layout方式](https://www.cnblogs.com/yanayana/p/7066948.html) [如何设计](https://blog.csdn.net/sunshine940326/article/details/54139592) [布局2](https://www.zhangxinxu.com/wordpress/2011/09/%E9%A1%B5%E9%9D%A2%E5%93%8D%E5%BA%94%E5%B8%83%E5%B1%80/) [总结](https://blog.csdn.net/ljf1994/article/details/51964831)

[Bootstrap--常用及实例合集](https://www.cnblogs.com/gaoshengyue/p/7885259.html) [优缺点](https://www.cnblogs.com/gonrun/p/3684964.html)

# [C3S Bootstrap Sample](https://www.w3schools.com/bootstrap/bootstrap_examples.asp) [C3S Bootstrap Classes Reference](https://www.w3schools.com/bootstrap/bootstrap_ref_all_classes.asp) .container class provides a responsive fixed width container. .container-fluid class provides a full width container, spanning the entire width of the viewport.

[**Zurb Foundation**](http://www.runoob.com/foundation/foundation-tutorial.html)Foundation 使用浏览器默认字体大小 (font-size:100%)。对于大多数桌面浏览器来说，字体默认为 16px。对于大多数移动端浏览器来说，字体默认为 12px。默认的字体为 "Helvetica Neue"， line-height 默认为 1.5。以上默认的设置均是针对 <body> 元素。

[**Jumbotron**](https://getbootstrap.com/docs/4.0/components/jumbotron/)Lightweight, flexible component for showcasing hero unit style content.

**Navbar**

**set default select option**  
<script>  
 $(document).ready(function(){ $("#name option[value=<%=obj.name%>]").attr("selected", "selected"); });  
</script>

**1.3** [**Javascript**](http://www.w3school.com.cn/js/index.asp)[**cn**](http://www.w3school.com.cn/b.asp) [**c3**](https://www.w3cschool.cn/javascript/)

**1.3.1** [**正则表达式 RegExp**](http://www.w3school.com.cn/js/js_obj_regexp.asp)[**正则表达式**](https://deerchao.net/tutorials/regex/regex.htm) **[JavaScript单元测试框架-Jasmine (BDD framework)  
 jasmine BDD 官方api参考](https://www.cnblogs.com/stephenykk/p/4539200.html)** [将JS源代码放入src.js，测试代码放入test.js, 调用demo.html。](https://www.cnblogs.com/stephenykk/p/4539200.html)

**1.3.2** [**jQuery**](http://www.w3school.com.cn/js/js_library_jquery.asp)

[jQuery教程](http://www.w3school.com.cn/jquery/index.asp)

[jQuery Selectors Sampler( /jQuery > jQuery ) jQuery CSS Method](http://www.w3school.com.cn/jquery/jquery_css.asp)

[**10 个精美jQuery 实例**](http://www.cnblogs.com/lhb25/p/20-must-have-jquery-tutorials.html)

[**jQuery 基本操作实例**](http://www.runoob.com/jquery/jquery-examples.html)

**添加 CSS** $(‘button’).css(‘background-color’,’pink’);

**$().attr 只能修改直接属性，不能修改间接属性或屏蔽掉的属性。**

$(selector).click( function() { x=0; } ); // selector/event/action

$(this) $('p') $('#mybtn') $('.mybtn')

$('div p')=(div&p) $('div,p')=(div|p) <p class=’mycol myft’></p>

$(‘body’).html(str) 可添加新元素(img)到 body;  
 新元素不响应 $(‘img’).click(function()，也不响应$(‘img’).on(‘click’,function()。  
 只响应 $(‘body’).on(‘click’,’img’, function()。 新元素不能成为Listenner  
 引号使用原则：一般用单引号，动态生成的newhtml使用双引号。

**1.3.3** [**JavaScript 参考手册**](http://www.w3school.com.cn/jsref/index.asp)

**1.3.4** [**try catch throw**](http://www.w3school.com.cn/js/js_errors.asp)

**1.3.5** [**表单验证**](http://www.w3school.com.cn/js/js_form_validation.asp)

**1.3.6** [**JavaScript 标准库函数**](https://developer.mozilla.org/zh-CN/docs/Web/JavaScript/Reference/Global_Objects)

Var str =”abcde”; str 能赋新值，不能修改

**1.3.7** [**JS Console Debug (F5-F10-F11-F12)**](https://blog.csdn.net/pedrojuliet/article/details/52550060)

**1.4** [**Advanced jQuery**](http://www.w3school.com.cn/jquery/index.asp)[**W3-CS**](https://www.w3cschool.cn/jquery/)[**c3-jQueryUI**](https://www.w3cschool.cn/jqueryui/)

**1.4.1**  [**jQuery Selectors**](http://www.w3school.com.cn/jquery/jquery_ref_selectors.asp)[**jQuery Events**](http://www.w3school.com.cn/jquery/jquery_ref_events.asp)

**List of functions you should get familiar with:**

Effects (functions to do some cool animation effects)

.hide()

.show()

.toggle()

.slideUp() - not available in the slim version

.slideDown() - not available in the slim version

.slideToggle() - not available in the slim version

.fadeOut() - not available in the slim version

.fadeIn() - not available in the slim version

CSS (adding or removing a class for any HTML element/DOM)

.addClass()

.removeClass()

.css()

Manipulation (retrieving or setting value or text in any HTML element)

.after()

.append()

.prepend()

.attr()

.before()

.html()

.text()

.val()

Events (functions to handle an event)

.click()

.hover()

**1.4.2** [**AJAX + jQuery**](http://www.w3school.com.cn/jquery/jquery_examples.asp)[**AJAX1**](http://www.w3school.com.cn/ajax/index.asp)[**AJAX2**](https://www.cnblogs.com/QiScript/p/5580355.html)[**安装Wamp to C:\XAMPP**](https://baike.baidu.com/item/XAMPP/2801774?fr=aladdin)

本机用Ajax会报跨域错误或不能访问本机文件,需安装Wamp Server在本机搭建HTTP服务器环境。  
 **Install wamp server for Ajax (to read 1.txt)**  
 download xampp-win32-7.2.7-0-VC15-installer.exe (from http://www.apachefriends.org)  
 install to c:/xampp  
 run c:/xampp/setup\_xampp.bat  
 run c:/xampp/xampp-control.exe > set Apache switch blue  
 copy c:/jquery/jquery.js to c:/xampp/htdocs/jquery/jquery.js  
 copy 1.html (using ajax) and 1.txt (replaced text) to c:/xampp/htdocs/  
 run 1.html (browser address: localhost/1.html)

File 1.html  
*<!DOCTYPE html>  
<html>  
<head>  
 <meta charset="UTF-8">  
 <script src="/jquery/jquery.js"> </script>  
 <script>  
 $(document).ready(function () {  
 $.ajaxSetup({cache:false}); // solved local data not updating problem  
 $("#btn1").click(function () {  
 $('#test').load('1.txt');  
 // $('#test').hide();  
 })  
 })  
 </script>  
</head>*

*<body>*

*<h2 id="test">change file:///C:/xampp/htdocs to localhost</h2>*

*<button id="btn1" type="button">Ajax load 1.txt request</button>*

*</body>*

*</html>*

File 1.txt

*I am the text of 1.txt*

*JS objects  
function createCar(col,weight) { cat = new Object; cat.color=col; cat.weight=weight; return cat;*

*cat1=createCar('black',10); cat2=createCar('red',10);*

**1.4.3** [**JavaScript 事件监听**](https://jingyan.baidu.com/article/5d6edee2daaad699eadeeca6.html)[**IDE Atom**](https://blog.csdn.net/m13026178198/article/details/52837076)

**1.4.4** [**JS callback function**](https://www.cnblogs.com/flower-qh/p/7127004.html)

**1.4.5** [**前端和后端数据交换技术**](https://www.cnblogs.com/zzjeny/p/5600754.html)[**中1**](https://blog.csdn.net/qq1175421841/article/details/49895425)[**中2**](https://bbs.csdn.net/topics/390893876?list=lz)[**本机实现模拟通信**](https://www.cnblogs.com/snowinmay/p/3415498.html)[**XMLHttpRequest例子**](https://blog.csdn.net/w88529593/article/details/52590676)[跨域通信](https://blog.csdn.net/cnyygj/article/details/68489200)

<!DOCTYPE html>

<html>

<head>

<title>Test</title> <meta charset="utf-8">

<meta name="viewport" content="width=device-width,initial-scale=1">

<link rel="stylesheet" href="include/bootstrap4.css" type="text/css">

<link rel="stylesheet" href="style.css" type="text/css">

<script src="include/jquery3.js"></script>

<script src="include/bootstrap4.js"></script>

<script> $(document).ready(function(){$("#btn1").click(function(){$(getText("http://www.myccad.com/test1.html")); }); }); </script>

</head>

<body>

<button id="btn1"> Click me! </button>

<script> function getText(url) {

var request = new XMLHttpRequest();

request.open('GET',url);

request.onreadystatechange = function () {

if(request.readyState === 4 && request.status === 200){

var type = request.getResponseHeader('Conten-Type');

if(type.match(/^text/)) { // callback(request.responseText);

} } };

request.send(null); }

</script>

</body>

</html>

**1.4.6 JS class**

function newCat(color,age)

{ obj = Object(); obj.color=color; obj.age=age; return obj; }

cat = newCat('white',10);

for (key in cat) console.log(key, cat[key]);

**1.5 Git** [**Git常用命令**](https://w3ctrain.com/2016/06/26/learn-git-in-30-minutes/)[**中2**](http://gitbook.liuhui998.com/)

**1.5.1 PyCharm / IntelliJ** [**IDEA 配置 Github**](https://blog.csdn.net/zongzhankui/article/details/46341967)

a. IDEA > File > settings > version control > Git (select path of git.exe) & GitHub  
b. Upload**：**IDE > VCS > Import into VC > Create Git repository; Import into VC > Share on GitHub(username & psw);   
c. Download**：**cmd: git clone http://github.com/long-yong/【projectname】.git IDE > open folder

d. Code changes > add & commit to local > push to remote  
e. checkout reversion > git checkout master/branch  
**1.5.2** [**Eclipse 配置 Git/Github/Cmd**](https://www.cnblogs.com/catkins/p/5250188.html) [**Successful En1**](https://www.youtube.com/watch?v=1XNVWpjPoio)[**中 1**](https://blog.csdn.net/xiongyouqiang/article/details/79362439)a 新IDC 已自带Git, 老IDE 输入插件地址自动安装：http://download.eclipse.org/egit/updates/  
b Windows > Preferences > Team > Git > Configuration > user.nam, user.email

c New project > Web > static web project > test … new html file > index.html … team

d New file：test/.gitignore ( \*/.git/\* /.settings/ /.sass-cache/ .gitignore \*.class )

instead of Window > Preferences > Team > ignore resource

f Window > Preferences > Team > Git > committing > (disable) use staging view to commit

e Github: New repository test cmd: *git clone* [*http://github.com/long-yong/test.git*](http://github.com/long-yong/test.git) Elicpse: open test folder

e Current Project > Team > commit >comment

g Window > show view > other > git > git repositories & git Staging

h New file > team > add in index Edited file > Team > Commit Project > team > show in history

i [Cmmand Line Set](https://blog.csdn.net/wu_cai_/article/details/71637199): Run > External Tools > Configures >

C:\Program Files\Git\git-cmd.exe + git local path > enable allocate console

j [**Push/PULL Github**](https://blog.csdn.net/sinat_27535209/article/details/62421795) Window > Preference > General > Networking Connections > (产生保存密钥) SSH2  
team>remote>push **URL:** http://github.com/long-yong/test.git **Host:**github.com **Path:** /long-yong/test.git

**Click:** Add All Branches Spec **User:** long-yong-310b

**1.5.3** [**VS Code link Git and Github**](https://blog.csdn.net/sdta25196/article/details/79041933) (*Bx = BranchX)*

a Install Git-2.17.1.2-64-bit.exe for Win10

b VSC > File > preferences > settings: "git.path":"C:/Program Files/Git/cmd/git.exe", Restart VSC

**c Download a repository**

GitHub > New repository “Hello” (with Readme.md)

VSC > Terminal: ***git clone*** [***https://github.com/long-yong/【Hello】.git***](https://github.com/long-yong/【Hello】.git) VCS > open cloned folder ***git checkout master (or Bx)***

VSC > add or edit files > Stage all changes > Commit to local (Input comment) > push to remote

d [**Upload a new item**](https://www.cnblogs.com/lihuijuan/p/8556914.html)

VSC >New and open folder Hello > add files > Initiate local repository > Stage changes > Commit to local (input comment)

Github: New Hello repository

Cmd: *git remote add origin* [*https://github.com/long-yong/hello.git*](https://github.com/long-yong/hello.git)

VSC > git > publish branch  
VCS > git > push

e dir branch: ***git branch (-r remote or -a all)*** new branch: ***git branch Bx***

f delete branch: ***git branch -d (-D) Bx*** del remote branch: ***git branch -r -d(-D) origin/Bx*** ***git push origin :Bx***

g merge branch: ***git checkout Bx1*** ***git merge Bx2***

h view log: ***git log*** checkout log: ***git checkout IDnum***

i add new files or folders: ***copy files or folders to current project and******delete followed git folders***

j files excluded by git: ***new .gitignore to current project root***

**1.6** [**Responsible Web Design (RWD)**](https://www.w3schools.com/css/css_rwd_intro.asp)[**cn**](http://www.w3school.com.cn/html/html_responsive.asp)[**cn2**](https://www.cnblogs.com/wangxinsheng/articles/3851223.html)[**Bootstrap**](http://www.runoob.com/bootstrap/bootstrap-intro.html)

***Breakpoints, Units, &*** [***Media Queries***](https://www.w3schools.com/css/css_rwd_mediaqueries.asp)

***Basics to Typesetting & Scaling***

***Cross-device RWD***

***Grid System, Fluid Grids, & Adaptive Layouts***

***Intro to CSS Frameworks***

***Responsive Typography***

***Using CSS Reset & Boilerpoint***

**1.7** [**Balsamiq mockups**](https://www.youtube.com/watch?v=pBYAigOvD7w)[**cn**](https://blog.csdn.net/qq_32962727/article/details/58181513)[**应用概述**](http://wiki.jikexueyuan.com/project/balsamiq-mockups-doc/application-overview.html)[**完全手册**](http://www.hanjunxing.com/balsamiq-mockups-one-for-all)[**20个步骤**](https://wenku.baidu.com/view/b860b9b576eeaeaad0f33006.html)

***Intro to Wireframes***

***Importance of Wireframes***

***Intro to Balsamiq & How to Use It***

**1.8** [**Bootstrap**](https://www.w3schools.com/bootstrap/default.asp)[**cn**](http://www.runoob.com/bootstrap/bootstrap-tutorial.html)[**c3**](https://www.w3cschool.cn/bootstrap/)

***Intro to Bootstrap\****

***<!-- Latest compiled and minified CSS -->  
<link rel="stylesheet" href="https://maxcdn.bootstrapcdn.com/bootstrap/3.3.7/css/bootstrap.min.css">  
<!-- jQuery library -->  
<script src="https://ajax.googleapis.com/ajax/libs/jquery/3.3.1/jquery.min.js"></script>  
<!-- Latest compiled JavaScript -->  
<script src="https://maxcdn.bootstrapcdn.com/bootstrap/3.3.7/js/bootstrap.min.js"></script>***

<meta name="viewport" content="width=device-width,initial-scale=1">

<link rel="stylesheet" href="include/bootstrap4.css" type="text/css">

<link rel="stylesheet" href="style.css" type="text/css">

<script src="include/jquery3.js"></script>

<script src="include/bootstrap4.js"></script>

**1.9** [**LESS & SASS (for css)**](https://www.youtube.com/watch?v=82Yb4YDWUTs&list=PL4DA73D68F0080AD4)[**cn**](https://blog.csdn.net/qq_26878975/article/details/72817197)[**W3CS-LESS**](https://www.w3cschool.cn/less/)

**1.9.1** [**LESS**](https://www.w3cschool.cn/less/)

[安装NodeJS & LESS](https://www.w3cschool.cn/less/less_installation.html) [NPM(Network Power Manager)](https://www.runoob.com/nodejs/nodejs-npm.html)   
run node-v8.11.3-x64.msi  
cmd: npm install -g less  
lessc style.less style.css

**1.9.2**  [**SASS**](https://www.w3cschool.cn/sass/)

[**Ruby安装**](https://blog.csdn.net/u014182411/article/details/77319639)  [gem](https://blog.csdn.net/u014621915/article/details/62221705)[SASS**安装和应用**](https://www.w3cschool.cn/sass/sass_installation.html) install rubyinstaller-2.4.4-1-x64.exe  
 cmd: gem install sass  
 sass --watch style.scss:style.css (style.css auto updating)

**1.9.3 Optional Frameworks**

**1.9.4 UI Assets and UI tools**

*UI/UX Design Assets are particular resources used in UI and UX . UI design assets are color palettes(codes), styles, icons, fonts, images, animation, audio, video and each and every elements that are used in visual design techniques. UX Design assets are project requirement analysis document, project scope research, Wireframing, Design data flowcharts, design mockups, Prototyping, and other elements used in UX design process. 客户端Web框架（特别包括Bootstrap）, 网格、自适应设计、Bootstrap CSS、JavaScript组件。还应了解NodeJS、NPM，以及Bower、Grunt、Gulp、Yeoman等Web工具。*

1.9.5 [Eclipse 安装](https://www.w3cschool.cn/eclipse/eclipse-install.html)[**开发JS**](https://www.youtube.com/watch?v=Fsnna6mmg5M)[**开发 Java**](https://www.youtube.com/watch?v=xO5DpU2j-WE)[添加Web和Tomcat开发插件](https://blog.csdn.net/zhangzihua789/article/details/54293514)

[**IDE for JavaScript**](https://www.youtube.com/watch?v=Fsnna6mmg5M)**:** *including JavaScript, HTML, CSS, XML languages support, Git client, and Mylyn.  
Git integration for Eclipse; JavaScript Development Tools; Mylyn Task List; Remote System Explorer; Eclipse XML Editors and Tools*

*将 .zip文件展开即可*[**IDE for java**:](https://www.youtube.com/watch?v=PS-IGzBMboQ) *including a Java IDE, a CVS client, Git client, XML Editor, Mylyn, Maven integration and WindowBuilder,*

*Code Recommenders Developer Tools ; Eclipse EGit; Eclipse Java Development Tools; Maven Integration for Eclipse; Mylyn Task List; WindowBuilder Core; Eclipse XML Editors and Tools*

*检查插件 (Eclipse Web Development Tools, Javascript Development Tools, Web page editor );*

**Eclipse for java 安装、运行、**[**调试**](https://www.youtube.com/watch?v=7oQz1Ja1H08)**: (F5刷新网页)**

*1 复制和展开.zip文件到c:\Ecvlipse\_Java*

*2. 启动 Eclipse, 指定缺省目录, 新建 Web Project “test和index.html.*

*3. Set “http preview” as run server ”(自动复制支持文件), 选择JavaScript Debug Toolkit for debug server.*

[**Static Web Project**](https://www.cnblogs.com/fanbi/p/7209601.html) **&** [Dynamic Web Project](https://www.cnblogs.com/double-s/p/7827734.html)  
*如果你想建立的工程呢个不包括动态内容如：（servlets、JSP files、filters 和 ssoicated metadata）的话，建立static Web Project，否则建立dynamic Web Project. 由此可见，动态Web就是包含有动态数据能跟数据库交互的Web项目，确实与静态网站相左.*

[**Eclipse Install Git Plugin**](https://blog.csdn.net/qqqqqq654/article/details/54141104)[**中1**](https://www.cnblogs.com/eRrsr/p/5916245.html)[Add: Web & Tomcat Plugins](https://blog.csdn.net/zhangzihua789/article/details/54293514)*Eclipse->Help->Install New Software->Work with-> Egit 输入插件名和网址  
插件：Egit 下载地址：*[***http://download.eclipse.org/egit/updates***](http://download.eclipse.org/egit/updates) *安装全部git插件 （Basic, experimental, Java）后重启eclipse 再安装web插件*

*Help > Install software > location:* ***http://download.eclipse.org/releases/neon*** *> Web, XML, Java EE and OSGi Enterprise Development*

*add: 1.Eclipse Java EE Developer Tools 2.Eclipse Java Web Developer Tools 3.Eclipse Web Developer Tools 4.Eclipse XML Editors and Tools*

**2.0** [**计算机端口**](https://blog.csdn.net/freeking101/article/details/70174350)[**端口详解和工具**](https://blog.csdn.net/freeking101/article/details/70174350) *按端口号可分为3大类：   
（1）公认端口（Well Known Ports）：从0到1023，它们紧密绑定（binding）于一些服务。通常这些端口的通讯明确表明了某种服务的协议。例如：80端口实际上总是HTTP通讯。    
（2）注册端口（Registered Ports）：从1024到49151。它们松散地绑定于一些服务。也就是说有许多服务绑定于这些端口，这些端口同样用于许多其它目的。例如：许多系统处理动态端口从1024左右开始。    
（3）动态和/或私有端口（Dynamic and/or Private Ports）：从49152到65535。理论上，不应为服务分配这些端口。实际上，机器通常从1024起分配动态端口。但也有例外：SUN的RPC端口从32768开始。  
(4) 一种常见的技术是把一个端口重定向到另一个地址。例如默认的HTTP端口是80，不少人将它重定向到另一个端口，如8080。如果是这样改了，要访问本文就应改用这个地址http://wwd.3322*[*.NET*](http://lib.csdn.net/base/dotnet)*:8080/net/port.htm（当然，这仅仅是理论上的举例）  
(5) 在Internet上，按照协议类型分类，端口被分为TCP端口和UDP端口两类，虽然他们都用正整数标识，但这并不会引起歧义，比如TCP的80端口和UDP的80端口，因为数据报在标明端口的同时，还将标明端口的类型。* *如TCP的21（ftp），80（http），139（netbios），UDP的7（echo），69（tftp）等等一些大家熟知的端口；  
(5) 查看端口状态 netstat -an*

### 1.9.6 [underscore.js](http://www.css88.com/doc/underscore1.4.2/) JS编程功能函数库

**STK2 Python** [***(interprer language)***](https://blog.csdn.net/ztf312/article/details/53995636)

***2.1*** [***Python***](https://www.w3schools.com/python/default.asp)[***中1***](http://www.runoob.com/python/python-tutorial.html)[***中2***](http://python.jobbole.com/87465/)[***c3***](https://www.w3cschool.cn/python/)[***c3-phython3***](https://www.w3cschool.cn/python3/)[***py2 & py3***](https://www.cnblogs.com/hanggegege/p/5840005.html)[***CGI编程***](https://www.w3cschool.cn/python3/python3-cgi-programming.html)[***Web编程***](https://www.w3cschool.cn/python3/python3-socket.html)

***Intro to Python Creating Variables in Python Common Data Types & Best Practices Using Strings & Built-in String Functions List Creation & Manipulation***

***Using Tuples & Built-in Tuple Functions How to Use Dictionaries in Python Conditionals, Operators, & Nested Loops Constructing Functions in Python***

***2.2*** [***PYTHON OOP***](https://www.youtube.com/watch?v=SRu1GAfr3LA)[***中***](https://blog.csdn.net/qq_16912257/article/details/52888560)

***Creating Objects & Classes Adding Properties/Attributes to Classes Constructing & Adding Methods to Classes Chaining Methods & Using Magic Methods***

***How to Use Modules & Packages in Python Creating Multiple Objects Updating Methods with ‘Super’ Intro to Python Advanced Topics***

***How to Use Multiple Arguments Ternary Operators in Python Using Lambda Overriding Inheritance & Polymorphism Using Composition Over Inheritance***

[***Python Test Driven Deployment (TDD)***](https://www.youtube.com/watch?v=VOqcwrw8CVk)[***中***](https://www.cnblogs.com/fnng/p/5598546.html)***1*** [***中2***](https://www.csdn.net/article/2015-02-16/2823992-python)

***Unit Testing in Python & Outcomes How to Use Assertions Using TDD Methods: setUp & teardown (先写好测试部分，再开发)***

***2.3*** [***SQL***](https://www.w3schools.com/sql/default.asp) ***/*** [***MySQL***](https://www.w3schools.com/sql/sql_ref_mysql.asp)[***中***](https://www.cnblogs.com/ys-wuhan/p/5907909.html)[***c3***](https://www.w3cschool.cn/mysql/)[*区别*](https://www.cnblogs.com/tufujie/p/5071669.html)

***Intro to MySQL Database Design & Relationships Entity Relationship Diagrams (ERD) Database Normalization Intro to MySQL Workbench & Querying***

***Conventions & Common Data Types How to Use ERDs Using a Database with Your UI Recreating ERDs\****

***2.4*** [***Flask***](https://www.youtube.com/watch?v=mr90d7fp3SE)[***中1***](https://blog.csdn.net/langkew/article/details/51594880)[***中2***](https://blog.csdn.net/kangkanglou/article/details/79006501)

***Intro to Flask Routing in Flask Applications Building & Using Forms Rendering Templates & Views Delivering Static Content***

***The Different HTTP Methods Implementing Cookies & Sessions Hidden Inputs Form Validation Intro to Flask with MySQL***

***Import, Export, & Connect Your Database Connecting & Running Python Across Files Database Communication with Python***

***Data Validation with Python Encryption & Data Security Basics Using BCrypt for Encryption***

***2.5*** [***Ajax***](https://www.w3schools.com/js/js_ajax_intro.asp)[***Ajax-YouTube***](https://www.youtube.com/watch?v=tp3Gw-oWs2k)[***中***](http://www.runoob.com/ajax/ajax-tutorial.html)

***Ajax Requests Using Angular***

***2.6*** [***APIs***](https://www.youtube.com/watch?v=pxofwuWTs7c)[***中***](https://blog.csdn.net/JosephPai/article/details/76165570)

***2.7*** [***JQuery***](https://www.w3schools.com/jquery/default.asp)[***jQuery-Ajax***](https://www.w3schools.com/jquery/jquery_ajax_intro.asp)[***中***](http://www.w3school.com.cn/jquery/index.asp)

***2.8*** [***Django\_install***](https://www.youtube.com/watch?v=CHjXtRrhqxc)[***Django***](https://www.youtube.com/watch?v=FNQxxpM1yOs)[***中***](https://www.w3cschool.cn/django/)[***Flask 与 Django***](https://blog.csdn.net/tulan_xiaoxin/article/details/79132214)

***2.9*** [***PostgreSQL***](https://www.youtube.com/watch?v=jNq5EAb2biY)[***中1***](https://www.yiibai.com/postgresql/)[***中2***](https://www.cnblogs.com/xuchunlin/p/5620449.html)

1. ***Python Topics***

***2-1*** [***OOP in Python***](https://www.w3schools.in/python-tutorial/classes-objects/)[***Python-class***](https://www.w3schools.com/python/python_classes.asp)[***中***](https://blog.csdn.net/hermanncain/article/details/51003844)

***2-2*** [***SQL Queries & ERD Diagrams***](https://www.youtube.com/watch?v=WzKPYquQmfE)[***ERD training***](https://www.youtube.com/watch?v=-fQ-bRllhXc)[***中***](https://www.edrawsoft.com/cn/how-to-draw-database-model-diagram.php)[***ERD***](https://www.2cto.com/database/201508/427372.html)

***2-3*** [***Web Security Basics***](https://www.youtube.com/watch?v=EvutjoE4Kss)[***中***](https://blog.csdn.net/wchstrife/article/details/79659289)

***2-4*** [***CRUD Operations***](https://scotch.io/tutorials/build-a-crud-web-app-with-python-and-flask-part-one)[***中***](https://www.cnblogs.com/zhoujie/p/python16.html)

***2-5*** [***MVC Framework & Design Patterns***](https://djangobook.com/model-view-controller-design-pattern/)[***中1***](https://blog.csdn.net/julian197/article/details/79937119)[***中2***](https://www.cnblogs.com/chris-oil/p/6359901.html)

***2-6*** [***Application Deployment***](https://www.youtube.com/watch?v=voq4Mm58NY0)[***中1***](https://jingyan.baidu.com/article/456c463b41025f0a583144d2.html)[***中2***](https://blog.csdn.net/wwangjie/article/details/39453801)

*Tools:* [*Amazon Web Service EC2*](https://www.youtube.com/watch?v=6Rq8i_Sb1Ag)[*(中)*](http://justcoding.iteye.com/blog/2303432/)[*Linux Ubuntu*](https://tutorials.ubuntu.com/tutorial/tutorial-install-ubuntu-desktop#0)[*(中)*](https://www.linuxidc.com/Linux/2017-07/145646.htm)[*Gunicom & Nginx*](https://hostpresto.com/community/tutorials/deploy-flask-applications-with-gunicorn-and-nginx-on-ubuntu-14-04/) *(*[*中1*](https://www.jianshu.com/p/cdddc88f90cf?nomobile=yes)[*中2*](https://blog.csdn.net/laputa73/article/details/79174884)*),*

[*PostgresSQL*](http://www.1strategy.com/blog/2017/05/23/tutorial-django-elastic-beanstalk/) *(*[*中*](https://www.cnblogs.com/xuchunlin/p/5620449.html)*),* [*VitualEnv*](https://www.stavros.io/posts/developing-and-deploying-python-apps-using-pip-/)[*(中)*](https://blog.csdn.net/five3/article/details/46340401)*,* [*Git*](https://github.com/GrahamDumpleton/workshop-devconfcz-2016/blob/master/deploying-a-python-web-application.md)[*(中)*](https://blog.csdn.net/Jiajikang_jjk/article/details/79488362)*,* [*Custom Domains*](https://devcenter.heroku.com/categories/python-support)[*(部署Flask App到Heroku)*](https://blog.csdn.net/cancer94/article/details/54838871?utm_source=itdadao&utm_medium=referral)

***2-7*** [***Object Relational Mapper (ORMs)***](https://www.youtube.com/watch?v=ArIpzTF_o1k)[***中***](http://www.codeweblog.com/python-orms/)

***2-8*** [***Web Crawler***](https://www.youtube.com/watch?v=nRW90GASSXE)[***中***](https://blog.csdn.net/qiaolianjin/article/details/78336867)

***2-9*** [***Scaling Web Apps***](https://channel9.msdn.com/Events/TechEd/Europe/2014/DEV-B318)[***中***](https://www.csdn.net/article/2015-10-28/2826059)

***2-10 (***[***Pylot-MVC***](https://www.youtube.com/watch?v=yFVbnkp85t4)***)*** [***网站压力测试工具***](https://blog.csdn.net/hshl1214/article/details/52956358)

**2. Python3** [***(interprer language)***](https://blog.csdn.net/ztf312/article/details/53995636)

**2.1** [**Python**](https://www.w3schools.com/python/default.asp)[**中1**](http://www.runoob.com/python/python-tutorial.html)[**中2**](http://python.jobbole.com/87465/)[**c3**](https://www.w3cschool.cn/python/)[**c4**](https://www.w3cschool.cn/python3/)[**C5**](https://www.cnblogs.com/cbryge/p/6189291.html)[**PIP**](https://jingyan.baidu.com/article/466506583fec5af549e5f825.html)[**100例**](http://www.runoob.com/python/python-100-examples.html) [**Py2/Py3**](https://www.cnblogs.com/hanggegege/p/5840005.html)[**CGI编程**](https://www.w3cschool.cn/python3/python3-cgi-programming.html)[**Web编程**](https://www.w3cschool.cn/python3/python3-socket.html)

***Intro to Python*** [***(datatype and caculate)***](https://www.cnblogs.com/zhanmeiliang/p/5977168.html)

***Creating Variables in Python***

***Common Data Types & Best Practices***

***Using Strings & Built-in String Functions***

***List Creation & Manipulation***

***Using Tuples(元组) & Built-in Tuple Functions***

***How to Use Dictionaries in Python***

***Conditionals, Operators, & Nested Loops***

***Constructing Functions in Python***

***Python****函数* ***List = [1]\*100  
from functools import reduce***

***arr = [2, 18, 9, 22, 17, 24, 8, 12, 27]***

***print( list ( filter(lambda x: x % 3 == 0, arr)))***

***print( list ( map(lambda x: x\*2+10, arr)))***

***print( reduce ( lambda x, y: x + y, arr) )***

***Python*类**  
class cat:  
 def \_\_init\_\_(self, x, y ):  
 self.name = x  
 self.age = y  
 def show(self):  
 print(self.name, self.age)  
cat1 = cat('Moon',10)  
for key, val in cat1.\_\_dict\_\_.items():  
 print(key, val)

***Python*包 *from app1 import functions  
app1.functions.fun1() (wrong)***

***functions.fun1() (right)***

[***人脸识别:***](https://realpython.com/face-recognition-with-python/)[中1](https://www.cnblogs.com/warcraft/p/8145894.html)

[***相机侦测人脸***](https://realpython.com/face-detection-in-python-using-a-webcam/)

***Assignment: Facial Recognition  
Python has many great libraries. One great library is called OpenCV where you can do cool facial recognition tricks. Please take a few minutes to quickly go over the following two articles.  
Building a project with a simple facial recognition is not only fun, but with additional features, could be a solid project you could add to your portfolio. Note that you need to clone the codes in the Git repository (outlined in the tutorial) to access all the files needed in the tutorial.  
To install opencv, you may need to run： pip install opencv-python  
Successfully installed numpy-1.15.0 opencv-python-3.4.2.17  
You are using pip version 10.0.1, however version 18.0 is available.  
You should consider upgrading via the 'python -m pip install --upgrade pip' command.***

[***D3.JS library***](https://d3js.org/)

***great data visualization library. This makes great projects that stand out.***

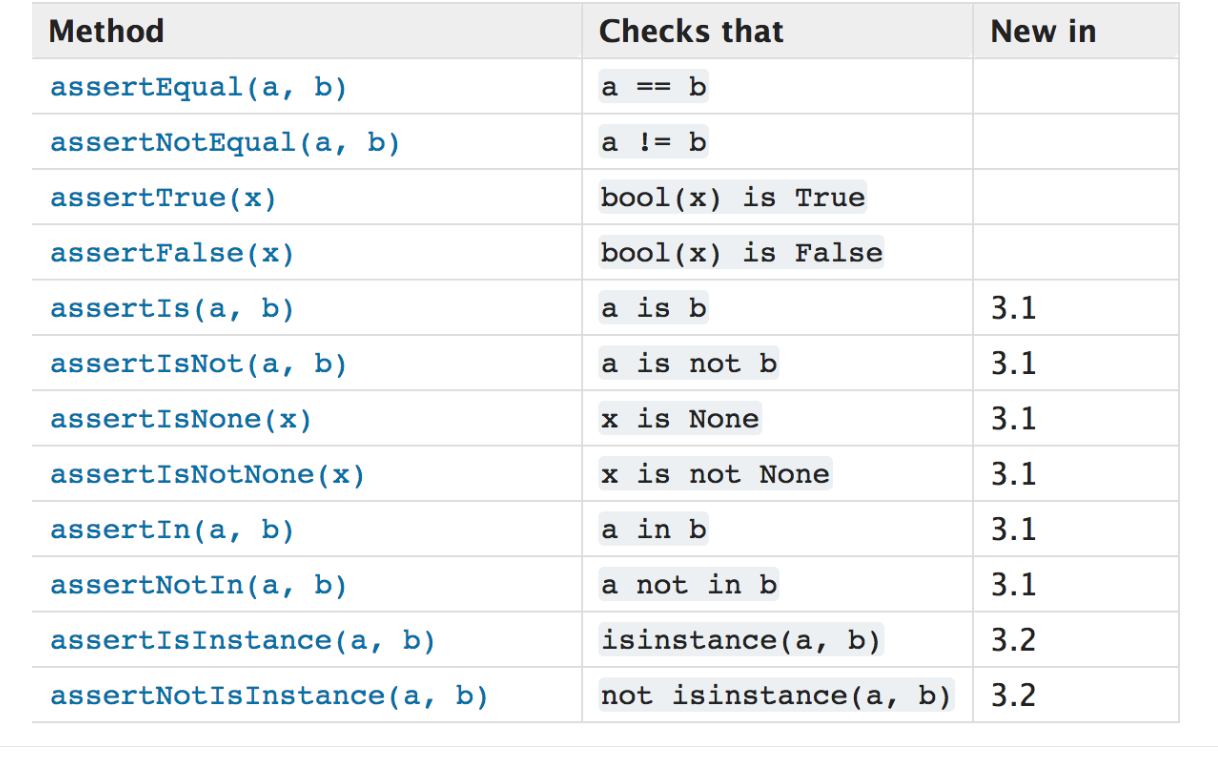
制作图表，柱形图，饼状图，地图，绑定数字和图形

[***selenium中的三种等待方式***](https://www.cnblogs.com/VseYoung/p/selenium_wait_3_python.html) ***（显示等待WebDriverWait()、隐式等待implicitly()、强制等待sleep()）---基于python***

**Python TDD (单元测试)  
*#source codes***

d***ef isEven(n):* *if n % 2 == 0: return True else: return False  
# test codes  
 import unittest  
 class IsEvenTests(unittest.TestCase):  
 def testTwo(self):  
 self.assertEqual(isEven(2), True)  
 self.assertTrue(isEven(2))  
 def testThree(self):  
 self.assertEqual(isEven(3), False)  
 self.assertFalse(isEven(3))  
 def setUp(self): print("running setUp")  
 def tearDown(self): print("running tearDown tasks")  
if \_\_name\_\_ == '\_\_main\_\_': unittest.main()***

TDD 函数

******

**2.2** [**PYTHON OOP**](https://www.youtube.com/watch?v=SRu1GAfr3LA)[**En**](http://www.runoob.com/python/python-object.html) [**中**](https://blog.csdn.net/qq_16912257/article/details/52888560)

***Creating Objects & Classes***

***Adding Properties/Attributes to Classes***

***Constructing & Adding Methods to Classes***

***Chaining Methods & Using Magic Methods***

***How to Use Modules & Packages in Python***

***Creating Multiple Objects***

***Updating Methods with ‘Super’***

***Intro to Python Advanced Topics***

***How to Use Multiple Arguments***

***Ternary Operators in Python 三元表达式 c = [b, a][a < b ] if(a<b) c=a else c=a***

***Using Lambda***

***Overriding Inheritance & Polymorphism***

***Using Composition Over Inheritance***

[***Python Test Driven Deployment (TDD)***](https://www.youtube.com/watch?v=VOqcwrw8CVk)[***中***](https://www.cnblogs.com/fnng/p/5598546.html)

***Unit Testing in Python & Outcomes***

***How to Use Assertions***

***Using TDD Methods: setUp & teardown***

**2.3** [**SQL**](https://www.w3schools.com/sql/default.asp) **/** [**MySQL**](https://www.w3schools.com/sql/sql_ref_mysql.asp)[**中**](https://www.cnblogs.com/ys-wuhan/p/5907909.html)[**c3**](https://www.w3cschool.cn/mysql/)[**mySql编程**](http://www.runoob.com/python/python-mysql.html)

*关系型数据库（数据可用*[*二维表格*](https://www.baidu.com/s?wd=%E4%BA%8C%E7%BB%B4%E8%A1%A8%E6%A0%BC&tn=SE_PcZhidaonwhc_ngpagmjz&rsv_dl=gh_pc_zhidao)*模式展示的数据库）如：oracle、sqlserver、db2、access、foxpro等。mysql是小型关系型数据库。  
Mongodb是非关系型数据库，优势用来存文档型数据，而*[*非结构化数据*](https://www.baidu.com/s?wd=%E9%9D%9E%E7%BB%93%E6%9E%84%E5%8C%96%E6%95%B0%E6%8D%AE&tn=SE_PcZhidaonwhc_ngpagmjz&rsv_dl=gh_pc_zhidao)*。适用于网站数据库。*

**2.3.1Intro to MySQL *事务（transaction txn), DBMS, ACID(Atomicity, Consistency, Isolation, Durability)*** *1.常见的中文编码  GB2312, BIG5. 大陆用GB2312, 香港台湾用BIG5.*

*2.默认开启端口3306.  Mysql语言组成:*

*1.数据定义语言(DDL) a) Create:创建数据库. b) Alter:对数据库进行修改. c) Drop:删除数据库.*

*2.数据操纵语言(DML) a) Select:检索. b) Insert:插入添加. c) Update:修改添加. d) Delete:删除.  
 3.数据控制语言(DCL) a) Grant:授权权限. b) Revoke:收回权限.*

[**MySql成功安装经验**](https://www.cnblogs.com/reyinever/p/8551977.html)[**MySql8文件**](https://yq.aliyun.com/articles/61286)[**基本操作**](https://blog.csdn.net/woshidamimi0/article/details/78424023)[**创建表**](https://blog.csdn.net/n_a_a_n/article/details/51463009)[**连接数据库**](https://blog.csdn.net/xiongchun11/article/details/64922619)[**SQL 命令**](http://www.w3school.com.cn/sql/index.asp)[**PyMySql 编程详解**](https://www.cnblogs.com/wt11/p/6141225.html)[卸载 mySQL](https://www.cnblogs.com/jpfss/p/6652701.html)

0. [下载Mysql自动安装程序自动安装](https://dev.mysql.com/downloads/windows/installer/8.0.html) mysql-installer-community-8.0.12.0.msi   
 MySQL 缺省安装时用户为’root’, 密码也为’root’。  
 \*.sql 文本复制到workbench时请用写字板打开复制，不要用其它editor 打开复制。  
 mysql 服务被意外中断后，可运行workbench 重新恢复

手动安装方法:

1. mySql download “[Windows (x86, 64-bit), ZIP Archive](https://dev.mysql.com/downloads/mysql/)” of web community

2．复制展开mySql压缩包 到C:\mysql8 新建空文件夹 c:\mysql8\data

3. 添加系统变量名: MYSQL\_HOME 变量值: C:\mysql8；在系统变量path中增加 %MYSQL\_HOME%\bin

修改环境变量方法：This PC->Properties->Advanced system setting->Environment variables

4. **(全程必须用管理员身份操作)** 初始化 mysqld --initialize-insecure --user=mysql

5. 安装mysql服务 mysqld -install；( 或复制my.ini到c:\mysql8\my.imi, 执行 mysqld -install mysql --defaults-file=c:/mysql8/my.ini )

其中的MySQL是安装服务器的名称，可以指定任何名称。安装完成后会提示下面的信息：Service successfully installed，即表示成功安装，安装成功后会在系统的服务组中添加该服务，在使用时只需要启动mySql即可。最小my.ini样本如下:  
[client] port=3306

[mysqld] basedir="c:/mysql8/" datadir="c:/mysql8/data/" port=3306 character-set-server=utf8

[mysql] default-character-set=utf8  
 6. (**管理员**)启动数据库net start mysql 关闭数据库net stop mysql 移除服务mysqld -remove mysql

登录: mysql -uroot -p (无密码直接回车, \q退出)  
 创建库create database test; 删除库drop database test; 使用库 use test; 查看库 show databases; 查看表 show tables;

创建表 create table tab1(name varchar(25),addr varchar(25)); 修改表名 rename table tab1 to tab2; 删除表 drop table tab2;   
 显示列 show columns from tab1 from test; 显示用户权限 show grants for user\_name; 显示线程 show processlist;

创建数据库: create database test; use test;

创建表: create table tab1(id int not null primary key auto\_increment, name varchar(20), age int);  
 添加字段 alter table test.tab1 add column `sports` varchar(50) null default 0  
 添加数据insert into test.tab1(id,addr,books) values ('4','6530','about dog')  
 7. [Pycharm 先连接 mySql, 然后安装PyMySql (MySqlDb)](http://www.runoob.com/python3/python3-mysql.html) 以便Python 3.7 (2.7) 使用该数据库接口编程  
 a. 安装python3.7-win64 (exist scripts/pip.exe) 和 Pycharm-win64

b. Pycharm 新建项目时设置 new virtual environment 目录为Py37选择翻译器为 python3.7 (或python2.7)  
 新建python文件 #!/usr/bin/env pytho -\*- coding:utf-8 -\*- import pymysql import mysqldb print ('\nHello!')   
 c. Setting->plugins->输入 database Navigator查找和安装 Database Navigator 插件   
 d. View->tool windows->db browser->用**【+】**按钮添加数据库连接-> mySql -> username(root)+password(空)  
 e. 在当前项目环境目录Py37/scripts/下用管理员身份，安装mysql接口 [pip install PyMySql (or MySqlDb)](http://www.runoob.com/python3/python3-mysql.html) [PyMySql 编程详解](https://www.cnblogs.com/wt11/p/6141225.html) [编程2](https://blog.csdn.net/tyt_xiaotao/article/details/80158248)

或者 Pycharm > File > Settings > Project > Project Interpreter >(double click) pip > (search) PyMysql 进行安装, 测试程序如下：

-- MySQL Script generated SCHEMA by MySQL Workbench  
-- Wed Aug 8 15:36:33 2018  
-- Model: New Model Version: 1.0  
-- MySQL Workbench Forward Engineering  
SET @OLD\_UNIQUE\_CHECKS=@@UNIQUE\_CHECKS, UNIQUE\_CHECKS=0;  
SET @OLD\_FOREIGN\_KEY\_CHECKS=@@FOREIGN\_KEY\_CHECKS, FOREIGN\_KEY\_CHECKS=0;  
SET @OLD\_SQL\_MODE=@@SQL\_MODE, SQL\_MODE='TRADITIONAL,ALLOW\_INVALID\_DATES';

CREATE SCHEMA IF NOT EXISTS `blogs` DEFAULT CHARACTER SET utf8 ;  
USE `blogs` ;

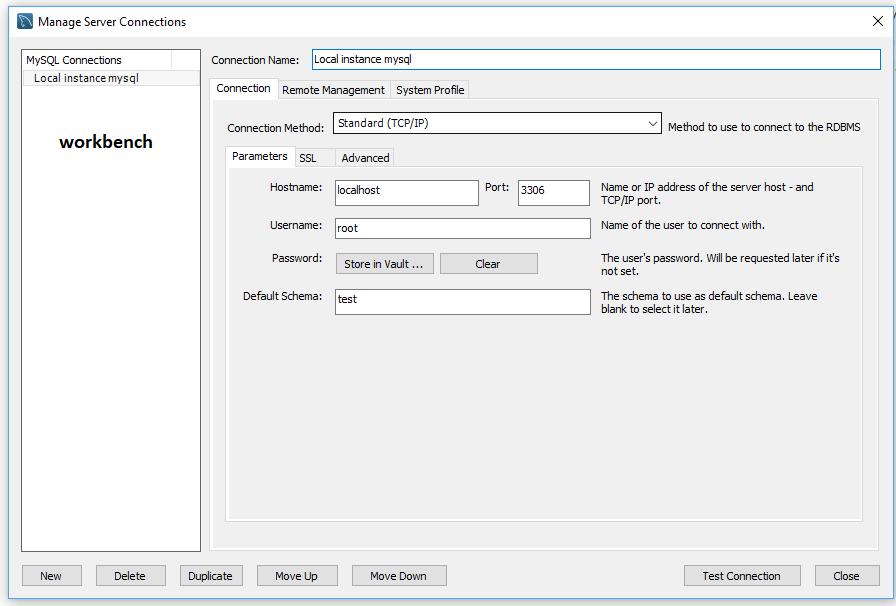
SET SQL\_MODE=@OLD\_SQL\_MODE;  
SET FOREIGN\_KEY\_CHECKS=@OLD\_FOREIGN\_KEY\_CHECKS;  
SET UNIQUE\_CHECKS=@OLD\_UNIQUE\_CHECKS;

#!/usr/bin/python3  
import pymysql  
#db = pymysql.connect("localhost", "root", "", "TEST");  
db = pymysql.connect(host='127.0.0.1', port=3306, user='root', passwd='', db='test', charset='utf8');  
cursor = db.cursor();  
cursor.execute("SELECT VERSION()"); data = cursor.fetchone(); print ("\nversion: %s" % data);  
data = cursor.executemany("insert into tab1(name,age)values(%s,%s)", [("ly","50")]); print("\ninsert returned: %s\n" % data);  
cursor.execute("select \* from tab1"); rows = cursor.fetchall(); print(rows);  
db.commit(); cursor.close(); db.close();  
 8. 一般mysql缺省设置只允许本地或内网连接，如需远程连接，需要登陆内网, [修改数据库设置](https://www.cnblogs.com/skyWings/p/5952795.html)  
 9. [Install mySql workbench](https://dev.mysql.com/doc/workbench/en/wb-windows.html?acf=1#add-comment)  > log in ([l.y@outlook.com](mailto:l.y@outlook.com) 109b)  
 10. ***visual paradism*** ***solve error “***[***invalid dadabase address***](https://dev.mysql.com/doc/refman/5.7/en/account-upgrades.html)*”( need to change new password type to the old type):   
 mysql> SELECT User, plugin FROM mysql.user;  
 mysql> UPDATE mysql.user SET plugin = 'mysql\_native\_password' WHERE User = 'root' AND plugin = 'caching\_sha2\_password';  
 mysql> FLUSH PRIVILEGES;*

*11. Workbench exist the problem* [*caching-sha2-password-cannot-be-loaded*](https://stackoverflow.com/questions/49194719/authentication-plugin-caching-sha2-password-cannot-be-loaded)[***solution method 2***](https://www.farces.com/wrestling-with-the-mysql-8-0-11-bear/) myini.ini under [mysqld] add a line: default\_authentication\_plugin=mysql\_native\_password

Then mysql: ALTER USER 'yourusername=root'@'localhost' IDENTIFIED WITH mysql\_native\_password BY 'youpassword=empty'

Workbench 连接 mysql8 设置



**Workbench 修改字体大小: edit > performance >font-size;**  
**Workbench 由 db model 生成数据库的过程：***open a model > File > export SQL  
script(set drop existed tables and schema)> next > next > copy script >*

*open mySql connection > paste script > rename SCHEMA > excute script*

**12 *Use “homebrew” to install MySQL.***

***brew install mysql***

***Use homebrew to start your MySQL Server as a "service", meaning it will run in the background and allow connections.***

***brew services start mysql***

***Now with MySQL installed, you have access to some new command line tools. Run the following command to set the MySQL root user's password to "root".***

***mysqladmin -u root password "root"***

***Connect to the sql server by typing: mysqladmin -u root -p***

Placeholder 占位符

query = "SELECT \* FROM users WHERE email = %(email)s;"

data = { 'email' : request.form['email'] }

result = mysql.query\_db(query, data)

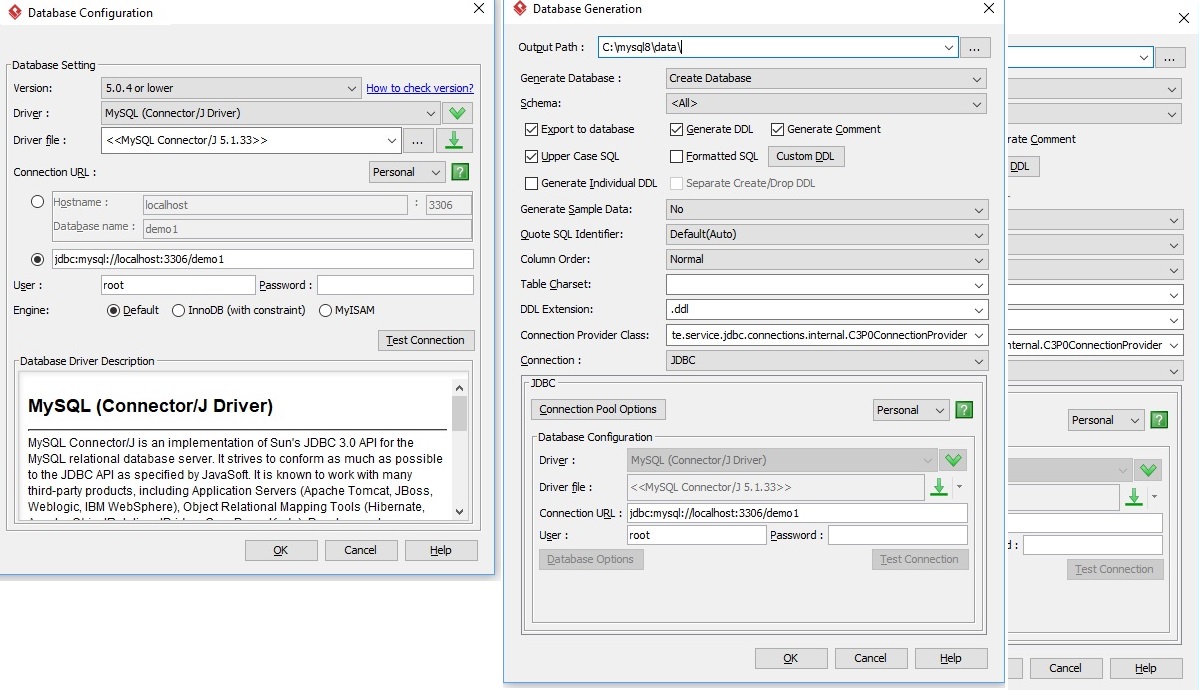
### [SQL中判断字符串中包含字符的方法](https://www.cnblogs.com/ziliudi/p/5359333.html) select \* from computers where id like ‘%100.2.3%’

[使用 jQuery 自动绘制饼图](https://canvasjs.com/jquery-charts/animated-chart/) <https://canvasjs.com/jquery-charts/animated-chart/>

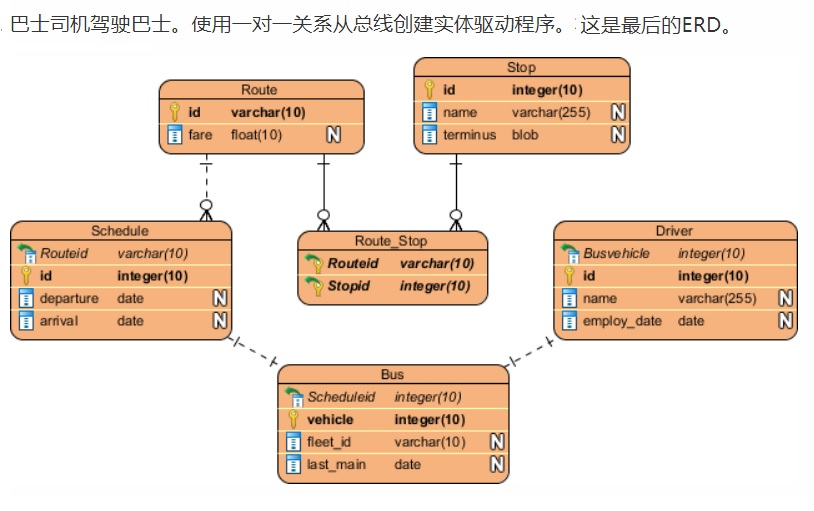
**2.3.2 Database Design & Relationships**[**中1**](http://www.cnblogs.com/pannengzhi/p/2017-05-28-relational-database-design.html)

**2.3.3** [**Entity Relationship Diagrams (ERD)**](https://www.visual-paradigm.com/cn/guide/data-modeling/what-is-entity-relationship-diagram/)   
 [Visual Paradigm YT](https://www.youtube.com/user/VisualParadigm/) [中1](https://blog.csdn.net/chktsang/article/details/78751075) [中2](https://blog.csdn.net/lk417748354/article/details/45889733) [YT2](https://www.youtube.com/watch?v=-fQ-bRllhXc) [Generate DB](https://www.visual-paradigm.com/support/documents/vpuserguide/3563/3587/85407_generatingda.html)  [mysql\_native\_password err](https://dev.mysql.com/doc/refman/5.7/en/account-upgrades.html)

New Project > Bus Route Management; Diagram > New > Entity Relationship Diagram; Select Entity；  
 Tool > DB >[Database Configuration](Database%20Configuration%20in%20Visual%20Paradigm) (Driver File input JDBC to auto download = <<MySQL Connector/J 5.1.33>>)  
 Tool > DB > [Genenate DataBase](Database%20Configuration%20in%20Visual%20Paradigm) [JDBC URL](https://www.cnblogs.com/wangshuo1/p/4783853.html) Mouse right > Utilities > Generate SQL  
  ***visual paradism solve error “***[***invalid dadabase address***](https://dev.mysql.com/doc/refman/5.7/en/account-upgrades.html)*”( need to change to old password type):   
 mysql> SELECT User, plugin FROM mysql.user;  
 mysql> UPDATE mysql.user SET plugin = 'mysql\_native\_password' WHERE User = 'root' AND plugin = 'caching\_sha2\_password';  
 mysql> FLUSH PRIVILEGES;*

According ERD to generate Database：

Visual Paradigm > Tools > DB > export mySql failed!!

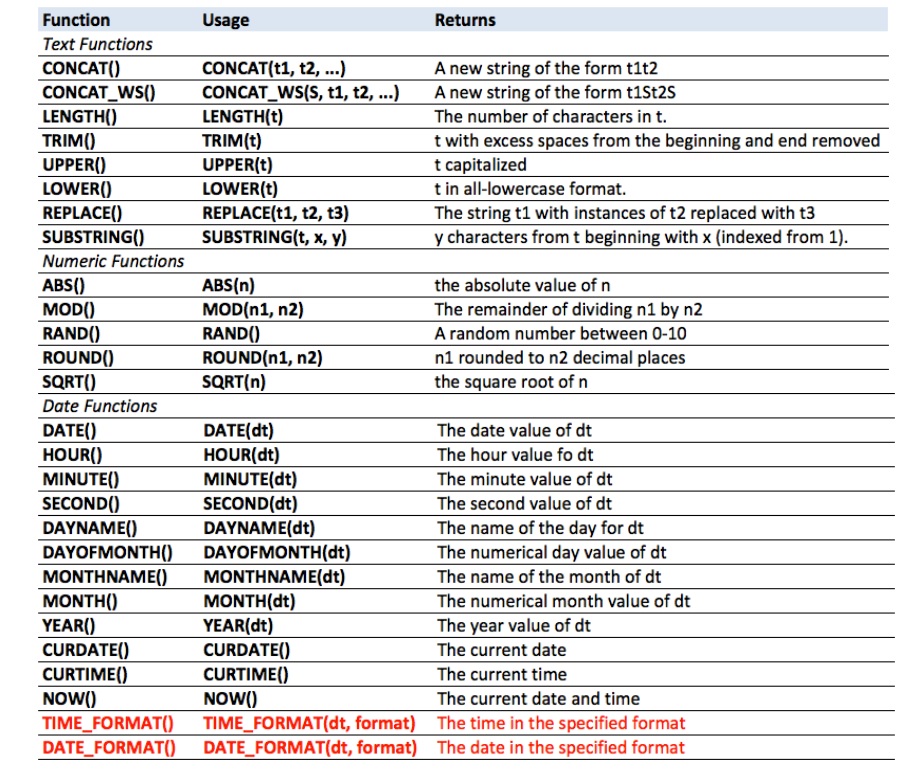


**2.3.4** [**Database Normalization**](https://www.cnblogs.com/tuhooo/p/8461532.html)[**数据库范式**](https://baike.baidu.com/item/%E6%95%B0%E6%8D%AE%E5%BA%93%E8%8C%83%E5%BC%8F/7309898?fr=aladdin)[**存储过程**](https://www.cnblogs.com/xiangzhong/p/5038338.html) **Sql syntax: *use twitter;*SELECT *SELECT \* FROM users WHERE first\_name='vince';  
select first\_name, last\_name from twitter.users where id>3;  
select \* from users where ?;  
WHERE first\_name LIKE "%e";  
ORDER BY birthday ASC;   
ORDER BY birthday DESC;  
WHERE first\_name LIKE "%e" ORDER BY birthday DESC;  
WHERE name IN ('Brazil', 'Russia', 'India', 'China');  
WHERE id BETWEEN 2 AND 4;*INSERT INTO**

***INSERT INTO table\_name (column\_name1, column\_name2) VALUES('column1\_value', 'column2\_value');  
 INSERT INTO twitter.users (first\_name,last\_name,created\_at) VALUES ('Yong','Long',NOW());***

**UPDATE**

***UPDATE twitter.users SET first\_name = 'Ping', last\_name=’Li’ WHERE id=19; ( if no where then every record changed);***

**DELETE FROM *DELETE FROM table\_name WHERE condition(s); ( if no where condition then delete all records on the table);*JOIN & LEFT JOIN  
*select \* from billing join clients where clients.id = billing.clients\_id;  
select \* from billing left join clients on clients.id = billing.clients\_id where clients.id=1***

***SQL Exercises:***

***1.***

***select name,language,percentage from countries join languages where countries.id=languages.country\_id and languages.language='Slovene' ORDER BY name DESC;***

***2.***

***SELECT country\_id, count(\*) FROM cities group by country\_id order by count(\*) DESC;***

***SELECT countries.name, count(\*) as cities FROM cities join countries where countries.id=cities.country\_id group by country\_id order by count(\*) DESC;***

***3.  
Select cities.name, cities.population FROM cities join countries where cities.country\_id=countries.id and countries.name='China' and cities.population>200000;***

***4.***

***Select countries.name, language, percentage from countries join languages where countries.id=languages.country\_id and percentage>89 order by percentage DESC;  
5.***

***Select name, surface\_area, population from countries where surface\_area<501 and population>100000***

***6.  
SELECT name, government\_form, capital, life\_expectancy from countries where government\_form='Constitutional Monarchy' and capital > 200 and life\_expectancy > 75 ;  
7.  
select countries.name, cities.name, district, cities.population from cities join countries where cities.country\_id=countries.id and countries.name='Argentina' and district='Buenos Aires' and cities.population>500000  
8.***

***select region, count(\*) from countries group by region order by count(\*) DESC;***

***电影演员多对多关系查询 中间表A, 主表B, 辅表C. 中间表A必须涵盖B和C的关联id.***

***select \* (B.film\_id,C. actor\_id)***

***from film\_actor A***

***left join film B on A.film\_id = B.film\_id***

***left join actor C on A.actor\_id = C.actor\_id***

***where C.actor\_id = 5***

**2.3.5 Intro to** [**MySQL Workbench**](https://www.youtube.com/watch?v=X_umYKqKaF0) **& Querying** [**中1**](https://dev.mysql.com/doc/workbench/en/wb-windows.html?acf=1#add-comment)

***h***

**2.3.6 Conventions & Common Data Types**

***h***

**2.3.7 How to Use ERDs**

***h***

**2.3.8 Using a Database with Your UI**

***h***

**2.3.9 Recreating ERDs\***

***h***

**2.4** [**Flask**](https://www.youtube.com/watch?v=mr90d7fp3SE)[**中1**](https://blog.csdn.net/liumiaocn/article/details/80720914)[**中2**](https://blog.csdn.net/langkew/article/details/51594880)[**简单Web**](https://blog.csdn.net/kangkanglou/article/details/79006501)[**原理**](https://blog.csdn.net/sunhuaqiang1/article/details/72808619)[**访问端口**](https://blog.csdn.net/San_South/article/details/80659919)[**Decorator**](http://python.jobbole.com/80956/)

**2.4.1 Intro to Flask   
 *安装 flask : > pip3 install flask (Python3 have installed script/pip3.exe)***

**当提交按钮post form to server, 不能使用 render 只能用 redirect**

[***基于Python-Flask实现的网站实例***](http://www.demodashi.com/demo/12380.html) ***(*** Python 3.6 + flask 0.12.2 + python第三方库 + bootstrap + ajax***)*** a**.**unzip TestingCenterWeb-master.zip

cd\\_dojo\python\TestingCenterWeb-master

path \\_dojo\python\py37\scripts

pip3 install -r requirements.txt

python manage.py deploy  
 python manage.py runserver --threaded  
 or IDE > edit config > Parametrs > runserver --threaded

to browser: http://127.0.0.1:5000

需使用编辑器(pycharm)打开config.py文件进行配置其中邮箱跟密码, 必须修改且打开邮箱smtp服务

[**Flask Jinjia**](http://www.bjhee.com/jinja2-statement.html)[**中1**](http://blog.sina.com.cn/s/blog_55646c980100yabg.html)[**中2**](http://www.pythontip.com/blog/post/5455/)[**中3**](https://blog.csdn.net/oonets334/article/details/7647892)

**{% set num = str1|int + str2|int %} {{ num }}**

**<td> <input type='text' id="email" name="email" value=*“*{{session['email']}} *”*></td>**

此时，使用 {{session['email']}} 必须外加引号，否则数据有空格时会丢失  
 另外，使用static 文件夹模板 "{{url\_for('static', filename='js/me.js')}}" 有缓存干扰问题。

Jinjia 使用的变量不能在JS中定义，只能在server 中当HTML的参数传入   
判断flash有没有内容：if '\_flashes' in session.keys(): return redirect("/")

***New /App.py & New /templates/pageX.html***

***from flask import Flask, render\_template***

***app = Flask(\_\_name\_\_)***

***@app.route('/')***

***def hello\_world():***

***return 'Hello World!'***

***@app.route('/page1')***

***def page1():***

***return render\_template('page1.html')***

***@app.route('/page/<string:para1>/')***

***def page(para1):***

***return render\_template('page.html', name=para1)***

***if \_\_name\_\_ == '\_\_main\_\_':***

***app.run()***

[**Flask templates**](https://blog.csdn.net/troysps/article/details/80466916)

**2.4.2 Routing in Flask Applications** [**multi-files route**](http://flask.pocoo.org/docs/1.0/patterns/lazyloading/)

***Flask 缺省使用5000端口进行监听  
Rendering Templates***

***Redirecting***

[***Form data***](https://www.cnblogs.com/alexkn/p/5027719.html)[中一](https://blog.csdn.net/kikaylee/article/details/53718964)

***GET & POST requests***

***Session***

**2.4.3 Building & Using Forms**

***h***

**2.4.4 Rendering Templates & Views**

***h***

**2.4.5 Delivering Static Content**

***h***

**2.4.6 The Different HTTP Methods**

***h***

**2.4.7 Implementing Cookies & Sessions**

***h***

**2.4.8 Hidden Inputs**

***h***

**2.4.9 Form Validation**

***h***

**2.4.10 Intro to Flask with MySQL**

***h***

**2.4.11 Import, Export, & Connect Your Database**

***h***

**2.4.12 Connecting & Running Python Across Files**

***h***

**2.4.13 Database Communication with Python**

***h***

**2.4.14 Data Validation with Python**

***h***

**2.4.15 Encryption & Data Security Basics**

***h***

**2.4.16 Using BCrypt for Encryption**

***h***

**2.5** [**Ajax**](https://www.w3schools.com/js/js_ajax_intro.asp)[**Ajax-YouTube**](https://www.youtube.com/watch?v=tp3Gw-oWs2k)[**中**](http://www.runoob.com/ajax/ajax-tutorial.html)

***Ajax Requests Using Angular***

**2.6** [**APIs**](https://www.youtube.com/watch?v=pxofwuWTs7c)[**中**](https://blog.csdn.net/JosephPai/article/details/76165570)

**2.7** [**JQuery**](https://www.w3schools.com/jquery/default.asp)[**jQuery-Ajax**](https://www.w3schools.com/jquery/jquery_ajax_intro.asp)[**中**](http://www.w3school.com.cn/jquery/index.asp)

**2.8** [**Django\_install**](https://www.youtube.com/watch?v=CHjXtRrhqxc)[**Django2开发**](https://www.youtube.com/watch?v=FNQxxpM1yOs)[**中**](https://www.w3cschool.cn/django/)[**Flask 与 Django**](https://blog.csdn.net/tulan_xiaoxin/article/details/79132214)[**Django app1**](https://blog.csdn.net/lzh_86/article/details/80545105)

*PyCharm Pro > New Django Project (auto install Django)* ***or pip install Django***

[*link db.sqlite3*](https://blog.csdn.net/qq_21182587/article/details/69573850)主App添加childApp：python manage.py startapp childApp[*使用Pycharm创建一个Django项目*](https://blog.csdn.net/potato012345/article/details/77053512?locationNum=1&fps=1)***1. new Django project***

***2. upright conner dj > edit config > run browser***

***3. new views.py***

*from django.shortcuts import render*

*from django.http import HttpResponse*

*def index(request):return HttpResponse("<h2>Hello, world!</h2>")*

*def page1(request):return render(request, "page1.html", locals())*

***4. edit urls.py***

*from django.contrib import admin*

*from django.urls import path*

*from . import views*

*urlpatterns = [*

*path('admin/', admin.site.urls),*

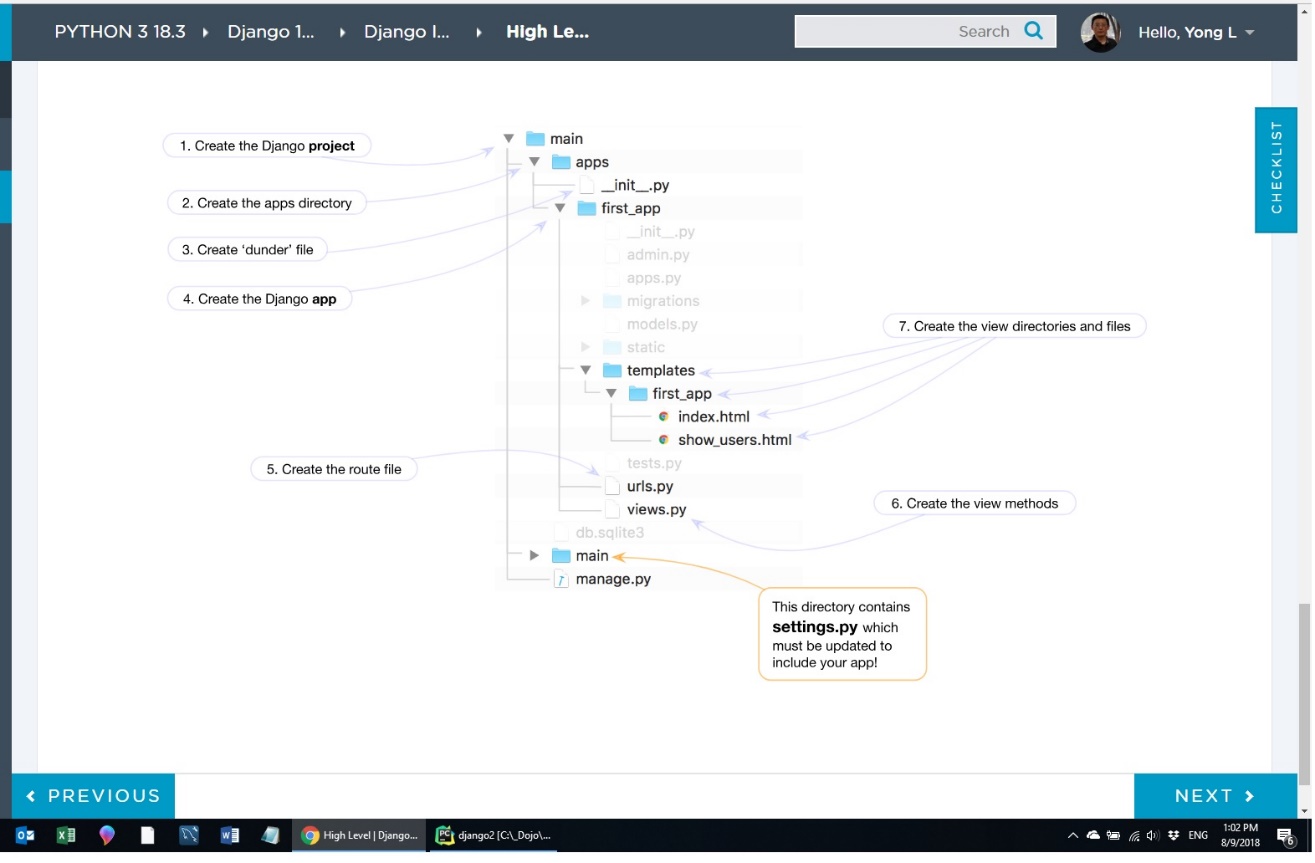
*path('',views.index, name='index'),*

*path('index',views.index, name='index'),*

*path('page1',views.page1, name='page1'),*

*]*

**Django 项目新建**

1. 新建Django主项目时产生一个 newapp 子项目
2. 运行**python manage.py migrate**
3. 复制 django2.app1 到 newapp
4. 

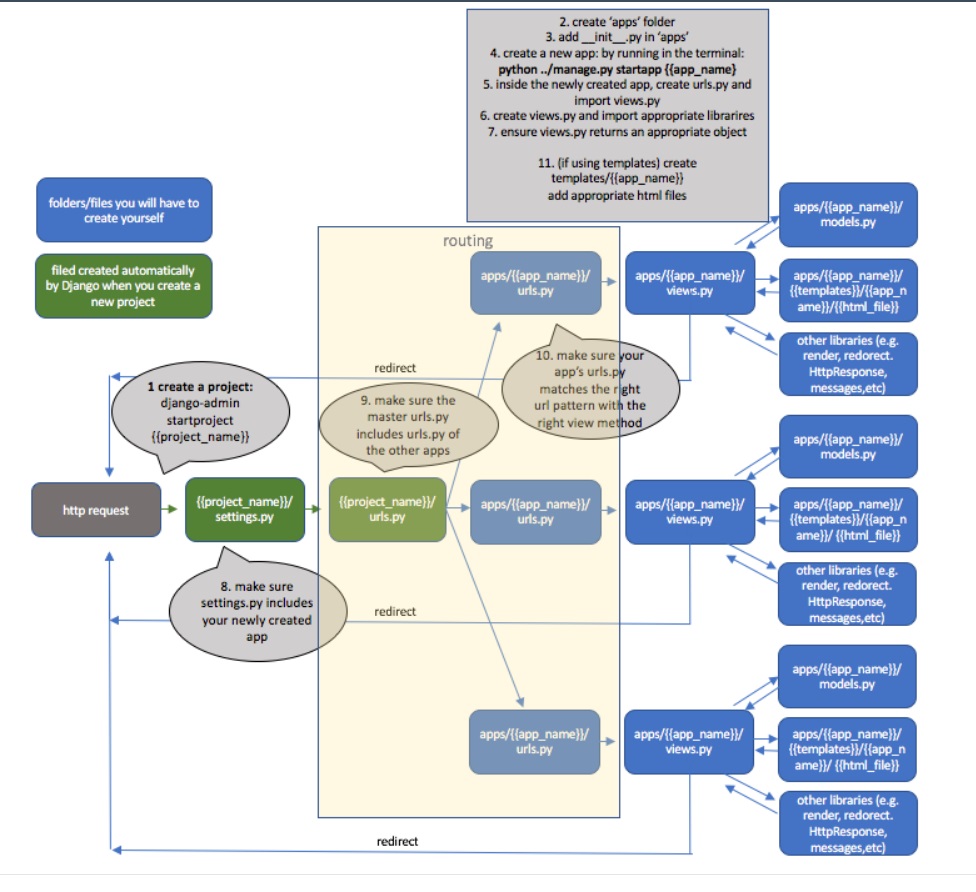
**Django apps下添加newapp 的步骤：先装密码加盐插件 pip install bcrypt  
 1. Copy app1 to newapp, chg < 2 > app1 dir newapp, clear newapp cache  
 2. settings < 1 > add newapp  
 3. django.urls < 1\*2 > add newapp  
 4. django.views < 1 > app1 chg to newapp  
 5. newapp.views < 5 > app1 chg to newapp  
 6. newapp 2 html < 10 > app1 chg to newapp  
 7. chg newapp style.css background-color to white, clear browser data buf  
 8. modify newapp models.py and delete newapp/migrations/000X\_auto\_X.py  
 9. CMD: python manage.py makemigrations / python manage.py migrate  
 10. RUN manage.py**

**新建的主项目 urls.py**  
from django.contrib import admin  
from django.urls import path  
from django.conf.urls import url, include  
from . import views  
urlpatterns = [  
path('', views.index, name='index'),  
path('index', views.index, name='index'),  
path('page1', views.page1, name='page1'),  
path('admin/', admin.site.urls),  
url(r'^app1/', include('apps.app1.urls')),  
url(r'^newapp/', include('apps.newapp.urls')),  
]  
**post {% csrf\_token %}**{% csrf\_token %} 可以Prevents cross-site request forgery   
(place it in a form on the HTML/template side of your project)  
Useful session methods:

* request.session['key']
  + This will retrieve (get) the value stored in key
* request.session['key'] = 'value'
  + Set the value that will be stored by key
* del request.session['key']
  + Deletes a session key if it exists, throws a keyError if it doesn’t. Use along with try and except since it’s better to ask for forgiveness than permission
* 'key' in request.session
  + Returns a boolean of whether a key is in session or not
* {{ request.session.name }}
  + Use dot notation (.) to access request.session keys from templates since square brackets ([]) aren’t allowed there

# [django session 和cookie的设置,获取和删除](https://blog.csdn.net/fanlei5458/article/details/80638355) 复制app1到 newapp时，应删除newapp 下的 appcache 在html中使用时只能用 {{ request.session.name }} 不能用 [name]

[Django 文件上传的几种方式](https://www.cnblogs.com/jishuweiwang/p/6140132.html)

******

## [Django中Settings中Templates的路径设置](https://www.cnblogs.com/haoshine/p/5391519.html) [中1](https://blog.csdn.net/u012734441/article/details/44724565) [中2](https://www.jianshu.com/p/1c7812751d9d)

[**Django 文件上传**](https://blog.csdn.net/jiangpf1992/article/details/49406879)

**App1 复制到 newapp 时， 需要清除clear windows cookies data 才能使 static**下newapp/**css/img/js 文件生效  
 *使用 route 传递参数时，post response 函数要检查 request.method ==’POST’以防骇客 hacking***

**Django shell** 交互环境:  **python manage.py shell**

[**Django-Model操作数据库(增删改查、连表结构**](https://www.cnblogs.com/yangmv/p/5327477.html)

# [Django Model field reference](https://docs.djangoproject.com/en/1.10/ref/models/fields/#field-types)

每次model.py 修改后,必须使用2个命令迁移更新数据库  
 **python manage.py makemigrations**

**python manage.py migrate**

由于我使用的是 Django 2.1小于2.2（pip list）, 需要对每个 ForeignKey 加 on\_delete

blog = models.ForeignKey(Blog, related\_name = "comments") 修改为:

blog = models.ForeignKey(Blog, related\_name = "comments", on\_delete="CASCADE")  
 否则出错：missing 1 required positional argument: 'on\_delete'  
[**如何有效的遍历django的QuerySet**](https://www.cnblogs.com/Tour/p/5028093.html) **Django shell** 操作 **>>> from apps.blogs.models import \***[**多对多关系表操作**](http://blog.51cto.com/830909/1766050)

[mysql 连接 django](https://www.cnblogs.com/yuyang26/p/7411269.html) [中1 pymysql](https://www.linuxidc.com/Linux/2017-10/147916.htm)   
1. pip install pymysql (server: sudo pip install pymysql)

1. create database django2

mysql -uroot -p; root

create database django2;

1. setting.py  
    DATABASES = {

'default': {

'ENGINE': 'django.db.backends.mysql',

'NAME': 'django2',

'HOST':'',

'PORT':'3306',

'USER':'root',

'PASSWORD':'root',

}

}

1. django2.\_\_init\_\_.py

import pymysql

pymysql.install\_as\_MySQLdb()

**2.9** [**PostgreSQL**](https://www.youtube.com/watch?v=jNq5EAb2biY)[**中1**](https://www.yiibai.com/postgresql/)[**中2**](https://www.cnblogs.com/xuchunlin/p/5620449.html)[Install PostgreSQL-en](http://www.postgresqltutorial.com/install-postgresql/)[Install PostgreSQL-cn](https://www.yiibai.com/postgresql/install-postgresql.html) [PostgreSQL/mySql](https://www.cnblogs.com/weapon-liu/p/7367772.html)

[***Stack builder***](https://blog.csdn.net/zengchaoyue/article/details/8165228) *(cancelled)* [***structure introduce***](https://blog.csdn.net/liguangxianbin/article/details/79563881)

***2.9.1* Install PostgresSql**[***Postgresql tutorial youtube ( & use query tool)***](https://www.enterprisedb.com/resources/webinars/how-create-postgres-database-using-pgadmin)[***Postgresql operation***](https://blog.csdn.net/wind520/article/details/78711718) ***download* postgresql-9.6.9-1-windows-x64.exe *> default install & password 102b < cancel stack builder  
 launch pgadmin4 > connect server  
 (No editing No changing) pgadmin4 > create database ‘test’ > create tables ‘tab1’ under schemas public >   
 create columns (id, name...) > (constrains) create primary key ‘ID’> (test) edit/view data***

***2.9.2*** [**PyCharm 连接PostGreSql 数据库**](https://blog.csdn.net/ETwise/article/details/43309025)[**中2**](https://blog.csdn.net/wangshuang1631/article/details/52253559/)[**Postgresql 数据库操作**](https://www.cnblogs.com/seeit/p/6138204.html) ***cmd: pip install psycopg2 DB Browser > add connection*#!/usr/bin/python3  
# coding=utf-8  
import psycopg2  
db = psycopg2.connect(database='test',user='postgres',password='10b10b',host='127.0.0.1',port='5432')  
cursor = db.cursor()  
cursor.execute("SELECT VERSION()")  
data = cursor.fetchone();  
print("\nversion: %s" % data);  
cursor.close()  
db.close()**

**2- Python Topics**

***2-1*** [***OOP in Python***](https://www.w3schools.in/python-tutorial/classes-objects/)[***Python-class***](https://www.w3schools.com/python/python_classes.asp)[**中**](https://blog.csdn.net/hermanncain/article/details/51003844)

***h***

***2-2*** [***SQL Queries & ERD Diagrams***](https://www.youtube.com/watch?v=WzKPYquQmfE)[***ERD training***](https://www.youtube.com/watch?v=-fQ-bRllhXc)[**中**](https://www.edrawsoft.com/cn/how-to-draw-database-model-diagram.php)[**ERD**](https://www.2cto.com/database/201508/427372.html)

***h***

***2-3*** [***Web Security Basics***](https://www.youtube.com/watch?v=EvutjoE4Kss)[**中**](https://blog.csdn.net/wchstrife/article/details/79659289)

***h***

***2-4*** [***CRUD Operations***](https://scotch.io/tutorials/build-a-crud-web-app-with-python-and-flask-part-one)[**中**](https://www.cnblogs.com/zhoujie/p/python16.html)

***h***

***2-5*** [***MVC Framework & Design Patterns***](https://djangobook.com/model-view-controller-design-pattern/)[***中1***](https://blog.csdn.net/julian197/article/details/79937119)[**中2**](https://www.cnblogs.com/chris-oil/p/6359901.html)

***h***

***2-6*** [***Application Deployment***](https://www.youtube.com/watch?v=voq4Mm58NY0)[***中1***](https://jingyan.baidu.com/article/456c463b41025f0a583144d2.html)[***中2***](https://blog.csdn.net/wwangjie/article/details/39453801)

*Tools:* [*Amazon Web Service EC2*](https://www.youtube.com/watch?v=6Rq8i_Sb1Ag)[*(中)*](http://justcoding.iteye.com/blog/2303432/)[*Linux Ubuntu*](https://tutorials.ubuntu.com/tutorial/tutorial-install-ubuntu-desktop#0)[*(中)*](https://www.linuxidc.com/Linux/2017-07/145646.htm)[*Gunicom & Nginx*](https://hostpresto.com/community/tutorials/deploy-flask-applications-with-gunicorn-and-nginx-on-ubuntu-14-04/) *(*[*中1*](https://www.jianshu.com/p/cdddc88f90cf?nomobile=yes)[*中2*](https://blog.csdn.net/laputa73/article/details/79174884)*),*

[*PostgresSQL*](http://www.1strategy.com/blog/2017/05/23/tutorial-django-elastic-beanstalk/) *(*[*中*](https://www.cnblogs.com/xuchunlin/p/5620449.html)*),* [*VitualEnv*](https://www.stavros.io/posts/developing-and-deploying-python-apps-using-pip-/)[*(中)*](https://blog.csdn.net/five3/article/details/46340401)*,* [*Git*](https://github.com/GrahamDumpleton/workshop-devconfcz-2016/blob/master/deploying-a-python-web-application.md)[*(中)*](https://blog.csdn.net/Jiajikang_jjk/article/details/79488362)*,* [*Custom Domains*](https://devcenter.heroku.com/categories/python-support)[*(部署Flask App到Heroku)*](https://blog.csdn.net/cancer94/article/details/54838871?utm_source=itdadao&utm_medium=referral)

***2-7*** [***Object Relational Mapper (ORMs)***](https://www.youtube.com/watch?v=ArIpzTF_o1k)[**中**](http://www.codeweblog.com/python-orms/)**1** [**中2**](https://www.cnblogs.com/sss4/p/7070942.html) ***Django之ORM操作  
 Django连接MySQL***

1. ***settings.py*** 改 [DATABASE], ] [LOGGING]
2. 主 **\_\_init\_\_py,**
3. **model.py 创建表**

## [进行数据迁移 如何用好Django 中的migration（迁移）功能 django数据库迁移是什么，是如何迁移的 python manage.py shell](https://blog.csdn.net/lanyang123456/article/details/78636391)[中1 中2](https://blog.csdn.net/lanyang123456/article/details/78636391)

***2-8*** [***Web Crawler***](https://www.youtube.com/watch?v=nRW90GASSXE)[**中**](https://blog.csdn.net/qiaolianjin/article/details/78336867)

***h***

***2-9*** [***Scaling Web Apps***](https://channel9.msdn.com/Events/TechEd/Europe/2014/DEV-B318)[**中**](https://www.csdn.net/article/2015-10-28/2826059)

***h***

**2-10 (**[**Pylot-MVC**](https://www.youtube.com/watch?v=yFVbnkp85t4)**)** [**网站压力测试工具**](https://blog.csdn.net/hshl1214/article/details/52956358)

# Django-AWS Deployment

# [nginx + unicorn 配置](https://blog.csdn.net/richar1/article/details/47400045)

**[做python Web开发要理解：WSGI & uwsgi](https://www.jianshu.com/p/679dee0a4193)**

client->AWS->NGINX-(WSGI)->Gunicorn(Green Corn)-(.sock)->App  
The Process Manager: Green Unicorn , AKA Gunicorn  
Usage: Restart the app automatically if it crashes.  
 Gain insights into runtime performance and resource consumption.  
 Modify settings dynamically to improve performance.  
 Load Balancing  
VIM Command Vim是一个类似于Vi的著名的功能强大、高度可定制的文本编辑器，VIM是自由软件。  
SSH ( Secure Shell)  
WSGI is what Python web apps use to connect to the web server (NGINX).  
using a certain implementation of a WSGI called Gunicorn (or Green Unicorn).  
When we set up Gunicorn, we create a .sock file.  
That .sock file is a UNIX domain socket that plugs Gunicorn into our app and NGINX.  
Once our Ubuntu server has everything it needs,  
There are three basic functions you will need to set up when you add Gunicorn to your project. To add this functionality, Gunicorn needs some instructions on how to do the following:  
Which socket to connect to

* What to do if a process fails
* How many workers to set up

Armed with these instructions, Gunicorn takes over the job of ensuring that your app keeps running if an error occurs, directing traffic to the appropriate port, and running concurrent processes. In short, Gunicorn makes sure your deployment server runs more smoothly.

产生项目安装文件: **cmd: pip freeze > requirementts.txt**创建 .gitignore ( .git/ venv/ .gitignore \*.pyc )  
项目上传 github   
SSh 连接远程 server  
VIM  
If you have used VIM before, skip to the next tab. VIM is a terminal based file editor. We will use it to change the necessary files in order to get our project running. In the following instructions, you'll be using the vimcommand to enter the editor. The vim command can be used either to edit existing files or create and open a new blank file. Once you have entered the editor interface, press i to enter INSERT mode. You should see –INSERT– at the bottom left corner of your terminal. Now use your arrow keys to move the cursor to where you want to edit and make your changes. Once you are done, press the esc key to exit INSERT mode. Type a colon to enter the vim command interface. You should now see a colon at the bottom left corner of your terminal. Now, type wq and press return to write (save) and quit. If you want to quit without saving, type q! after the colon. If you'd like to save without quitting, type w after the colon.  
  
2018-08-22 Django2 (app login) 在AWS EC2 Ubuntu 16.0.4   
**成功实施过程:  
--- AWS Cloud EC2 + Ubuntu 16.04 (free tier) ---**

***Create Instance -> review Instance -> Edit Security Groups -> SSH (My IP) + add rules ->***

***add HTTP (anywhere) -> add HTTPS (anywhere) -> Launch -> Create/Select Key Pair -> Review Instance***

***(public DNS) ec2-18-220-104-199.us-east-2.compute.amazonaws.com***

***(public ID) 18.220.104.199***

***(name) django2***

**---- project & github -----**

***pip freeze > requirements.txt  
 .gitignore \*.pyc venv/  
 Pycharm -> vcs -> import vc -> share to github***

**--- Django Deploy ---  
 Edit .ssh/config (related key pair file id\_rsa)  
 Host aws-djang2  
 HostName ec2-18-220-104-199.us-east-2.compute.amazonaws.com  
 IdentityFile ~/.ssh/id\_rsa  
 User ubuntu**

***$ ssh aws-django2  
 $ sudo apt-get update  
 $ sudo apt-get install python-pip python-dev nginx git.  
 $ sudo apt-get update  
 $ sudo pip install virtualenv  
 $ git clone*** [***https://github.com/long-yong/django2.git***](https://github.com/long-yong/django2.git) ***~/myRepoName$ virtualenv venv --python=python3  
 ~/myRepoName$ source venv/bin/activate  
 (venv)~/myRepoName$ pip install -r requirements.txt  
 (venv)~/myRepoName$ pip install django bcrypt django-extensions  
 (venv)~/myRepoName$ pip install gunicorn***

***Vim  
 (venv) ~/myRepoName$ cd {{projectName}}  
 (venv) ~/myRepoName/projectName$ sudo vim settings.py***

**DEBUG = False  
ALLOWED\_HOSTS = ['{{yourEC2.public.ip}}']  
# add the line below to the bottom of the file  
STATIC\_ROOT = os.path.join(BASE\_DIR, "static/")**

***# Say 'yes' to the dialogue box after typing this next command:  
 (venv) ~myRepoName$ python manage.py collectstatic  
 (venv) ~myRepoName$ gunicorn --bind 0.0.0.0:8000 {{projectName}}.wsgi:application***

***0 static files copied to '/home/ubuntu/django2/static', 123 unmodified.***

***(venv) ubuntu@ip-172-31-17-230:~/django2$ gunicorn --bind 0.0.0.0:8000 django2.wsgi:application  
 [2018-08-22 21:19:54 +0000] [18596] [INFO] Starting gunicorn 19.9.0  
 [2018-08-22 21:19:54 +0000] [18596] [INFO] Listening at: http://0.0.0.0:8000 (18596)  
 [2018-08-22 21:19:54 +0000] [18596] [INFO] Using worker: sync  
 [2018-08-22 21:19:54 +0000] [18599] [INFO] Booting worker with pid: 18599  
 to exit gunicorn process: ctrl-c***

***~myRepoName$ sudo vim /etc/systemd/system/gunicorn.service  
[Unit]  
Description=gunicorn daemon  
After=network.target  
[Service]  
User=ubuntu  
Group=www-data***

***WorkingDirectory=/home/ubuntu/{{repoName}}  
 ExecStart=/home/ubuntu/{{repoName}}/venv/bin/gunicorn --workers 3 --bind unix:/home/ubuntu/{{repoName}}/{{projectName}}.sock {{projectName}}.wsgi:application  
 [Install]  
 WantedBy=multi-user.target  
:qw***

***Quit virtual environment:  
 ~myRepoName$ cd  
 ~$ deactivate***

***Continue:  
 $ sudo systemctl daemon-reload  
 $ sudo systemctl start gunicorn  
 $ sudo systemctl enable gunicorn***

***Step 9 - Finally:  
We will remove the Nginx default site display from directory sites-enabled,   
by running the following in your terminal.  
 $ sudo rm /etc/nginx/sites-enabled/default***

***Now, all that is left to do is restart your Nginx server.  
 $ sudo service nginx restart  
 $ sudo systemctl enable gunicorn***

***One final file to edit:  
 $ sudo vim /etc/nginx/sites-available/{{projectName}}***

**server {  
 listen 80;  
 server\_name {{yourEC2.public.ip}};  
 location = /favicon.ico { access\_log off; log\_not\_found off; }  
 location /static/ {  
 root /home/ubuntu/{{myRepoName}};  
 }  
 location / {  
 include proxy\_params;  
 proxy\_pass http://unix:/home/ubuntu/{{myRepoName}}/{{projectName}}.sock;  
 }  
}  
*Save and exit.***

***Now in the terminal, run the following (taking note of the space after {{projectName}}):  
 ~$ sudo ln -s /etc/nginx/sites-available/{{projectName}} /etc/nginx/sites-enabled  
 ~$ sudo nginx -t  
on screen:   
nginx: the configuration file /etc/nginx/nginx.conf syntax is ok  
nginx: configuration file /etc/nginx/nginx.conf test is successful***

***Step 9 - Finally:  
 ~$ sudo rm /etc/nginx/sites-enabled/default  
 ~$ sudo service nginx restart***

***Go to Browser input AWS ip address: 18.220.104.199 will see Login website***

**Ajax and APP Source**[***openweathermap***](https://openweathermap.org/api)[***GitHub API***](https://developer.github.com/v3/)[***Google Maps Directions API***](https://developers.google.com/maps/documentation/directions/start)[*Twitter API*](https://developer.twitter.com/en/docs)[*Flickr API*](https://www.flickr.com/services/api/)

# [Django Tdd](https://blog.csdn.net/hjd199464/article/details/71210255) [Python必会的单元测试框架 — unittest](https://blog.csdn.net/huilan_same/article/details/52944782)

# django test基本操作

**在tests.py中，导入TestCase包 from django.test import TestCase  
创建测试类： class SimpleTest(TestCase):  
创建测试函数，必须以test\_开头 def test\_login(self):  
模拟客户端发送数据 c=Client(HTTP\_USER\_AGENT='Mozilla/5.0')  
response=c.post('/user/login/',{'username':'admin','password':'admin'})  
检查返回数据 self.assertEqual(response.status\_code, 200)   
运行 python manage.py test <app name>  
在测试中，加载预数据 导出原有数据库的数据  
python manage.py dumpdata > fixtures/admin.json  
在测试类中加载 fixtures = ['admin.json']  
在setting中设置Python fixtures的绝对路径 FIXTURE\_DIRS = ('/path/to/proj\_folder/fixtures/',)**

**STK4 JAVA STACK** [JDK](https://baike.baidu.com/item/jdk/1011) [***(compiled language JVM\_bytecode + JIT\_nativecode)***](https://blog.csdn.net/ztf312/article/details/53995636)

***4.1*** [***Java***](https://www.w3schools.in/java-tutorial/)[***W3SC-cn***](https://www.w3cschool.cn/java/)

***4.2*** [***Spring Tool Suite (STS)***](tps:/www.youtube.com/watch?v=GyCR5jRMLi8)[***W3SC-cn***](https://www.w3cschool.cn/wkspring/pesy1icl.html)[***中1***](https://blog.csdn.net/enson16855/article/details/71276105)[***中2***](https://yq.aliyun.com/articles/90876)

***4.3*** [***MySQL***](https://www.youtube.com/watch?v=BCqW5XwtJxY)[***en***](https://www.javatpoint.com/example-to-connect-to-the-mysql-database)[***中1***](http://www.runoob.com/java/java-mysql-connect.html)[***中2***](https://www.cnblogs.com/BobCoder/p/6381002.html?utm_source=itdadao&utm_medium=referral)

***4.4*** [***Spring Boot***](https://www.youtube.com/watch?v=PSP1-2cN7vM)[***W3CS-en***](https://www.w3cschool.cn/wkspring/)[***中1***](https://jingyan.baidu.com/article/7f41ecec25711c593d095cef.html)[***中2***](https://blog.csdn.net/liutong123987/article/details/79385513)

***4.5*** [***Spring Data-JPA***](https://spring.io/guides/gs/accessing-data-jpa/)[***中***](https://blog.csdn.net/itguangit/article/details/78748077)

***4.6*** [***Spring Secuity***](https://www.youtube.com/watch?v=Am0x4c_1KMc)[***W3CS-en***](https://www.w3cschool.cn/springsecurity/cdz11ihv.html)[***中***](http://www.importnew.com/20612.html)

***4.7*** [***Spring MVC***](https://www.youtube.com/watch?v=BkRZfxznaOo)[***中***](https://www.w3cschool.cn/wkspring/9pf81ha5.html)

## [*JSP(JavaServer Pages - Java Servlet)*](https://www.javatpoint.com/jsp-tutorial)[*中1*](https://www.yiibai.com/jsp/jsp_quick_guide.html)[*中2*](https://blog.csdn.net/free_kyy/article/details/1186051)

***4- Java Topics***

***4-1*** [***Basic Java***](https://www.w3schools.in/java-tutorial/)[***W3SC-cn***](https://www.w3cschool.cn/java/)

***4-2*** [***OOP***](https://www.ntu.edu.sg/home/ehchua/programming/java/J3a_OOPBasics.html)[***中***](https://www.cnblogs.com/AlanLee/p/6475334.html)

***4-3*** [***Concepts***](https://www.w3schools.in/java-tutorial/tokens/) [***中***](http://java.meritcampus.com/core-java-topics)

***4-4*** [***Pillars of OOP***](https://www.udemy.com/python-oops-beginners/)[***中***](https://www.cnblogs.com/silence-hust/p/4154257.html)

***4-5*** [***Creation of a model-view-controller***](https://www.youtube.com/watch?v=dTVVa2gfht8)[***中1***](http://www.runoob.com/design-pattern/mvc-pattern.html)[***中2***](https://www.oschina.net/news/94081/java-web-frameworks-compare)

***4-6*** [***With Servlets***](https://www.javatpoint.com/servlet-tutorial)[***中***](http://www.runoob.com/servlet/servlet-tutorial.html) ***,*** [***JSPs***](https://www.tutorialspoint.com/jsp/index.htm)[***W3CS-en***](https://www.w3cschool.cn/jsp/) ***, and*** [***Java Beans***](https://www.youtube.com/watch?v=6JZs8zJsyJE)[***中***](https://blog.csdn.net/hbuzhang/article/details/318857)

***4-7*** [***Spring Boot***](https://www.youtube.com/watch?v=PSP1-2cN7vM)[***W3CS-en***](https://www.w3cschool.cn/wkspring/)[***中1***](https://jingyan.baidu.com/article/7f41ecec25711c593d095cef.html)[***中2***](https://blog.csdn.net/liutong123987/article/details/79385513)

***4-8*** [***Spring Secuity***](https://www.youtube.com/watch?v=Am0x4c_1KMc)[***W3CS-en***](https://www.w3cschool.cn/springsecurity/cdz11ihv.html)[***中***](http://www.importnew.com/20612.html)

***4-9*** [***Multi-view web applications***](https://webix.com/widget/multiview/) [***中***](https://ask.helplib.com/dart/post_771650)

***4-10*** [***Restful API***](https://www.youtube.com/watch?v=7YcW25PHnAA)[***中***](https://blog.csdn.net/s164828378/article/details/51730205)

***4- 11*** [***Algorithms in JavaScript***](https://js-algorithms.tutorialhorizon.com/)[***en***](http://javascript-html5-tutorial.com/algorithms-and-data-structures-in-javascript.html)[***中***](https://www.cnblogs.com/createGod/p/6843350.html)

***4-12 class Contents***

***Basic Java***

***Object-oriented progamming concepts***

***Pillars of OOP***

***Creation of a model-view-controller with Servlets, JSPs, and Java Beans***

***Creating of a model-view-controller app with Spring Boot.***

***Creation of a login/registration with Spring Security.***

***Create multi-view web applications for create/read/update/delete scenarios such as eCommerce sites.***

***Creating of RESTful API.***

***Beginning computer algorithms, in JavaScript.\*\* Daily morning algorithms.***

***Week 1: Intro to Java, and rudimentary Java EE***

***Week 2: Spring Boot, Services, Repositories, Data Model and MySQL***

***Week 3: Creating model-view-controller applications, Authentication and Authorization with Spring***

***Security, and RESTful APIs***

***Week 4: Project Week, Belt exam preparation and Belt Exam***

**4 JAVA** [***(compiled language JVM\_bytecode + JIT\_nativecode)***](https://blog.csdn.net/ztf312/article/details/53995636)

**4.1** [**Java**](https://www.w3schools.in/java-tutorial/)[**W3SC-cn**](https://www.w3cschool.cn/java/)

**4.2** [**Spring Tool Suite (STS)**](tps:/www.youtube.com/watch?v=GyCR5jRMLi8)[**W3SC-cn**](https://www.w3cschool.cn/wkspring/pesy1icl.html)[**中1**](https://blog.csdn.net/enson16855/article/details/71276105)[**中2**](https://yq.aliyun.com/articles/90876)

**4.3** [**MySQL**](https://www.youtube.com/watch?v=BCqW5XwtJxY)[**en**](https://www.javatpoint.com/example-to-connect-to-the-mysql-database)[**中1**](http://www.runoob.com/java/java-mysql-connect.html)[**中2**](https://www.cnblogs.com/BobCoder/p/6381002.html?utm_source=itdadao&utm_medium=referral)

**4.4** [**Spring Boot**](https://www.youtube.com/watch?v=PSP1-2cN7vM)[**W3CS-en**](https://www.w3cschool.cn/wkspring/)[**中1**](https://jingyan.baidu.com/article/7f41ecec25711c593d095cef.html)[**中2**](https://blog.csdn.net/liutong123987/article/details/79385513)

**4.5** [**Spring Data-JPA**](https://spring.io/guides/gs/accessing-data-jpa/)[**中**](https://blog.csdn.net/itguangit/article/details/78748077)

**4.6** [**Spring Secuity**](https://www.youtube.com/watch?v=Am0x4c_1KMc)[**W3CS-en**](https://www.w3cschool.cn/springsecurity/cdz11ihv.html)[**中**](http://www.importnew.com/20612.html)

**4.7** [**Spring MVC**](https://www.youtube.com/watch?v=BkRZfxznaOo)[**中**](https://www.w3cschool.cn/wkspring/9pf81ha5.html)

## [JSP(JavaServer Pages - Java Servlet)](https://www.javatpoint.com/jsp-tutorial) [中1](https://www.yiibai.com/jsp/jsp_quick_guide.html) [中2](https://blog.csdn.net/free_kyy/article/details/1186051)

**4- Java Topics**

***4-1*** [***Basic Java***](https://www.w3schools.in/java-tutorial/)[**W3SC-cn**](https://www.w3cschool.cn/java/)

***4-2*** [***OOP***](https://www.ntu.edu.sg/home/ehchua/programming/java/J3a_OOPBasics.html)[**中**](https://www.cnblogs.com/AlanLee/p/6475334.html)

***4-3*** [***Concepts***](https://www.w3schools.in/java-tutorial/tokens/) [**中**](http://java.meritcampus.com/core-java-topics)

***4-4*** [***Pillars of OOP***](https://www.udemy.com/python-oops-beginners/)[**中**](https://www.cnblogs.com/silence-hust/p/4154257.html)

***4-5*** [***Creation of a model-view-controller***](https://www.youtube.com/watch?v=dTVVa2gfht8)[***中1***](http://www.runoob.com/design-pattern/mvc-pattern.html)[**中2**](https://www.oschina.net/news/94081/java-web-frameworks-compare)

***4-6*** [***With Servlets***](https://www.javatpoint.com/servlet-tutorial)[***中***](http://www.runoob.com/servlet/servlet-tutorial.html) ***,*** [***JSPs***](https://www.tutorialspoint.com/jsp/index.htm)[***W3CS-en***](https://www.w3cschool.cn/jsp/) ***, and*** [***Java Beans***](https://www.youtube.com/watch?v=6JZs8zJsyJE)[**中**](https://blog.csdn.net/hbuzhang/article/details/318857)

***4-7*** [**Spring Boot**](https://www.youtube.com/watch?v=PSP1-2cN7vM)[**W3CS-en**](https://www.w3cschool.cn/wkspring/)[**中1**](https://jingyan.baidu.com/article/7f41ecec25711c593d095cef.html)[**中2**](https://blog.csdn.net/liutong123987/article/details/79385513)

***4-8*** [**Spring Secuity**](https://www.youtube.com/watch?v=Am0x4c_1KMc)[**W3CS-en**](https://www.w3cschool.cn/springsecurity/cdz11ihv.html)[**中**](http://www.importnew.com/20612.html)

***4-9*** [***Multi-view web applications***](https://webix.com/widget/multiview/) [**中**](https://ask.helplib.com/dart/post_771650)

***4-10*** [***Restful API***](https://www.youtube.com/watch?v=7YcW25PHnAA)[**中**](https://blog.csdn.net/s164828378/article/details/51730205)

***4- 11*** [***Algorithms in JavaScript***](https://js-algorithms.tutorialhorizon.com/)[***en***](http://javascript-html5-tutorial.com/algorithms-and-data-structures-in-javascript.html)[**中**](https://www.cnblogs.com/createGod/p/6843350.html)

***4-12 class Contents***

***Basic Java***

***Object-oriented programming concepts***

***Pillars of OOP***

***Creation of a model-view-controller with Servlets, JSPs, and Java Beans***

***Creating of a model-view-controller app with Spring Boot.***

***Creation of a login/registration with Spring Security.***

***Create multi-view web applications for create/read/update/delete scenarios such as eCommerce sites.***

***Creating of RESTful API.***

***Beginning computer algorithms, in JavaScript.\*\* Daily morning algorithms.***

***Week 1: Intro to Java, and rudimentary Java EE***

***Week 2: Spring Boot, Services, Repositories, Data Model and MySQL***

***Week 3: Creating model-view-controller applications, Authentication and Authorization with Spring***

***Security, and RESTful APIs***

***Week 4: Project Week, Belt exam preparation and Belt Exam***

***Ctrl + CAPs + mouse multiple edit***

***Ctrl + Shift + Arrow moving lines***

JDK

[java.lang](https://baike.baidu.com/item/java.lang)： 这个是系统的基础类，比如String等都是这里面的，这个包是唯一一个可以不用引入(import)就可以使用的包。  
 java.io： 这里面是所有输入输出有关的类，比如文件操作等。

[java.nio](https://baike.baidu.com/item/java.nio)：为了完善io包中的功能，提高io包中性能而写的一个新包 ，例如NIO非堵塞应用

[java.net](https://baike.baidu.com/item/java.net): 这里面是与网络有关的类，比如URL，URLConnection等。

[java.util](https://baike.baidu.com/item/java.util)： 这个是系统辅助类，特别是集合类Collection，List，Map等。

[java.sql](https://baike.baidu.com/item/java.sql)： 这个是数据库操作的类，Connection， Statement，ResultSet等。

javax.servlet：这个是JSP，Servlet等使用到的类。

Java 类中修饰符缺省的是 friendly, 对package下的内可见。

[Java Applet](https://www.w3cschool.cn/java/java-applet-basics.html) [Java Export JAR](https://blog.csdn.net/fesdgasdgasdg/article/details/73556109)

| **Type** | **Size in Bytes** | **Range** |
| --- | --- | --- |
| byte | 1 byte | -128 to 127 |
| short | 2 bytes | -32,768 to 32,767 |
| int | 4 bytes | -2,147,483,648 to 2,147,483, 647 |
| long | 8 bytes | -9,223,372,036,854,775,808 to 9,223,372,036,854,775,807 |
| float | 4 bytes | approximately ±3.40282347E+38F |
| double | 8 bytes | approximately ±1.79769313486231570E+308 |
| char | 2 bytes | 0 to 65,536 |
| boolean | n/a | true of false |

## Primitive types vs Object types

8种原始类型: char, boolean, byte, short, int, long, float, double。  
8种包装类型: Character, Boolean, Byte, Short, Integer, Long, Float, Double (char,int的变化稍微大点)。

# [使用 IntelliJ IDEA 新建一个 Servlet 项目](https://blog.csdn.net/a376298333/article/details/79121548) 1. File > New > Project > Java > Web Application 2. Project name：FirstServlet 3. Src > New [servlet] file：HelloWorld.java 4. Add Tomcat Servlet lib: Project > Open Moudule Settings > Liberaries > Java > C:\Apache-Tomcat\_9.0.11\lib\servelet-api.jar 5. Edit HelloWorld.java 6. add web.xml <servlet-mapping> <servlet-name>HelloWorld</servlet-name> <url-pattern>/demo</url-pattern> </servlet-mapping> 7. Deploy Tomcat: Run Configuration > + Tomcat Server (Local) > Server > Project > Open Moudule Settings > artifacts > select ”show content of of element”>

# debug & run 8. http://localhost:8080/demo should view <Hello, First Servlet!>

# [使用IntelliJ IDEA配置Tomcat（入门）](https://www.cnblogs.com/Knowledge-has-no-limit/p/7240585.html)

# IntelliJ [idea 配置tomcat server](https://blog.csdn.net/sinat_28530913/article/details/80117186)

# [下载解压Apache Tomcat 9.0.11](http://tomcat.apache.org/) (STS配置Tomcat8.5更稳定) 设置window env variable: JAVA\_HOME C:\Program Files\Java\jdk-10.0.1 设置window env variable: JRE\_HOME C:\Program Files\Java\jre-10.0.1 startup.bat (启动tomcat:8080)/ shutdown.bat(关闭tomcat :8080) http://localhost:8080/ 显示 apache tomcat 即可

[***IntellIJ IDEA 配置 Maven 以及 修改 默认 Repository***](https://www.cnblogs.com/phpdragon/p/7216626.html)

### [架构师之STS---------sts配置jsp和文件的编码](http://nannan408.iteye.com/blog/2235564)

**STS 新建 Servlet 项目 (for each project by instructor)**STS > New > Other > Dynamic Web Project > DynamicWebServlet > open Perspective  
DynamicWebServlet > new > Servlet (or Other) > package: com.yong.web/class name:HelloWorld > Finish

DynamicWebServlet > Build Path > Configure Build Path > DynamicWebServlet/WebContent/WEB-INF/classes > Apply  
Change HelloWorld doGet as following and Ctrl+Shift+O for automatic import lib for PrintWriter  
**protected** **void** doGet(HttpServletRequest request, HttpServletResponse response) **throws** ServletException, IOException {

response.setContentType("text/html");

PrintWriter out = response.getWriter();

out.write("<h1>Hello World!!</h1>");

}

Run DynamicWebServlet as on server & Set Comcat\_Appache ( or Pivotel )as the web server  
View at STS’s browser for”Hello world!”, then view at <http://localhost:8080/DynamicWebServlet/HelloWorld>

# STS 新建 MVC 项目 MvcSetup *STS 更改默认工程路径 File > Switch Workplace*

*CSS 文件不能与. JSP在同一目录. 因为WEB-INF是被保护目录. CSS应放在WEB-Content/res, href=”res/style.css”**复制安装* [*JSTL-1.2.jar*](http://central.maven.org/maven2/javax/servlet/jstl/1.2/jstl-1.2.jar) *to Tomcat-9.0.11/lib* 以便在 .jsp 中使用 JSTL*注意：Build Path 必须使用缺省路径, 此时 request.getRequestDispatcher("/WEB-INF/showPerson.jsp ");  
URL: http://localhost:8080/MvcSetup/ShowPerson?name=yong&age=50*

New > Dynamic Web Project > MvcSetup

src > new > Class > com.yong.web.models.Person.java

public class Person { Person(name, age); public String greeting() { return “Hell”; } }  
src > new > Servlet > com.yong.web.controllers.ShowPerson.java

public void doGet(……) {

String name = request.getParameter("name");

int age = Integer.parseInt(request.getParameter("age"));

Person person = new Person(name, age);

request.setAttribute("person", person);

RequestDispatcher view = request.getRequestDispatcher("/WEB-INF/showPerson.jsp");

view.forward(request, response);

}

WebContent/WEB-INF > new > showPerson.jsp (大小写敏感)  
用于JSP: <%@ page language="java" contentType="text/html; …… import="com.yong.web.models.Person"%> <!DOCTYPE html>  
 <body> <% Person person = (Person) request.getAttribute("person"); %> <%=person.greeting()%> </body>

用于JSTL: <%@ taglib prefix="c" uri="http://java.sun.com/jsp/jstl/core" %> <!DOCTYPE html>  
 <body> <c:out value="${person.greeting()}"/> </body>

或JSP与JSTL并用 [JSTL-1](https://docs.oracle.com/javaee/5/jstl/1.1/docs/tlddocs/) [JSTL-2](https://jcp.org/aboutJava/communityprocess/mrel/jsr052/index2.html)

JSTL遍历数组方法: <c:forEach var="person" items="${persons}"> <c:out value="${person.name}"/> </c:forEach>

# [Eclipse Install Spring Tool Suite](https://blog.csdn.net/q649381130/article/details/77875736) [Spring Tool Suite](https://spring.io/tools/sts/all/) Update

1. Eclipse > Help > Eclipse MarketPlace > STS > Install All
2. Eclipse > Help > Install New Software > <http://download.springsource.com/release/TOOLS/update/e4.7/>

# [Installing Apache Maven](http://maven.apache.org/install.html)

# [使用Intellij创建第一个Springboot程序](https://blog.csdn.net/zaq12346zaqwsx/article/details/63337519) 访问http://127.0.0.1:8080/hello Tomcat initialized with port(s): 8080 (http) Starting Servlet Engine: Apache Tomcat/8.5.32 The APR based Apache Tomcat Native library Initializing Spring embedded WebApplicationContext Servlet dispatcherServlet mapped Registering beans for JMX exposure on startup

Eclipse 连接 Github  
Windows > Preferences > Team > Git > Configuration > user.nam, user.email  
Window > Preferences > Team > Git > committing > (disable) use staging view to commit  
git clone <http://github.com/long-yong/project.git>  
New project > team > (after init) commit and push

# [Setting up JUnit with IntelliJ IDEA](https://stackoverflow.com/questions/19330832/setting-up-junit-with-intellij-idea)

1. 在@Test上按Alt+Enter对本项目添加 Junit 5.0插件
2. 在src上按右键Mark Directory as Source Root. 新建test 目录, Mark test as Test Source Root
3. 不能使用主菜单的 run/debug 运行test, 只能Run鼠标点中的test包、test类、test方法。
4. 测试类实例化对象时加static修饰符，可以在测试函数调用前先实例化。

**单独安装Spring Tool Suite / STS IDE**下载最新STS 3.9.5, 解压复制到工作盘，运行 C:\sts-bundle\sts-3.9.5.RELEASE\STS.exe 即可

[Java 字符串方法](https://blog.csdn.net/qq_36084640/article/details/79342836#%E8%8E%B7%E5%8F%96%E6%8C%87%E5%AE%9A%E7%B4%A2%E5%BC%95%E4%BD%8D%E7%BD%AE%E7%9A%84%E5%AD%97%E7%AC%A6)

[**Arrays**](https://docs.oracle.com/javase/tutorial/java/nutsandbolts/arrays.html)  
anArray = new int[10]; int[] anArray = { 100, 200, 300, 400, 500, 600 };  
String[][] names = { {"Mr. ", "Mrs. ", "Ms. "}, {"Smith", "Jones"} };  
System.arraycopy(copyFrom, 2, copyTo, 0, 7);  
char[] copyTo = java.util.Arrays.copyOfRange(copyFrom, 2, 9);

[**ArrayList**](https://docs.oracle.com/javase/8/docs/api/java/util/ArrayList.html) add, clear, clone, contains, get, indexOf, isEmpty, remove, size.

import java.util.ArrayList; ArrayList<Object> list = new ArrayList<Object>();  
list.add(10); list.add("Hello"); list.add(new ArrayList<Integer>()); list.add(new Double(12.0));

**ArrayList copyto Array**Int32[] values = (Int32[])List.ToArray(typeof(Int32));Int32[] values = new Int32[List.Count]; List.CopyTo(values);   
object[] values = List.ToArray(typeof(object)); //正确  
string[] values = (string[])List.ToArray(typeof(string)); //错误

You can do a quite a bit more with HashMaps. Some of the   
most common used methods are: clear, containsKey, containsValue, isEmpty, keySet, remove, replace, size, values, empty.  
bulk operations (such as putAll and clear), and collection views (such as keySet, entrySet, and values).  
第一种:

　　Map map = new HashMap();

　　Iterator iter = map.entrySet().iterator();

　　while (iter.hasNext()) {

　　Map.Entry entry = (Map.Entry) iter.next();

　　Object key = entry.getKey();

　　Object val = entry.getValue();

　　}

　　效率高,以后一定要使用此种方式！

第二种:

　　Map map = new HashMap();

　　Iterator iter = map.keySet().iterator();

　　while (iter.hasNext()) {

　　Object key = iter.next();

　　Object val = map.get(key);

　　}

效率低,以后尽量少使用！

对象比较: p1.equals(p2) = false p1.equals(p1) = True p1.equals(p3=p1) = True

# [javabean 简单实例](https://blog.csdn.net/xiaocai9999/article/details/79221976)

# [Apache与Tomcat有什么关系和区别](https://blog.csdn.net/hdfqq188816190/article/details/67639899) apache支持静态页，tomcat支持动态的，比如servlet等， 一般使用apache+tomcat的话，apache只是作为一个转发，对jsp的处理是由tomcat来处理的。 apache可以支持php\cgi\perl,但是要使用java的话，你需要tomcat在apache后台支撑，将java请求由apache转发给tomcat处理。apache是web服务器,Tomcat是应用（java）服务器，它只是一个servlet(jsp也翻译成servlet)容器，可以认为是apache的扩展，但是可以独立于apache运行。 这两个有以下几点可以比较的： 1、两者都是apache组织开发的 2、两者都有HTTP服务的功能 3、两者都是免费的 不同点： Apache是专门用了提供HTTP服务的，以及相关配置的（例如虚拟主机、URL转发等等） Tomcat是Apache组织在符合J2EE的JSP、Servlet标准下开发的一个JSP服务器 二： APACHE是一个web服务器环境程序 启用他可以作为web服务器使用 不过只支持静态网页 如(asp,php,cgi,jsp)等， 动态网页就不行 如果要在APACHE环境下运行jsp 的话就需要一个解释器来执行jsp网页 而这个jsp解释器就是TOMCAT, 为什么还要JDK呢？因为jsp需要连接数据库的话就要jdk来提供连接数据库的驱程，所以要运行jsp的web服务器平台就需要APACHE+TOMCAT+JDK 整合的好处是： 如果客户端请求的是静态页面，则只需要Apache服务器响应请求 如果客户端请求动态页面，则是Tomcat服务器响应请求 因为jsp是服务器端解释代码的，这样整合就可以减少Tomcat的服务开销 三： apache:侧重于http server tomcat:侧重于servlet引擎，如果以standalone方式运行，功能上与apache等效 ， 支持JSP，但对静态网页不太理想； apache是web服务器，tomcat是应用（java）服务器，它只是一个servlet(jsp也翻译成servlet)容器，可以认为是apache的扩展，但是可以独立于apache运行。 换句话说，apache是一辆卡车，上面可以装一些东西如html等。但是不能装水，要装水必须要有容器（桶），而这个桶也可以不放在卡车上

[JSP (Java Server Pages)](http://www.runoob.com/jsp/jsp-tutorial.html) -- A Simple Servlet Design

**Spring Framework**

The Spring Framework is a large open source framework that consists of several modules. One of these modules is the Spring MVC framework, which allows us to build web applications using Java. We won't go into the other components and modules of Spring because it is out of the scope of this course but here is a sample list:

* Inversion of Control component
* Aspect-oriented programming framework
* Data access framework
* Transaction management framework
* MVC framework
* Remote access framework
* Batch Framework
* Integration Framework

[**Maven环境的搭建和STS工具安装 maven**](https://www.cnblogs.com/blogslee/p/6822591.html)Make sure that JAVA\_HOME environment variable is set and points to the JDK installing folder  
Unzip the downloaded maven zip. (apache-maven-3.5.4-bin.zip for windows)

Add the bin directory of the created directory apache-maven-3.5.0 to the PATH environment variable   
Confirm with mvn --version in a new shell.

Pp l.y@outlook.com / 310B for 172 parking pass  
Start a New Spring Boot Project  
 Spring Tool Suite

JDK and its environment variables already set up

Maven and its environment variables already set up

**My First springdemo project (by instructing)  
 *copy apache-tomcat-8.5.33 to c:\***

***copy sts-3.9.5.RELEASE to c:\***

***copy jstl-1.2.jar to apache-tomcat-8.5.33/lib (for servlet)***

***add windows env path to C:\Program Files\java\apache-maven-3.5.4\bin***

***set JAVA\_HOME to C:\Program Files\Java\jdk-10.0.1***

***Set Server: STS > windows / preference > server > Runtime environment > Add Tomcat 8.5.33 > apply***

***Click leftdown server window to activate Tomcat 8.5.33***

STS new > spring starter project > springdemo (com.yong. springdemo)> web/web > finish

Edit DemoApplication.java: (Ctrl+Shift+O import Libs)

*@SpringBootApplication @RestController*

*public class DemoApplication { public static void main(String[] args) { SpringApplication.run(DemoApplication.class, args); } @RequestMapping("/") public String hello() { return "Hello World!"; } }*

***Run demo as "Spring Boot App"***

***See Browser url****:* [*http://localhost:8080/*](http://localhost:8080/)

**配置 STS Spring**

Pom.xml Dependencies do not find “spring-boot-starter-tomcat”  
[在pom.xml中的dependencies点击add我怎么没有搜索到相关jar包](https://blog.csdn.net/datangxiajun/article/details/70053928)?  
*1. pom.xml > Dependencies > add(!index download disabled) fixed that problem by following method:*

*2. Window > Preference > Maven > select "Download repository index updates on startup" > restart STS*

*3. STS > window > show view > other > Maven Repository (双击打开右下角窗口). 在打开的窗口里，右键 local repositories –> local repository ，选择 rebuild index*

配置 STS Spring 环境和变量

# pom.xml>dependencies>add: spring-boot-starter-tomcat/jstl:1.2/tomcat-embed-jasper pom.xml > Dependencies > add > spring-boot-starter-tomcat(managed:2.0.4.RELEASE)

# pom.xml > Dependencies > add > jstl:1.2 pom.xml > Dependencies > add > tomcat-embed-jasper(managed:8.5.32)

2.src/main/resource/application.properties **添加**1 spring.mvc.view.prefix=/WEB-INF/  
 3.New > Folder > src/main/webapp/WEB-INF ( add \*.jsp here)  
 4. New > Folder > src/main/webapp/static (add \*.css here)  
 5. .java (return "demo.jsp") .jsp(href="static/style.css")

Spring Session

for .java request.getSession().setAttribute("testKey", "742981086@qq.com");  
for jstl session <td><% out.print(key); %></td>  
for .jsp <%session.setAttribute("username",username);%>  
<%String username = (String)session.getAttribute("username");%>  
<%=session.getAttribute("username")%>

<%

// 获取session创建时间

Date createTime = new Date(session.getCreationTime());

// 获取最后访问页面的时间

Date lastAccessTime = new Date(session.getLastAccessedTime());

String title = "再次访问菜鸟教程实例";

Integer visitCount = new Integer(0);

String visitCountKey = new String("visitCount");

String userIDKey = new String("userID");

String userID = new String("ABCD");

// 检测网页是否由新的访问用户

page import="java.io.\*,java.util.\*" %>

if (session.isNew()){

title = "访问菜鸟教程实例";

session.setAttribute(userIDKey, userID);

session.setAttribute(visitCountKey, visitCount);

} else {

     visitCount = (Integer)session.getAttribute(visitCountKey);

     visitCount += 1;

     userID = (String)session.getAttribute(userIDKey);

     session.setAttribute(visitCountKey, visitCount);

}

%>

本文介绍Spring MVC中转发和重定向的区别。

转发和重定向

1、常规用法，返回一个View

@RequestMapping(value="/testa", method=RequestMethod.GET)

public String inputData(){ return "testa"; //Spring框架找到对应的View并渲染 }

@RequestMapping(value="/testa", method=RequestMethod.POST)

public String outputData(HttpServletRequest request){

String userName = request.getParameter("name");

String password = request.getParameter("pwd");

request.setAttribute("name", userName);

request.setAttribute("pwd", password);

return "testb"; //Spring框架找到对应的View并渲染

}

2、转发（forward）

@RequestMapping(value="/testa", method=RequestMethod.GET)

public String inputData(){

return "testa"; //Spring框架找到对应的View并渲染

}

@RequestMapping(value="/testa", method=RequestMethod.POST)

public String outputData(HttpServletRequest request){

String userName = request.getParameter("name");

String password = request.getParameter("pwd");

request.setAttribute("name", userName);

request.setAttribute("pwd", password);

//转发到 /testb 的Controller方法(即outputDataX)上

return "forward:/testb";

}

@RequestMapping(value="/testb", method=RequestMethod.POST)

public String outputDataX(HttpServletRequest request){

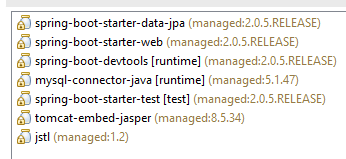
return "testb"; }

**JPA**

[Spring-data-jpa notebook](https://www.cnblogs.com/zeng1994/p/7575606.html)  [spring jpa tutorial](https://blog.csdn.net/KingBoyWorld/article/details/78935843):

[pure info totally intrduce Spring-data-jpa:](https://www.cnblogs.com/dreamroute/p/5173896.html)

[JPA + SpringData So simple JPA – 1](https://www.cnblogs.com/crawl/p/7703679.html)



Above is the Spring MVC Project Dependencies Map

**First Spring MVC Project (with JPA)**

**复制MVC工程, 主要复制 pom.xml > dependencies 和 resource > application.properties(\*.properties)**

**复制上面文件到新工程后，STS 先要清除新工程后重新打开，才能正常工作。**

0. 用 book 作样板, 不能将description简化为desc, 用language做样板，不能误删 .jsp 第一行

1. New > Spring Starter Prj > mvc (Maven,8,Jar,Java,com.yong.mvc,mvc) > Web,JPA,DevTools,MySql > Finish

2. new src/main/webapp/WEB-INF/ (static) directory in order to contain \*.jsp files  
 new 4 directories: models , controllers , repositories , services

3. Check POM.xml dependencies, add

tomcat-embed-jasper, jstl jbcrypt:0.4 spring-boot-starter-test total 9 dependencies

4. mvc/Java Res/src/main/resources/applications.properties > add codes > Save

***spring.datasource.url=jdbc:mysql://localhost:3306/test?useSSL=true***

***spring.datasource.username=root***

***spring.datasource.password=root***

***spring.datasource.driver-class-name=com.mysql.jdbc.Driver***

***spring.jpa.hibernate.ddl-auto=update***

***spring.mvc.view.prefix=/WEB-INF/***

5. src.main.resources > New > File > messages.properties > add password validation messages:

***Match.user.passwordConfirmation=Password and Password Confirmation must match***

6. Workbench > Connect MySql (3306) > toolbar Create a Schema: **test.db** (default UTF8)

7. SpringBootApplication  
@SpringBootApplication @RestController

public class MvcApplication {

public static void main(String[] args) { SpringApplication.run(MvcApplication.class, args); }

@RequestMapping("/") public String hello() { return "Hello World!"; } }

8. New Book, BookRepository, BookService, BookController 4 classes

Book添加 setter and getter for all its attributes. 应该自动产生标准的 getter and setter 函数

Ctrl+Shift+O导入相关库, 修改Model attributes后 test.db 必须重建

9. POM.xml all Dependencies  
***<dependencies>***

***<dependency>***

***<groupId>org.springframework.boot</groupId>***

***<artifactId>spring-boot-starter-data-jpa</artifactId>***

***</dependency>***

***<dependency>***

***<groupId>org.springframework.boot</groupId>***

***<artifactId>spring-boot-starter-web</artifactId>***

***</dependency>***

***<dependency>***

***<groupId>org.springframework.boot</groupId>***

***<artifactId>spring-boot-devtools</artifactId>***

***<scope>runtime</scope>***

***</dependency>***

***<dependency>***

***<groupId>mysql</groupId>***

***<artifactId>mysql-connector-java</artifactId>***

***<scope>runtime</scope>***

***</dependency>***

***<dependency>***

***<groupId>org.springframework.boot</groupId>***

***<artifactId>spring-boot-starter-tomcat</artifactId>***

***<scope>provided</scope>***

***</dependency>***

***<dependency>***

***<groupId>org.springframework.boot</groupId>***

***<artifactId>spring-boot-starter-test</artifactId>***

***<scope>test</scope>***

***</dependency>***

***<dependency>***

***<groupId>javax.servlet</groupId>***

***<artifactId>jstl</artifactId>***

***</dependency>***

***<dependency>***

***<groupId>org.apache.tomcat.embed</groupId>***

***<artifactId>tomcat-embed-jasper</artifactId>***

***</dependency>***

***<dependency>***

***<groupId>org.mindrot</groupId>***

***<artifactId>jbcrypt</artifactId>***

***<version>0.4</version>***

***</dependency>***

***</dependencies>***

10. \*.JSP 头部加入

***<%@ page language="java" contentType="text/html; charset=ISO-8859-1" pageEncoding="ISO-8859-1"%>***

***<%@taglib prefix="c" uri="http://java.sun.com/jsp/jstl/core"%>***

***<%@ taglib prefix="form" uri="http://www.springframework.org/tags/form"%>***

***<%@ page isErrorPage="true" %>***

11. 现在我们产生了第一个Spring MVC 项目,

Packages and Lib

import java.util.Date;

import javax.persistence.Column;

import javax.persistence.Entity;

import javax.persistence.GeneratedValue;

import javax.persistence.GenerationType;

import javax.persistence.Id;

import javax.persistence.PrePersist;

import javax.persistence.PreUpdate;

import javax.persistence.Table;

import javax.validation.constraints.Min;

import javax.validation.constraints.Size;

import javax.persistence.OneToOne;

import javax.persistence.OneToMany;

import javax.persistence.ManyToOne;

import javax.persistence.ManyToMany;

import javax.persistence.FetchType;

import javax.persistence.JoinColumn;

import javax.persistence.CascadeType;

import org.springframework.data.repository.CrudRepository;

import org.springframework.stereotype.Repository;

import org.springframework.stereotype.Service;

import javax.validation.Valid;

import org.springframework.stereotype.Controller;

import org.springframework.ui.Model;

import org.springframework.validation.BindingResult;

import org.springframework.web.bind.annotation.ModelAttribute;

import org.springframework.web.bind.annotation.PathVariable;

import org.springframework.web.bind.annotation.RequestMapping;

import org.springframework.web.bind.annotation.RequestMethod;

# [springmvc实现REST中的GET、POST、PUT和DELETE](https://blog.csdn.net/u011403655/article/details/44590315)

在web.xml中添加一个filter，用来过滤rest中的方法。代码如下

<filter>

<filter-name>HiddenHttpMethodFilter</filter-name>

<filter-class>org.springframework.web.filter.HiddenHttpMethodFilter</filter-class>

</filter>

<filter-mapping>

<filter-name>HiddenHttpMethodFilter</filter-name>

<url-pattern>/\*</url-pattern>

</filter-mapping>

.jsp文件，添加如下内容, 则POST方式转变为 PUT方式， 同理 POST也可转成 Delete 实现CRUD  
<form action="rest/restPut" method="post">

<input type="hidden" name="\_method" value="PUT">

**Spring 工程转换顺序**：

1. 新建 package com.yong.mvc.new

2. 新建 4个 class of 复制相关文件

model Repository Service sController ,

批量替换它们的 Book 和 book

3. 新建 static/news & WEB-INF/news，

复制相关文件, 批量替换 \*.jsp 的 book

4. 打开 Workbench 清除数据库 test 下的相关表,

或清除 test 后新建 test

5. 修改 main中的主地址,

6. 所有文件存盘, Run as Spring Boot App

7. 修改 Model 文件属性, 重建 getter/setter

8. 修改 Serivce 中 update 函数属性, Date须注明:

@DateTimeFormat( pattern = "yyyy-MM-dd" )  
 @Range(min= 1, max = 100)

@NotNull()

9. 所有文件存盘关闭, Run

10. Model添加OneToOne, OneToMany, ManyToMany 关系

重建 getter/setter

11. 清除数据库 test 下的相关表, 或重建 test

12. 所有文件存盘关闭, Run

1. private Date birthday; [Date 类型的属性需要在Model中注明写入格式](https://zhidao.baidu.com/question/1387767324163184420.html)   
   @DateTimeFormat( pattern = "yyyy-MM-dd" )  
   private Date birthday;

[ValidateModel](https://www.cnblogs.com/liukemng/p/3738055.html)  
 @NotNull(message="{email.not.empty}")

@Range(min=0, max=100, message="{age.not.inrange}")

首行合并为一行，中间无竖线表格， 清除所有关于 table 的 css

<table border=1 rules=cols>

<tr>

<th colspan="3" style="border-bottom:1px solid black">A line 3 space</th>

</tr>

<tr>

<td>1</td>

<td>2</td>

<td>3</td>

</tr>

<tr>

<td>1</td>

<td>2</td>

<td>3</td>

</tr>

</table>

# [Spring Boot + Hibernate One To One Mapping](https://stackoverflow.com/questions/39389482/spring-boot-hibernate-one-to-one-mapping)

# [SpringMvc中两个Controller类之间传递参数的方法(其它没通，只得用session)](https://www.cnblogs.com/zhujiabin/p/4935557.html)

**点击Button 跳转 URL / {id} 方法:**

<a href='/songs/edit/<c:out value="${id}"/>'><button>Edit</button></a>

Service 中 Songs 查询时按指定字段排序:

Sort sort = new Sort(Sort.Direction.DESC, "rating");

List<Song> allSortedSongs = songService.allSortedSongs(sort);

[**Spring JPA Data Query Methods:**](https://docs.spring.io/spring-data/jpa/docs/current/reference/html/#jpa.query-methods.query-creation)

一个JSP网页中可把变量username以username为名字保存在session上  
<%session.setAttribute("username",username);%>  
在另一个页面中可通过getAttribute方法取得username的值  
<%String username = (String)session.getAttribute("username");%>

JSP显示session <%= ${name} %>

/\*

<form:input class="hide" path="creatorName" value="${sessionScope.user\_name}"/>

<form:input class="hide" path="creatorId" value="${sessionScope.user\_id}"/>

\*/

Spring MVC Deploy experiences:

1. 安装mysql后，不能登录
2. Workbench 不能导出数据库
3. Wrong ubunton version

https://aws.amazon.com/free/ -> myAccount

deployment need to install 3 things on aws server

1 Java JDK

2 Apache Web Server

3 MySQL Database

$ mysqladmin -u root password root // mysql 重设密码 root

name: spring-cur

(public DNS) ec2-18-224-137-77.us-east-2.compute.amazonaws.com

aws key name: aws-pem-rsa.pem

url: 18.224.137.77

全部 Deploy 过程

1. new instance

Create Instance -> Ubuntu Server 16.04 LTS (SSD) > review Instance -> Edit Security Groups -> SSH + HTTP (add a rule) -> HTTPS (anywhere)-> Launch -> Create/Select Key Pair -> Review Instance

2. install ubunton

cmd: cd .ssh

cmd: bash

$: chmod 400 aws-pem-rsa.pem

$: ssh -i aws-pem-rsa.pem ubuntu@ec2-18-224-137-77.us-east-2.compute.amazonaws.com

$ sudo apt-get update

$ sudo apt-get -y upgrade // update Ubuntu system

3. install mysql

$ sudo apt-get install mysql-server // install mysql and input password root

mysql -u root -p

Enter password: // root

// Open workbench > server > database > data export > 'test':

// 1 Export to self-Contained File : C:\Users\longy\Documents\dumps\Dump20180926.sql

// 2 Create Dump in a Single Transactoion

// 3 Include Create Schema

// Start Export

// copy the content of exported file Dump20180926.sql and paste to mysql shell of the server

mysql> paste test.sql

mysql> show databases test;

mysql> show tables;

mysql> exit;

4 install apache

$ sudo apt-get install apache2 // at browser input url, can see apache homepage

5. prepare .war workbench 6.3 mysql 5.7 (5.6.34)

// in STS

In Spring Boot Application File, add the following code:

// MvcMmApplication

import org.apache.catalina.connector.Connector;

import org.springframework.boot.SpringApplication;

import org.springframework.boot.autoconfigure.SpringBootApplication;

import org.springframework.boot.web.embedded.tomcat.TomcatServletWebServerFactory;

import org.springframework.context.annotation.Bean;

@SpringBootApplication

public class MvcMmApplication {

public static void main(String[] args) {

SpringApplication.run(MvcMmApplication.class, args);

}

@Bean

public TomcatServletWebServerFactory servletContainer() {

TomcatServletWebServerFactory tomcat = new TomcatServletWebServerFactory();

Connector ajpConnector = new Connector("AJP/1.3");

ajpConnector.setPort(9090);

ajpConnector.setSecure(false);

ajpConnector.setAllowTrace(false);

ajpConnector.setScheme("http");

tomcat.addAdditionalTomcatConnectors(ajpConnector);

return tomcat;

}

}

Go to 'pom.xml' file and Overview tab. If your packaging is jar, change it to war.

STS > Project > Maven > Update Project

STS > Project > Run as Maven Install

There may got two errors:

1. the requested profile "pom.xml" could not be activated because it does not exist. // can ignore it

2. No compiler is provided in this environment. Perhaps you are running on a JRE rather than a JDK? // must fix it

fixed method: STS > performence > Java > Installed JREs > jre1.8.0\_181 (transfer to) jdk1.8.0\_181

https://stackoverflow.com/questions/19655184/no-compiler-is-provided-in-this-environment-perhaps-you-are-running-on-a-jre-ra

after that got two files:

C:\\_Dojo\Spring\mvc\_mm\target\mvc\_mm-0.0.1-SNAPSHOT.war

C:\\_Dojo\Spring\mvc\_mm\pom.xml

6. copy .war to server

at localhost

$ scp -i ~/Desktop/aws-pem-rsa.pem ~/Desktop/mvc\_mm-0.0.1-SNAPSHOT.war ubuntu@18.224.137.77:~/

at server:

$ sudo mkdir /var/springApp

$ sudo mv ~/mvc\_mm-0.0.1-SNAPSHOT.war /var/springApp/

$ sudo a2enmod proxy

$ sudo a2enmod proxy\_ajp // Set up proxy

$ cd /etc/apache2/sites-available

$ sudo vim 000-default.conf

At the end of this file add following two lines: Vim edit keys: (esc+i insert) (esc+:q! quit not save) (esc+:wq save and quit)

ProxyPass / ajp://localhost:9090/

ProxyPassReverse / ajp://localhost:9090/

$ sudo service apache2 restart

$ sudo apt-get install default-jdk // install jdk

-------------- mvc\_mm-0.0.1-SNAPSHOT.war --------------------

$ java -jar mvc\_mm-0.0.1-SNAPSHOT.war or

$ java -jar /var/springApp/mvc\_mm-0.0.1-SNAPSHOT.war

Go to Browser: 18.224.137.77 see the app

-----------------------------------------------------------------

7. after disconnect server, let server continue to work:

$ cd /etc/systemd/system

$ sudo touch auth.service

$ sudo vim auth.service

[Unit]

Description=Auth application using Spring Boot

After=syslog.target

[Service]

User=ubuntu

ExecStart=/usr/bin/java -jar /var/springApp/mvc\_mm-0.0.1-SNAPSHOT.war

SuccessExitStatus=143

[Install]

WantedBy=multi-user.target

$ sudo systemctl daemon-reload

$ sudo systemctl enable auth.service

$ sudo systemctl start auth

goto browser: 18.224.137.77

We can also stop, restart and check the status of our service:

$ sudo systemctl stop auth

$ sudo systemctl restart auth

$ systemctl status auth

**STK3 MEAN (**[**a javascript framework**](https://www.udemy.com/topic/mean-stack/?utm_campaign=NEW-AW-PROS-Topic-Mean-Stack-Broad-_._ci__._sl_ENG_._vi__._sd__._la_EN_._&utm_term=_._pl__._pd__._ti_aud-452969460614:kwd-294727617336_._kw_mean%20stack_._&k_clickid=bd38d589-1b0b-430d-8686-620522a7242b_)**)**

**3.1** [**MongoDB**](https://www.w3schools.com/nodejs/nodejs_mongodb.asp) **(**[**1**](https://www.youtube.com/watch?v=kHV7gOHvNdk)**,**[**2**](https://www.youtube.com/watch?v=7F1nLajs4Eo&t=46s)**,**[**3**](https://www.youtube.com/watch?v=oVIeMfvgTz8)**,**[**4**](https://www.youtube.com/watch?v=iFsYJG3fGro)**,**[**5**](https://www.youtube.com/watch?v=06_SIzYXgqQ)**)** [**en1**](https://www.mongodb.com/blog/post/getting-started-with-python-and-mongodb)[**W3CS-cn**](https://www.w3cschool.cn/mongodb/)[**中1**](http://www.cnblogs.com/baby123/p/7479882.html)

***Intro MongoDB CRUD Operations for MongoDB Intro to Mongoose Dependencies in Mongoose Mongoose Communication with MongoDB***

***Mongoose Methods Data Validation with Mongoose Create Associations Between Mongo Objects RESTful Routing with Mongoose & Express***

**3.2** [**Express (web)**](http://w3adda.com/express-js-tutorial)[**中**](https://www.w3cschool.cn/expressapi/expressapi-install.html)

***Intro to Express.JS Render Templates With Express View Engines HTTP Methods: Forms, Data Tranfers, & Routing***

***Intro to Socket.io Applications with Real-time Communication***

**3.3** [**Angular JS (front)**](https://www.youtube.com/watch?v=7F1nLajs4Eo&t=11s)[**中**](https://www.w3cschool.cn/angularjs/)

***Intro to Angular.JS Dependencies for Angular Directives, Data Binding, & Compiling Using Modules in Angular Controllers, $scope, & ‘this’***

***How to Create Factories Using Data Filters in Angular Ajax Requests Using Angular***

**3.4** [**Node.js (end)**](https://www.w3schools.com/nodejs/)[**中1**](https://www.ibm.com/developerworks/cn/opensource/os-nodejs/)[**W3CS-cn**](https://www.w3cschool.cn/nodejs/)

***Intro to Node.JS*** [***How to Use Package Managers***](https://www.youtube.com/watch?v=VUGBEoeRek4) [***中***](https://www.runoob.com/nodejs/nodejs-npm.html)[***NPM***](https://blog.csdn.net/zimushuang/article/details/79715679)[***Bower***](https://yq.aliyun.com/ziliao/60470) ***File System Module & HTTP Making a Full Web Sever***

***How to Work with Node Modules Common & Useful Node Modules Modularization Using Require & Module.exports How to Modularize Existing Projects***

**3.5** [**Advanced JavaScript**](https://www.udemy.com/top-javascript-interview-questions-and-answers/)[**W3CS-cn**](http://www.w3school.com.cn/js/index_pro.asp)

**3.6** [**Node Package Manager (npm)**](https://www.youtube.com/watch?v=VUGBEoeRek4)[**中**](http://web.jobbole.com/87578/)[**W3CS-cn**](https://www.w3cschool.cn/nodejsguide/2fi11ngn.html)

**3.7** [**Socket IO**](http://www.programwitherik.com/getting-started-with-socket-io-node-js-and-express/)[**W3CS-cn**](https://www.w3cschool.cn/socket/)

**3.8** [**Bower (front package manager)**](https://www.youtube.com/watch?v=QaCnPr-ECuQ) [**中1**](http://www.w3cbus.com/tool/bower.html)[**中2**](https://blog.csdn.net/longzhoufeng/article/details/75041729)

**3.9** [**Building MEAN Applications**](https://www.youtube.com/watch?v=PH_5lXxSpww)[**中1**](http://www.jdon.com/idea/nodejs/web-app-with-angularjs-and-rest-api-with-node.html)[**中2**](https://www.cnblogs.com/windtony/p/4208529.html)

***Connecting Angular to Node Making API Requests in MEAN Tracing Data in the MEAN Stack***

**3.10** [**MEAN DEPLOYMENT**](https://www.youtube.com/watch?v=B1E0YXXITWg)[**中**](https://blog.csdn.net/zhang355/article/details/48453873)

***Intro to MEAN Application Deployment Tools You’ll Use: Heroku Amazon Web Services (EC2) Linux Servers***

**3- Mean Topics**

***3-1*** [***OOP in Javascript***](https://www.youtube.com/watch?v=rlLuL3jYLvA)[***中1***](http://www.w3school.com.cn/js/pro_js_object_oriented.asp)[***中2***](https://www.2cto.com/kf/201412/362017.html)

***3-2*** [***Ajax Requests***](https://www.w3schools.com/xml/ajax_xmlhttprequest_send.asp)[***中1***](https://www.w3cschool.cn/ajax_example_suggest.html)[***中2***](http://www.w3school.com.cn/ajax/index.asp)

***3-3*** [***Building an MVC Framework***](http://www.aptuz.com/blog/create-javascript-mvc-framework/)[***(en)***](https://www.youtube.com/watch?v=QseHOX-5nJQ)[***中1***](https://www.cnblogs.com/huansky/p/6088772.html)[**中2**](https://www.cnblogs.com/LIUYANZUO/p/7231703.html?utm_source=tuicool&utm_medium=referral)

***3-4*** [***Creating Custom JS Libraries***](https://www.youtube.com/watch?v=1BMYFAFPrfc)[***中1***](https://webpack.docschina.org/guides/author-libraries/)[**中2**](https://blog.csdn.net/zzzyyc/article/details/80613949)[**中3**](https://www.cnblogs.com/Unknw/p/6395582.html)

***3-5*** [***Building Real-time Web Apps***](https://www.toptal.com/meteor/building-real-time-web-applications-with-meteor)[***(en1)***](https://www.udemy.com/learn-meteorjs-by-building-10-real-world-projects/?utm_source=adwords-learn&utm_medium=udemyads&utm_campaign=NEW-AW-PROS-TECH-US-DSA-1-EN-ENG_._ci__._sl_ENG_._vi_TECH_._sd_All_._la_EN_._&utm_content=deal4584&utm_term=_._ag_60674438811)[**中**](https://www.w3cschool.cn/discovermeteor/)

***3-6*** [***NoSQL Database Design***](https://www.youtube.com/watch?v=2yQ9TGFpDuM)[**中1**](https://blog.csdn.net/caomiao2006/article/details/44620559)[**中2**](http://www.cnblogs.com/wuxl360/p/5461363.html)

***3-7*** [***RESTful Routing***](RESTful%20Routing)[**中**](http://www.yiichina.com/doc/guide/2.0/rest-routing)

***3-8*** [***Agile Development***](https://www.youtube.com/watch?v=LQYAeYS1RT8)[**中**](https://blog.csdn.net/joliny/article/details/1810499)

**3 MEAN (**[**a javascript framework**](https://www.jianshu.com/p/eeb8227e734f)**)** [**中1**](https://blog.csdn.net/zhang355/article/details/48453873)[**中2**](https://blog.csdn.net/maxsky/article/details/53596330)

**3.1** [**MongoDB**](https://www.w3schools.com/nodejs/nodejs_mongodb.asp) **(**[**1**](https://www.youtube.com/watch?v=kHV7gOHvNdk)**,**[**2**](https://www.youtube.com/watch?v=7F1nLajs4Eo&t=46s)**,**[**3**](https://www.youtube.com/watch?v=oVIeMfvgTz8)**,**[**4**](https://www.youtube.com/watch?v=iFsYJG3fGro)**,**[**5**](https://www.youtube.com/watch?v=06_SIzYXgqQ)**)** [**en1**](https://www.mongodb.com/blog/post/getting-started-with-python-and-mongodb)[**en2**](https://www.youtube.com/watch?v=erjPomg7F4U)[**W3CS-cn**](https://www.w3cschool.cn/mongodb/)[**中1**](http://www.cnblogs.com/baby123/p/7479882.html)

***Intro MongoDB*3.1.1** [**Install MongoDB4**](https://docs.mongodb.com/manual/tutorial/install-mongodb-on-windows/)[**CN1**](https://www.cnblogs.com/chenlq/p/6515876.html)[**Pycharm Plugin**](https://blog.csdn.net/u012111465/article/details/77426173)[**visit mongodb**](https://blog.csdn.net/zwq912318834/article/details/77689568)

*install* **mongodb-win32-x86\_64-2008plus-ssl-4.0.0-signed.msi** *(complete install with default folder)  
cmd:* **net start MongoDB** *(check if mongodb service started)  
auto install* **MongoDB compass** *with default setting >* **create** *mongo database ‘test’ and collection ‘tab1’  
Pycharm > settings > plugins > search & install 'mongo' in repositories  
cmd: virtual env folder/pip3 install pymongo*

*if Mongo compass invalid then reinstall mongodb-compass-community-1.14.6-win32-x64.exe*

**以下程序测试读取mongo数据库 test/tab1** *#!/usr/bin/python3  
# coding=utf-8  
import pymongo  
mongo\_client = pymongo.MongoClient('localhost', 27017)  
db = mongo\_client['test']  
dbcoll = db['tab1']  
print("\ntab1:\n")  
for rcd in dbcoll.find():  
 print(rcd)*

***CRUD Operations for MongoDB*** *(Create, Retrieve, Update, Delete)*

***Intro to Mongoose***

***Dependencies in Mongoose***

***Mongoose Communication with MongoDB***

***Mongoose Methods***

***Data Validation with Mongoose***

***Create Associations Between Mongo Objects***

***RESTful Routing with Mongoose & Express***

**3.2** [**Express (web)**](http://w3adda.com/express-js-tutorial)[**中**](https://www.w3cschool.cn/expressapi/expressapi-install.html)

***Intro to Express.JS***

***Render Templates With Express View Engines***

***HTTP Methods: Forms, Data Tranfers, & Routing***

***Intro to Socket.io***

***Applications with Real-time Communication***

**3.3** [**Angular JS (front)**](https://www.youtube.com/watch?v=7F1nLajs4Eo&t=11s)[**中**](https://www.w3cschool.cn/angularjs/)

***Intro to Angular.JS***

***Dependencies for Angular***

***Directives, Data Binding, & Compiling***

***Using Modules in Angular***

***Controllers, $scope, & ‘this’***

***How to Create Factories***

***Using Data Filters in Angular***

***Ajax Requests Using Angular***

**3.4** [**Node.js (end)**](https://www.w3schools.com/nodejs/)[**中1**](https://www.ibm.com/developerworks/cn/opensource/os-nodejs/)[**W3CS-cn**](https://www.w3cschool.cn/nodejs/)

***Intro to Node.JS***

[***How to Use Package Managers***](https://www.youtube.com/watch?v=VUGBEoeRek4) [***中***](https://www.runoob.com/nodejs/nodejs-npm.html)[***NPM***](https://blog.csdn.net/zimushuang/article/details/79715679)[***Bower***](https://yq.aliyun.com/ziliao/60470)

***File System Module & HTTP***

***Making a Full Web Sever***

***How to Work with Node Modules***

***Common & Useful Node Modules***

***Modularization***

***Using Require & Module.exports***

***How to Modularize Existing Projects***

**3.5** [**Advanced JavaScript**](https://www.udemy.com/top-javascript-interview-questions-and-answers/)[**W3CS-cn**](http://www.w3school.com.cn/js/index_pro.asp)

**3.6** [**Node Package Manager (npm)**](https://www.youtube.com/watch?v=VUGBEoeRek4)[**中**](http://web.jobbole.com/87578/)[**W3CS-cn**](https://www.w3cschool.cn/nodejsguide/2fi11ngn.html)

**3.7** [**Socket IO**](http://www.programwitherik.com/getting-started-with-socket-io-node-js-and-express/)[**W3CS-cn**](https://www.w3cschool.cn/socket/)

**3.8** [**Bower (front package manager)**](https://www.youtube.com/watch?v=QaCnPr-ECuQ) [**中1**](http://www.w3cbus.com/tool/bower.html)[**中2**](https://blog.csdn.net/longzhoufeng/article/details/75041729)

**3.9** [**Building MEAN Applications**](https://www.youtube.com/watch?v=PH_5lXxSpww)[**中1**](http://www.jdon.com/idea/nodejs/web-app-with-angularjs-and-rest-api-with-node.html)[**中2**](https://www.cnblogs.com/windtony/p/4208529.html)

***Connecting Angular to Node***

***Making API Requests in MEAN***

***Tracing Data in the MEAN Stack***

**3.10** [**MEAN DEPLOYMENT**](https://www.youtube.com/watch?v=B1E0YXXITWg)[**中**](https://blog.csdn.net/zhang355/article/details/48453873)

***Intro to MEAN Application Deployment***

***Tools You’ll Use:***

***Heroku***

***Amazon Web Services (EC2)***

***Linux Servers***

**3- Mean Topics**

***3-1*** [***OOP in Javascript***](https://www.youtube.com/watch?v=rlLuL3jYLvA)[***中1***](http://www.w3school.com.cn/js/pro_js_object_oriented.asp)[***中2***](https://www.2cto.com/kf/201412/362017.html)

***3-2*** [***Ajax Requests***](https://www.w3schools.com/xml/ajax_xmlhttprequest_send.asp)[***中1***](https://www.w3cschool.cn/ajax_example_suggest.html)[***中2***](http://www.w3school.com.cn/ajax/index.asp)

***3-3*** [***Building an MVC Framework***](http://www.aptuz.com/blog/create-javascript-mvc-framework/)[***(en)***](https://www.youtube.com/watch?v=QseHOX-5nJQ)[***中1***](https://www.cnblogs.com/huansky/p/6088772.html)[**中2**](https://www.cnblogs.com/LIUYANZUO/p/7231703.html?utm_source=tuicool&utm_medium=referral)

***3-4*** [***Creating Custom JS Libraries***](https://www.youtube.com/watch?v=1BMYFAFPrfc)[***中1***](https://webpack.docschina.org/guides/author-libraries/)[**中2**](https://blog.csdn.net/zzzyyc/article/details/80613949)[**中3**](https://www.cnblogs.com/Unknw/p/6395582.html)

***3-5*** [***Building Real-time Web Apps***](https://www.toptal.com/meteor/building-real-time-web-applications-with-meteor)[***(en1)***](https://www.udemy.com/learn-meteorjs-by-building-10-real-world-projects/?utm_source=adwords-learn&utm_medium=udemyads&utm_campaign=NEW-AW-PROS-TECH-US-DSA-1-EN-ENG_._ci__._sl_ENG_._vi_TECH_._sd_All_._la_EN_._&utm_content=deal4584&utm_term=_._ag_60674438811)[**中**](https://www.w3cschool.cn/discovermeteor/)

***3-6*** [***NoSQL Database Design***](https://www.youtube.com/watch?v=2yQ9TGFpDuM)[**中1**](https://blog.csdn.net/caomiao2006/article/details/44620559)[**中2**](http://www.cnblogs.com/wuxl360/p/5461363.html)

***3-7*** [***RESTful Routing***](RESTful%20Routing)[**中**](http://www.yiichina.com/doc/guide/2.0/rest-routing)

***3-8*** [***Agile Development***](https://www.youtube.com/watch?v=LQYAeYS1RT8)[**中**](https://blog.csdn.net/joliny/article/details/1810499)

# [node.js cmd常用命令](https://www.cnblogs.com/liuqiyun/p/8026340.html) // Nodemon can monitor code’s any change

npm install -g nodemon

nodemon 1.js

**create a node server: 1.js**var http = require('http');  
var fs = require('fs');  
var server = http.createServer(function (request, response) {  
console.log('client request URL: ', request.url);  
if(request.url === '/') {  
fs.readFile('index.html', 'utf8', function (errors, contents){  
response.writeHead(200, {'Content-Type': 'text/html'});  
response.write(contents);  
response.end();  
});} else { response.writeHead(404); response.end('File not found!!!'); }});  
server.listen(6789);  
console.log("Running in localhost at port 6789");  
HTML{'Content-Type':'text/html'}  
CSS{'Content-Type': 'text/css'}  
Javascript{'Content-Type': 'text/javascript'}  
png/jpeg/gif{'Content-Type': 'image/\*’} \* is png or jpeg etc

Module  
<http://nodejs.org/api/querystring.html>  
<http://nodejs.org/api/url.html>  
 <https://github.com/mranney/node_redis>  
<https://npmjs.org/package/underscore>  
<http://coffeescript.org/>  
<https://github.com/chriso/node-validator/blob/master/README.md>  
<https://npmjs.org/>

Npm 就是 javascript 的包管理工具  
New a directory as hello\_express and new a file as server.js then install express

**<% %> tags allow us to enter JavaScript code, and the <%= %> tags actually print the JavaScript code to the document.**   
npm init -y  
npm install express --save  
npm install ejs --save  
npm install body-parser -save  
npm install express-session  
npm install axios  
npm install mongodb --save-dev  
npm install mongoose –save  
npm install express-flash –save  
npm install --save bcrypt -nodejs

(word - maybe no same as char -)

var express = require("express");

var app = express();

app.use(express.static(\_\_dirname + "/static"));

app.set('views', \_\_dirname + '/views');

app.set('view engine', 'ejs');

app.get('/', function(request, response) { response.send("<h1>Hello Express</h1>"); })

ajax demo: data -> data.data.results

app.get('/people', function(req, res){

axios.get('http://swapi.co/api/people')

.then(data => {

console.log(data.data.results);

res.json(data.data.results);

})

.catch(error => {

console.log(error);

res.json(error);

})

});

Set Mongodb’s server:

Cmd: net start mongodb or md c:\data\db, c:\program files\mongodb\server\4.0\bin\mongod.exe  
show dbs; db; use test; use newdb; test.dropDatabase(); show collections;

db.createCollection(’tmp’); db.tmp.insert({name:’yong’}); db.tmp.drop();

db.tmp.find(); db.tmp.find().pretty(); db.tmp.find({name:"yong"});   
db.tmp.remove({name:’yong’}); db.tmp.remove({name:’yong’},true); (all name match are deleted)

db.tmp.update({name:'ping'},{$set:{age:51}});

db.tmp.find({age:{$gt:40}}), db.your\_collection.update({}, {$set : {"new\_field":1}}, {upsert:false, multi:true})

|  |  |
| --- | --- |
| $gt (greater than) | Use to query selectively on numerical-valued fields |
| $gte (greater than or equal to) | Use to query selectively on numerical-valued fields |
| $lt (less than) | Use to query selectively on numerical-valued fields |
| $lte (less than or equal to) | Use to query selectively on numerical-valued fields |
| $in (in array) |  |

db.tmp.update({\_id: ObjectId("5bb7b7eb17f3fbe2ea1a4432")}, {$push: {interests: "climbing"}})

|  |  |
| --- | --- |
| **$push** | Push to an array contained within a document. |
| **$pop** | Removes either the first or last element from an array. EX:  db.COLLECTION.update({QUERY}, {$pop: {array\_key: (1 or -1)}}) Use 1 for the last item in the array, -1 for the first item. |
| **$addToSet** | It functions just like **$push**.  However, **$addToSet** only adds to the specified array if the value doesn't already exist (thereby preventing duplicate entries). |
| **$pull** | Removes a specified value from an array, unlike **$pop**, which removes by location. Ex:  db.COLLECTION.update({QUERY}, {$pull: {array\_key: VALUE}})  This will remove all instances of VALUE from the documents with the array specified by the array\_key that match QUERY. |

MongoDB Syntax mongoose 常用数据库操作 [查询](https://www.cnblogs.com/guangzhou11/p/7771446.html) [删除](https://www.cnblogs.com/guangzhou11/p/7771007.html) [更新](https://www.cnblogs.com/guangzhou11/p/7770682.html)  
The id of a model is a String, not a number

First\_Express-Mongodb Prj: Mongo\_Exp (dependencies: Mongoose/EJS/Express/body-parser)

server.js  
*const express = require('express');*

*const routes = require('./server/routes');*

*const app = routes(express());*

*app.listen(8000, (errs)=>errs?console.log(errs):console.log('listening on 8000'));*

server/models.js  
*const mongoose = require('mongoose');*

*mongoose.connect('mongodb://localhost/test', {useNewUrlParser:true},*

*(errs)=>errs ? console.log(errs):console.log('db is good to go'));*

*var QuoteSchema = new mongoose.Schema({*

*name:{ type:String, required:true, minlength:2 },*

*quote:{ type:String, required:true, minlength:2 },*

*}, {timestamps:true} );*

*module.exports = mongoose.model('Quote', QuoteSchema);*  
server/routes.js  
*var express = require("express");*

*var session = require('express-session');*

*const bp = require('body-parser');*

*const controller = require('./controller');*

*module.exports = function(app) {*

*app.use(session({secret:'keyboardkitteh12345yong', resave:false,*

*saveUninitialized:true, cookie:{maxAge:60000}}));*

*app.use(express.static(\_\_dirname + "/static"));*

*app.set('views', \_\_dirname + '/views');*

*app.set('view engine', "ejs");*

*app.use(bp.urlencoded({extended:true}));*

*app.get ('/', controller.root);*

*app.get ('/add', controller.add);*

*app.post('/add', controller.add\_);*

*app.get ('/detail', controller.detail);*

*app.get('/clear', controller.clear);*

*return app;*

*}*

server/controller.js  
*const Quote = require('./model\_quote');*

*function show(str) { if(str!=null&&str!='') console.log(str); }*

*module.exports = {*

*root: (req,res)=>{ res.redirect('/add'); },*

*add: (req,res)=>{ res.render('add', {fname:"Yong",lname:"Long"}) },*

*add\_:(req,res)=>{ show('got name: ' + req.body.name); Quote.create(req.body); res.redirect('/add'); },*

*detail:(req,res)=>{ Quote.find() .then ((data)=>{res.render('detail', {allQuotes:data})})*

*.catch((errs)=>{res.render('detail', {errors:errs})}) },*

*clear:(req,res)=>{ Quote.deleteMany({},(err,res)=>show(err)); res.redirect('/detail'); },*

*};*

Server/views/add.ejs  
*<!DOCTYPE html>*

*<html lang="en">*

*<head>*

*<meta charset="UTF-8">*

*<link rel="stylesheet" content-type="text/css" href="/css/style.css">*

*<title>Index</title>*

*</head>*

*<body><div id="container2">*

*<h2><%=fname%> <%=lname%>, welcome to quoting dojo</h2>*

*<form action="/add" method="POST">*

*<p>Your name: <input type="text" name="name"></p>*

*<p>Your Quote: <input type="text" name="quote"></p>*

*<button type="submit">Add</button>*

*</form><br>*

*<a href="/detail"><button>Detail</button></a> <br> <br>*

*<a href="/clear"><button>Clear</button></a> <br> <br>*

*</div></body>*

*</html>*

Server/views/detail.ejs  
*<!DOCTYPE html>*

*<html lang="en">*

*<head>*

*<meta charset="UTF-8">*

*<link rel="stylesheet" content-type="text/css" href="/css/style.css">*

*<title>Quotes</title>*

*</head>*

*<body><div id="container2">*

*<h2>all quotes:</h2>*

*<% for(let quote of allQuotes){ %>*

*<p> <%=quote.name%> <%=quote.quote%></p>*

*<% } %>*

*<a href="/add"><button>Go Back</button></a>*

*</div></body>*

*</html>*

[Mongoose Models 规范](https://www.cnblogs.com/gyjerry/p/6860466.html)

[Postman](https://www.getpostman.com/apps) to check get/post/put/delete operations  
Postman > collection > get > http://localhost:8000 > send

Postman > collection > post > http://localhost:8000 >   
 body(x-www-form-urlencoded [routes.js app.use(bp.urlencoded({extended:true}))])> send

Or body(Json+applications] [routes.js app.use(bodyParser.json())] > Send

**Angular** [TypeScript Playground](https://www.typescriptlang.org/play/) [常用图片库](http://oi41.tinypic.com)  
Copy cmd to terminal should replace the ‘–‘

1. make mean/toAngular folder

2. cd mean/toAngular

3. install express under toAngular

npm init -y  
 npm install express --save  
 npm install ejs --save  
 npm install body-parser -save  
 npm install express-session  
 npm install axios  
 npm install mongoose –save  
 npm install express-flash –save

4.install Angular and create public app under toAngular folder

npm install -g @angular/cli

ng new public

5. create dist folder under toAngular/public, then:

New a terminal at toAngular: **nodemon server.js**  
 New a terminal at toAngular/public: **ng build** --**watch**

6. Server.js set static route to dist. Routes.js add route ‘/tasks’ in order to get json data required by angular service.

server.js : app.use(express.static( \_\_dirname + '/public/dist/public'));  
 routes.js: app.get('/tasks', controller.tasks);

controller.js: tasks:(req,res)=>{ Task.find({}) .then(data=>{ res.json(data); }) .catch(err=>{ res.json(err); })},

7. use two terminal to monitor files change and update changes:

At toAngular folder terminal: nodemon server.js

toAngular/public folder terminal: ng build –watch / ng serve --watch

8 create service  
 cd public/src/app > ng generate service hero --module=app  
9. Create bpp component automatically add in app.modules.ts, then add <app-bpp> to app.comp.html

cd public/src/app > Ng g c bpp

**常用ng命令**ng new project-name - 创建一个新项目，置为默认设置  
ng build - 构建/编译应用  
ng test - 运行单元测试  
ng e2e - 运行端到端（end-to-end）测试  
ng serve - 启动一个小型web服务器，用于托管应用  
ng deploy - 即开即用，部署到Github Pages或者Firebase  
ng generate component my-component - 生成一个新组件，同时生成其测试相应的HTML/CSS文件 *ng g c my-component*  
ng generate directive my-directive - 生成一个新指令  
ng generate pipe my-pipe - 生成一个新管道  
ng generate service my-service - 生成一个新服务  
ng generate route my-route - 生成一个新路由  
ng generate class my-class - 生成一个简易的模型类

Angular html just show array, so our routes.js should make json data with a key string:  
routes.js : res.json({allTask:data});  
bpp.component.ts: this.allTask = data['allTask'];  
bpp.component.html: <a \*ngFor="let task of allTtask">{{task.title}} ; </a>  
**Angular 模块数据传递和绑定 (父模块gpp传数据selectedTask到子模块task的taskToShow并关联变化)**  
Parent is app, child is app-task; app-task can be controlled by parent and can get data from parent as following:  
<app-task \*ngIf='selectedTask' [taskToShow]='selectedTask'></app-task>  
// gpp.html  
 <button (click)="getAllTask()">Get all tasks</button>   
 <div \*ngFor="let task of allTask">  
 <a>{{task.title}}</a> &nbsp; &nbsp;<button (click)="taskToShow(task)">Show</button>   
 </div>  
 <app-task \*ngIf="selectedTask" [taskToShow]="selectedTask"></app-task>  
// gpp.ts  
selectedTask = any; taskToShow(task) { this.selectedTask = task; }  
// gpp-task.html  
<h2>app-gpp & app-task relatively changing</h2>  
<a>{{taskToShow.title}}</a> <a>{{taskToShow.description}}</a>  
// gpp-task.ts  
import { Component, OnInit, Input } from '@angular/core';  
@Component({ selector: 'app-task', templateUrl: './task.component.html', styleUrls: ['./task.component.css'] })  
export class TaskComponent implements OnInit { @Input() taskToShow: any; constructor() { } ngOnInit() { } }

Data Structure of ‘Rate My Cake’ assignment  
app component <- { gpp componet } <- { eachcake component and onecake component }  
gpp/eachcake/onecake use http service  
  
**toAngular/public/app/jpp: Input/output**  
eachcake.ts  
 *@Input() curCake: any;*  
 *@Output() \_eventEmitter = new EventEmitter();  
 emitDataToParent(data:any) { this.\_eventEmitter.emit(data); }  
 onSubmitComment() { this.emitDataToParent(data); }*jpp.html *<app-eachcake [curCake]="cake" (\_eventEmitter)="dataFromChild($event)"> </app-eachcake>*  
jpp.ts  
 *dataFromChild(data) { this.data = data; }*

**Angular Routing App**  
copy toAngular to toAngular2 > delete old public  
toAngualr2: ng new public --routing  
toAngualr2/public: ng g c index  
app-routing.module.ts  
 *import { IndexComponent } from './index/index.component';*  
 *const routes: Routes = [ { path: 'index',component:IndexComponent }, ];,*app-component.html  
 *<button [routerLink]="['/index']">Load Index</button>  
 <router-outlet></router-outlet>*path toAngular2/public > start only angular: *ng serve --watch*   
to URL: [*http://localhost:4200*](http://localhost:4200) *or* [*http://localhost:4200/index*](http://localhost:4200/index)server.js:   
 *const path = require("path");* *const app = routes(express());*  
 *app.use(express.static( \_\_dirname + '/public/dist/public));  
 app.all("\*", (req,res,next) => { res.sendFile(path.resolve("./public/dist/public/index.html")) });*path toAngular2: start express: *nodemon server --watch*path toAngular2/public: *start angular: ng build --watch*to URL: [*http://localhost:8000*](http://localhost:8000) *or* [*http://localhost:8000/index*](http://localhost:8000/index)app.module.ts需要导入的常用模块和服务  
*import { BrowserModule } from '@angular/platform-browser';  
import { NgModule } from '@angular/core';  
import { HttpClientModule } from '@angular/common/http';  
import { FormsModule } from '@angular/forms';  
import { HttpService } from './http.service';  
import { AppRoutingModule } from './app-routing.module';  
imports: [ BrowserModule, AppRoutingModule, HttpClientModule, FormsModule, ],   
providers: [HttpService],   
bootstrap: [AppComponent]*http.service.ts *import { Injectable } from '@angular/core';  
import { HttpClient } from '@angular/common/http';  
@Injectable({ providedIn: 'root' })  
export class HttpService {  
 constructor(private \_http: HttpClient){ }  
 allPet() { return this.\_http.get('/allpet'); }  
 newPet(body:any) { return this.\_http.post('/newpet', body); }*

*}*Editpet.component.ts *constructor(private \_httpService:HttpService,private \_route:ActivatedRoute,private \_router:Router){}****How to delete one quote in author’s model*** *var QuoteSchema = new mongoose.Schema({  
 quote:{ type:String, },  
 votes:{ type:Number, default:0, },  
}, {timestamps:false});  
var AuthorSchema = new mongoose.Schema({  
 name:{ type:String, },  
 quotes:[QuoteSchema],  
}, {timestamps:false});  
delQuote:function(req,res){  
 console.log(req.params.id,req.body);  
 Author.findOneAndUpdate({"quotes.\_id":req.body.\_id}, {  
 $pull:{quotes:{\_id:req.body.\_id}}  
 }, {new:true, runValidators:true})  
 .then(data=>console.log('hi ', data)||res.json(data))  
 .catch(errs=>console.log(errs)||res.json(errs)) },*