

Web 应用测试

一、单元测试

使用 JUnit 测试工具进行单元测试，（完整的测试源代码和测试报告已上传到 github 的 task8 文件夹里），以下是部分测试报告截图。

[all classes]

Overall Coverage Summary

Package	Class, %	Method, %	Line, %
all classes	80% (20/ 25)	55.1% (103/ 187)	41.3% (359/ 870)

Coverage Breakdown

Package ▲	Class, %	Method, %	Line, %
dao	100% (5/ 5)	36.4% (12/ 33)	19.4% (41/ 211)
db	100% (2/ 2)	62.5% (5/ 8)	59.3% (35/ 59)
entity	100% (7/ 7)	96.7% (58/ 60)	96.9% (127/ 131)
service	37.5% (3/ 8)	20% (8/ 40)	18.7% (36/ 193)
util	100% (3/ 3)	43.5% (20/ 46)	43.5% (120/ 276)

file:///D:/web工程/新建文件夹/测试报告/单元测试/udu/111index.html

[all classes] [dao]

Coverage Summary for Package: dao

Package	Class, %	Method, %	Line, %
dao	100% (5/ 5)	36.4% (12/ 33)	19.4% (41/ 211)

Class ▲	Class, %	Method, %	Line, %
DaoFactory	100% (1/ 1)	41.7% (5/ 12)	50% (23/ 46)
MeetQuery	100% (1/ 1)	25% (1/ 4)	3.1% (1/ 32)
MeetUpdate	100% (1/ 1)	25% (1/ 4)	4% (1/ 25)
SmallTimeDeal	100% (1/ 1)	16.7% (1/ 6)	2.3% (1/ 44)
UserOperator	100% (1/ 1)	57.1% (4/ 7)	23.4% (15/ 64)

[all classes] [db]

Coverage Summary for Package: db

Package	Class, %	Method, %	Line, %
db	100% (2/ 2)	62.5% (5/ 8)	59.3% (35/ 59)

Class ▲	Class, %	Method, %	Line, %
JDBCUtil	100% (1/ 1)	60% (3/ 5)	57.9% (11/ 19)
sqlHelper	100% (1/ 1)	66.7% (2/ 3)	60% (24/ 40)

[all classes](#)] [[entity](#)]

Coverage Summary for Package: entity

Package	Class, %	Method, %	Line, %
entity	100% (7/ 7)	96.7% (58/ 60)	96.9% (127/ 131)

Class ▲	Class, %	Method, %	Line, %
Event	100% (1/ 1)	100% (12/ 12)	100% (22/ 22)
Slots	100% (1/ 1)	100% (6/ 6)	100% (14/ 14)
SmallTime	100% (1/ 1)	100% (6/ 6)	100% (12/ 12)
SmallTimeSlots	100% (1/ 1)	100% (9/ 9)	100% (18/ 18)
Time	100% (1/ 1)	83.3% (10/ 12)	92.3% (24/ 26)
TimeDealUtil	100% (1/ 1)	100% (5/ 5)	86.7% (13/ 15)
User	100% (1/ 1)	100% (10/ 10)	100% (24/ 24)

[[all classes](#)] [[service](#)]

Coverage Summary for Package: service

Package	Class, %	Method, %	Line, %
service	37.5% (3/ 8)	20% (8/ 40)	18.7% (36/ 193)

Class ▲	Class, %	Method, %	Line, %
AddEvent	100% (1/ 1)	60% (3/ 5)	44.8% (13/ 29)
CreateOnlyID	100% (1/ 1)	50% (3/ 6)	52% (13/ 25)
DealSlots	0% (0/ 1)	0% (0/ 2)	0% (0/ 21)
DealSmallTime	0% (0/ 1)	0% (0/ 3)	0% (0/ 10)
DealTimeUtil	0% (0/ 1)	0% (0/ 5)	0% (0/ 25)
DealUser	100% (1/ 1)	50% (2/ 4)	40% (10/ 25)
QueryEvent	0% (0/ 1)	0% (0/ 3)	0% (0/ 18)
ServiceFactory	0% (0/ 1)	0% (0/ 12)	0% (0/ 40)

[[all classes](#)] [[util](#)]

Coverage Summary for Package: util

Package	Class, %	Method, %	Line, %
util	100% (3/ 3)	43.5% (20/ 46)	43.5% (120/ 276)

Class ▲	Class, %	Method, %	Line, %
DateFormatUtil	100% (1/ 1)	36.1% (13/ 36)	40.7% (87/ 214)
Date_Stamp	100% (1/ 1)	62.5% (5/ 8)	49% (25/ 51)
MD5	100% (1/ 1)	100% (2/ 2)	72.7% (8/ 11)

[all classes](#)] [entity](#)]

Coverage Summary for Class: Event (entity)

Class	Class, %
Event	100% (1/ 1)

```
1 package entity;
2 /**
3  * 事件
4  * @author wanghao
5  *
6  */
7 public class Event {
8
9     private String eventID;
10    private String eventName;
11    private String createTime;
12    private String delTime;
13    private String zone;
14
15    public String getZone() {
16        return zone;
17    }
18    public void setZone(String zone) {
19        this.zone = zone;
20    }
21    public String getEventName() {
22        return eventName;
23    }
24    public void setEventName(String eventName) {
25        this.eventName = eventName;
26    }
27    public Event() {
28        // TODO Auto-generated constructor stub
29    }
30    public Event(String e, String c, String d){
31        this.eventID = e;
32        this.createTime = c;
33        this.delTime = d;
```

二、功能测试

页面链接检查：每一个链接是否都有对应的页面，并且页面之间切换正确；（使用 Xenu 软件测试检测是否有死链接）

Address	Status	Type	Size	Title	Date
http://60.205.220.197/	ok	text/html	41018	几点呀	10.07.2018 14:55:31
http://60.205.220.197/css/style.css	ok	text/css	2658		05.07.2018 12:16:51
http://60.205.220.197/css/style2.css	ok	text/css	2061		09.07.2018 13:53:11
http://60.205.220.197/css/style3.css	ok	text/css	556		07.06.2018 22:36:51
http://60.205.220.197/ioc.png	ok	image/png	9019		09.07.2018 16:26:41
http://60.205.220.197/js/moment.js	ok	application/javascript	104409		07.06.2018 22:36:11
http://60.205.220.197/js/moment-timezone-with-data-20...	ok	application/javascript	32618		07.06.2018 22:36:21
http://60.205.220.197/js/jquery-3.2.1.js	ok	application/javascript	69597		07.06.2018 22:36:41
http://60.205.220.197/js/QRCode.js	ok	application/javascript	19927		08.07.2018 21:49:01
http://60.205.220.197/about_us.html	ok	text/html	5332	关于我们	10.07.2018 14:22:01
http://60.205.220.197/	ok	text/html	41018	几点呀	10.07.2018 14:55:31
http://60.205.220.197/Noname1.html	ok	text/html	5824	如何使用	10.07.2018 14:22:31
javascript:void(0)	skip type			加入我们	
http://60.205.220.197/meow.png	ok	image/png	41628	图片加载失败	08.07.2018 21:47:51
http://60.205.220.197/index.html	ok	text/html	41018	几点呀	10.07.2018 14:55:31

Correct internal URLs, by MIME type:

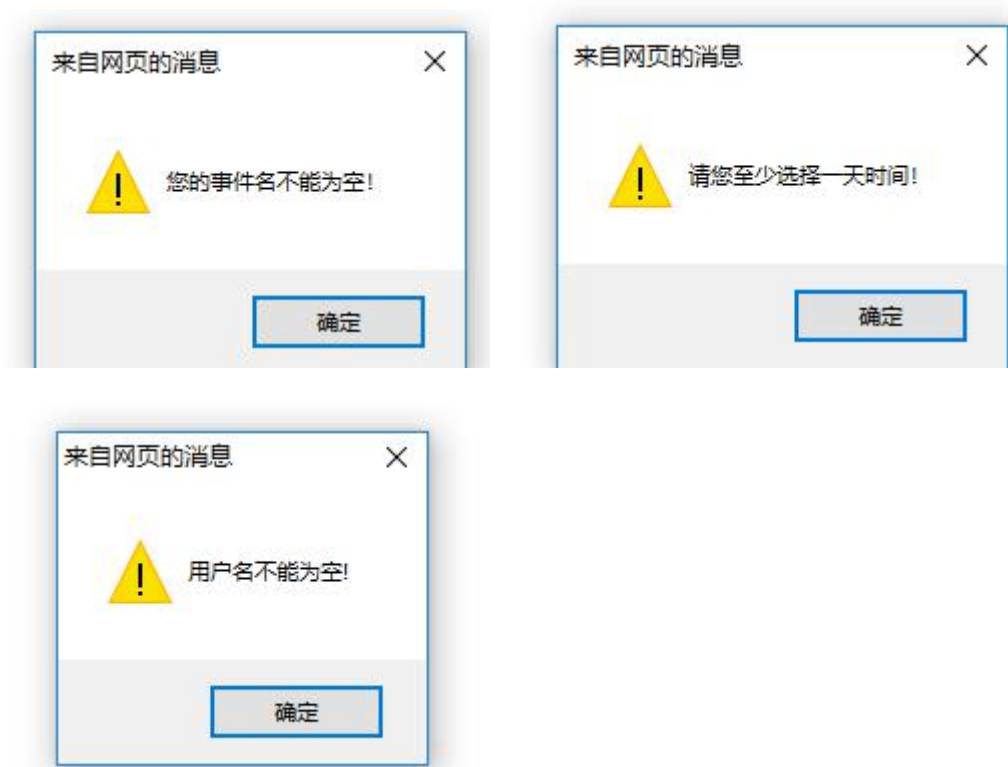
MIME type	count	% count	Σ size	Σ size (KB)	% size	min size	max size	Ø size	Ø size (KB)	Ø time
text/html	5 URLs	35.71%	134210 Bytes	(131 KB)	32.21%	5332 Bytes	41018 Bytes	26842 Bytes	(26 KB)	0.800
text/css	3 URLs	21.43%	5275 Bytes	(5 KB)	1.27%	556 Bytes	2658 Bytes	1758 Bytes	(1 KB)	
image/png	2 URLs	14.29%	50647 Bytes	(49 KB)	12.15%	9019 Bytes	41628 Bytes	25323 Bytes	(24 KB)	
application/javascript	4 URLs	28.57%	226551 Bytes	(221 KB)	54.37%	19927 Bytes	104409 Bytes	56637 Bytes	(55 KB)	
Total	14 URLs	100.00%	416683 Bytes	(406 KB)	100.00%					

All pages, by result type:

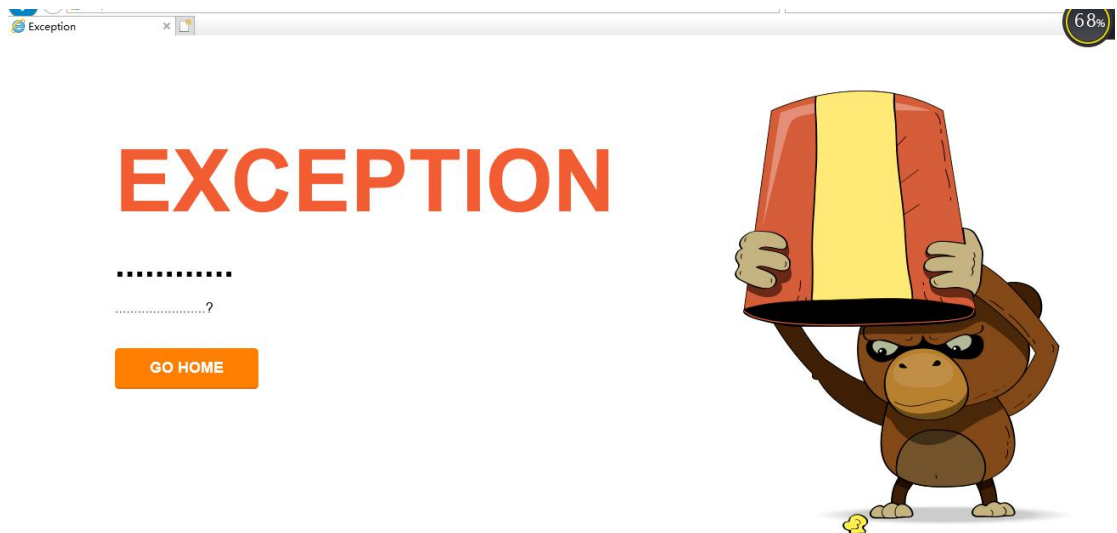
ok	14 URLs	93.33%
skip type	1 URLs	6.67%
Total	15 URLs	100.00%

[Return to Top](#)

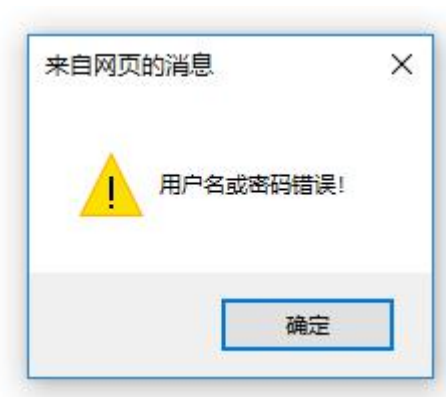
登录按钮，创建事件按钮正常可实现；下拉框数据完整且功能实现；创建事件时事件名字数限制 18 以内，用户名和密码也限制在 18 字以内，支持任意字符输入；事件名，用户名，选择日期不能为空否则会弹出警告窗口；



最晚结束时间不能早于最早开始时间，否则会跳转到报错页面；（选择 9am 为最早开始时间，选择 3am 为最晚结束时间，点击创建事件后跳转页面）



在该事件内刷新页面回到登陆界面，此时输入旧用户名后若输入密码不正确，则弹出警告窗口；



功能相关性：删除/增加用户不会对其他用户产生影响，一个用户增加或删除可选项只会对团队结果产生影响，对其他用户的选择没有影响；

不支持快捷键；

密码框填写空格时，会报错，即不允许空格键；

系统可恢复性：当选择天数过多时，网页刷新较为缓慢，但没遇到崩坏的情况；

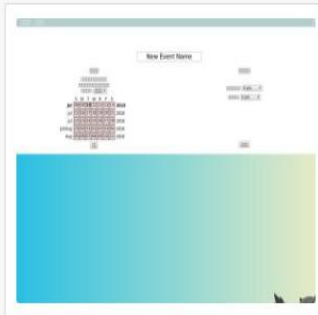
密码采用 MD5 加密方式加密。

三、性能测试

使用两种工具测试：PingDom Tools 和 GTmetrix 进行性能测试，具体测试结果见下面的截图

1、PingDom Tools 测试结果

Summary



Performance grade [?]

C 75

Load time

3.79 s

Faster than

42 %
of tested sites

Page size

308.4 kB

Requests

9

Tested from

New York City
on Jul 10 at 22:31

pingdom

Performance insights

pingdom

GRADE	SUGGESTION	
F 0	Leverage browser caching	▼
F 0	Specify a Vary: Accept-Encoding header	▼
A 100	Avoid bad requests	▼
A 100	Minimize redirects	▼
A 100	Minimize request size	▼
A 100	Remove query strings from static resources	▼
A 100	Serve static content from a cookieless domain	▼
A 100	Specify a cache validator	▼

Response codes

Response codes

RESPONSE CODE	RESPONSES
200 OK	9

Content size by content type

CONTENT TYPE	PERCENT	SIZE
 Script	72.0 %	222.08 KB
 Image	13.2 %	40.85 KB
 HTML	12.9 %	39.72 KB
 CSS	1.9 %	5.73 KB
Total	100.00 %	308.38 KB

Requests by content type

CONTENT TYPE	PERCENT	REQUESTS
 Script	44.4 %	4
 CSS	33.3 %	3
 HTML	11.1 %	1
 Image	11.1 %	1
Total	100.00 %	9

Content size by domain

DOMAIN	PERCENT	SIZE
60.205.220.197	100.0 %	308.38 KB
Total	100.00 %	308.38 KB

Requests by domain

DOMAIN	PERCENT	REQUESTS
60.205.220.197	100.0 %	9
Total	100.00 %	9

File requests










Sort by

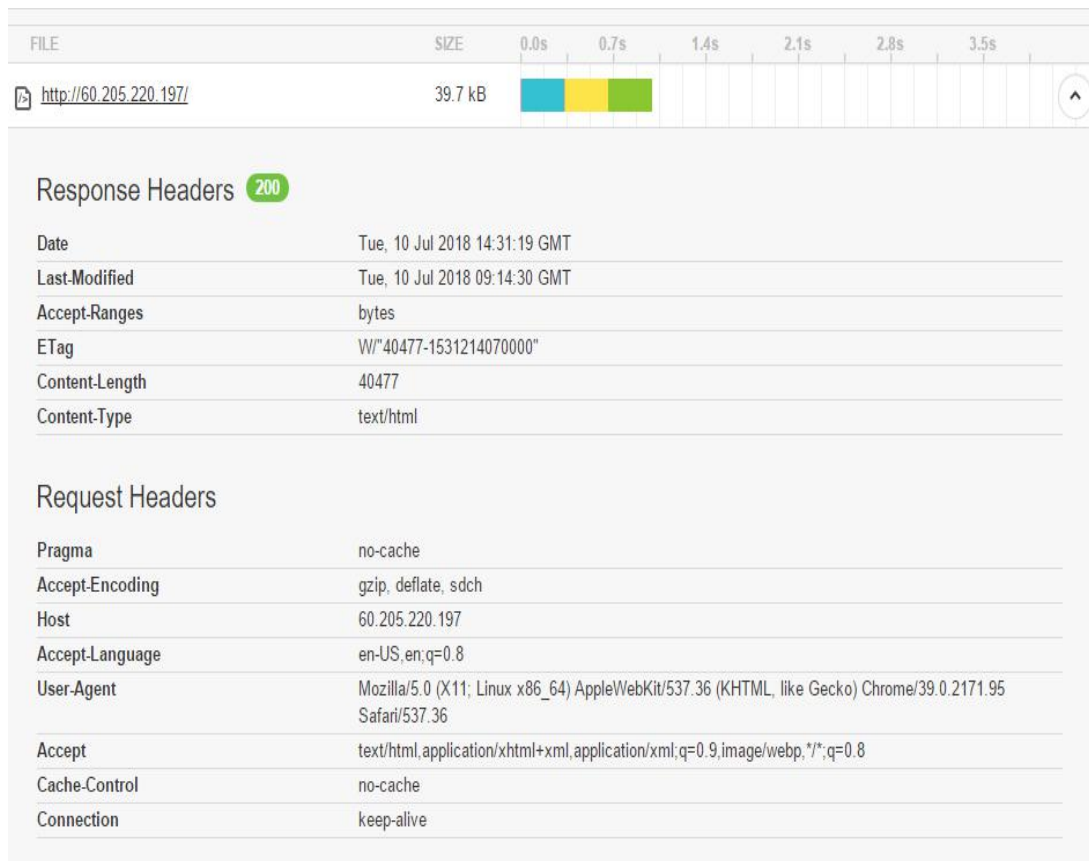
Load order

Filter

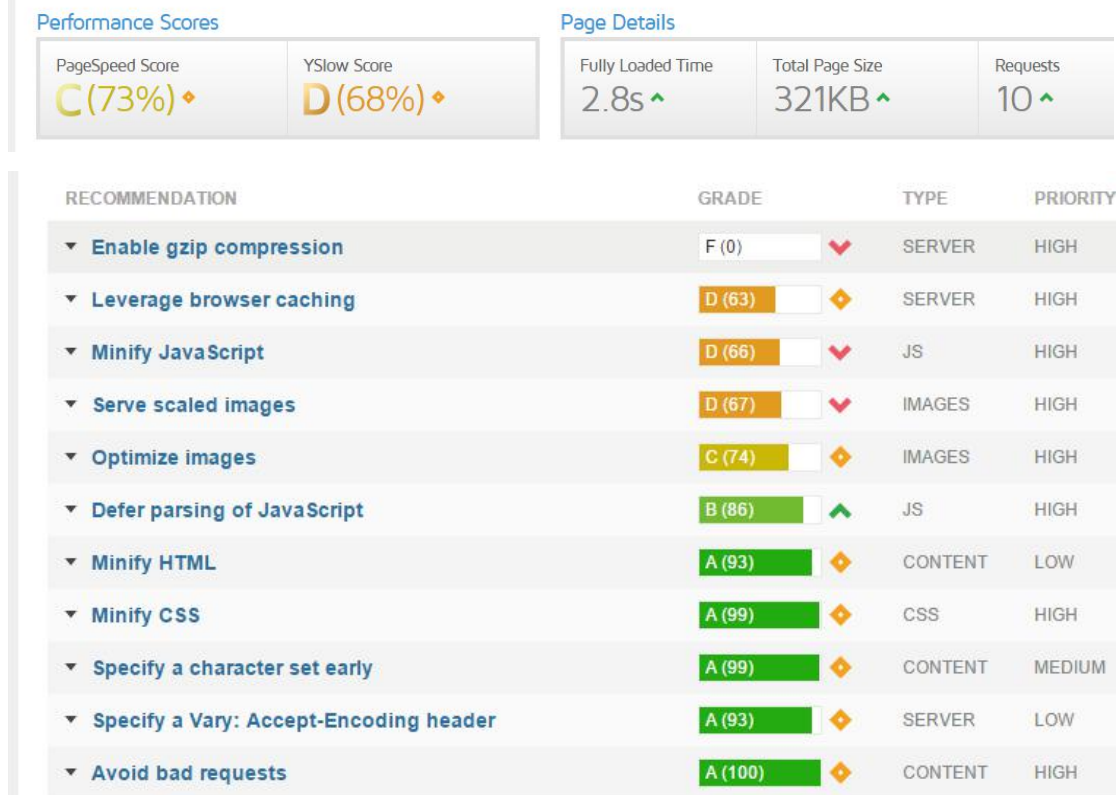


■ DNS
 ■ SSL
 ■ Send
 ■ Wait
 ■ Receive
 ■ Connect

FILE	SIZE	0.0s	0.7s	1.4s	2.1s	2.8s	3.5s	
 http://60.205.220.197/	39.7 kB	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>				
 style.css	2.8 kB		<div><div></div></div>					
 style2.css	2.2 kB		<div><div></div></div>	<div><div></div></div>				
 style3.css	752 B		<div><div></div></div>					
 moment.js	102.2 kB		<div><div></div></div>	<div><div></div></div>				
 moment-timezone-with-data-2012-2022.m...	32.1 kB		<div><div></div></div>	<div><div></div></div>				
 jquery-3.2.1.js	68.2 kB		<div><div></div></div>	<div><div></div></div>	<div><div></div></div>			
 QRCode.js	19.7 kB		<div><div></div></div>	<div><div></div></div>				
 meow.png	40.8 kB			<div><div></div></div>				
9 requests	308.4 kB	3.79 s						



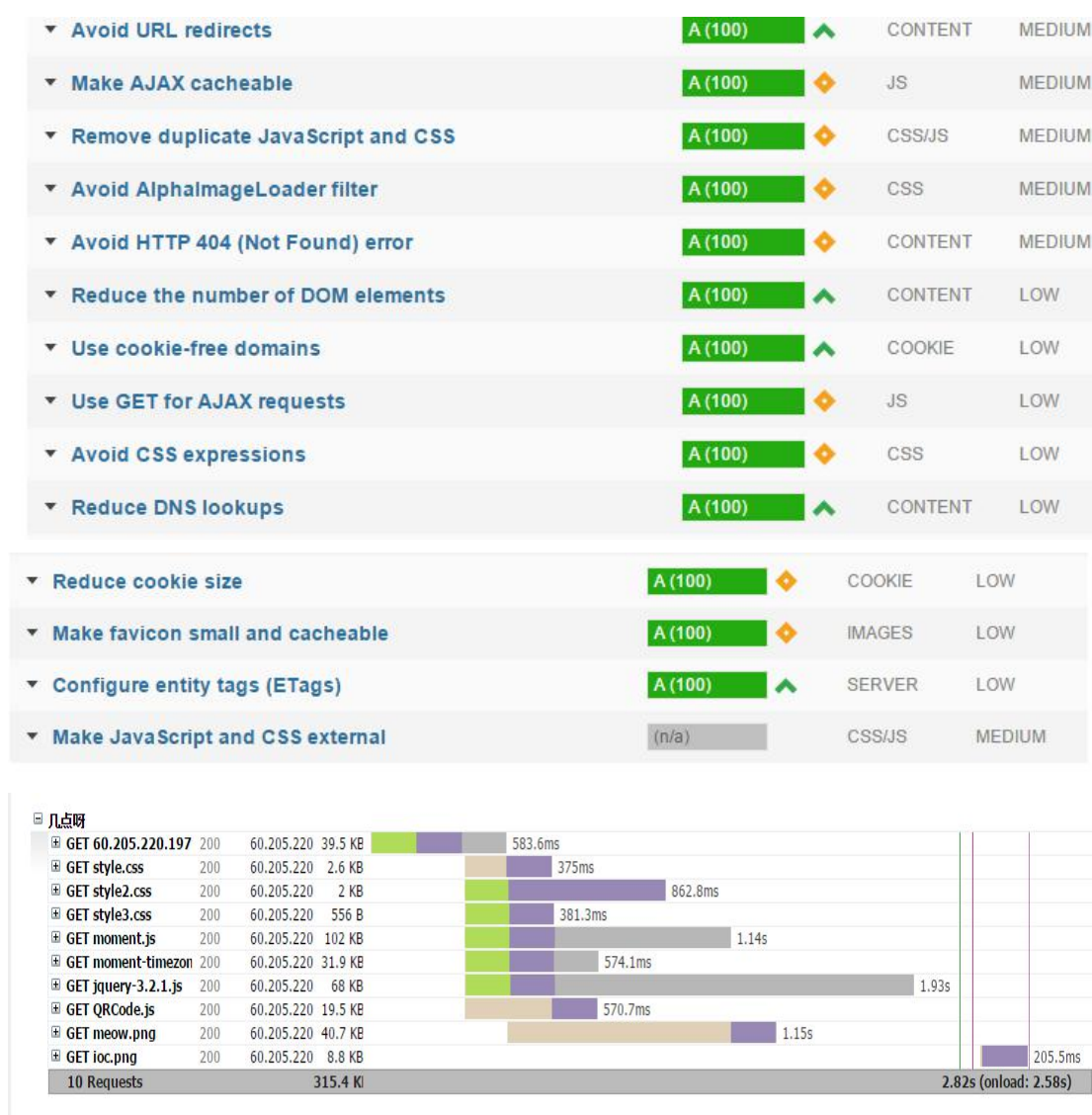
2、Gtmatrix 测试结果



▼ Avoid landing page redirects	A (100)	⬆	SERVER	HIGH
▼ Enable Keep-Alive	A (100)	⬆	SERVER	HIGH
▼ Inline small CSS	A (100)	⬆	CSS	HIGH
▼ Inline small JavaScript	A (100)	⬆	JS	HIGH
▼ Minimize redirects	A (100)	⬆	CONTENT	HIGH
▼ Minimize request size	A (100)	⬆	CONTENT	HIGH
▼ Optimize the order of styles and scripts	A (100)	⬆	CSS/JS	HIGH
▼ Put CSS in the document head	A (100)	⬆	CSS	HIGH
▼ Serve resources from a consistent URL	A (100)	⬆	CONTENT	HIGH
▼ Specify a cache validator	A (100)	⬆	SERVER	HIGH
▼ Combine images using CSS sprites	A (100)	⬆	IMAGES	HIGH
▼ Avoid CSS @import	A (100)	⬆	CSS	MEDIUM
▼ Prefer asynchronous resources	A (100)	⬆	JS	MEDIUM

▼ Avoid a character set in the meta tag	A (99)	⬆	CONTENT	LOW
▼ Specify image dimensions	A (100)	⬆	IMAGES	MEDIUM
▼ Remove query strings from static resources	A (100)	⬆	CONTENT	LOW

RECOMMENDATION	GRADE		TYPE	PRIORITY
▼ Add Expires headers	F (12)	⬇	SERVER	HIGH
▼ Compress components with gzip	F (12)	⬇	SERVER	HIGH
▼ Use a Content Delivery Network (CDN)	F (20)	⬆	SERVER	MEDIUM
▼ Minify JavaScript and CSS	F (20)	⬇	CSS/JS	MEDIUM
▼ Make fewer HTTP requests	A (92)	⬆	CONTENT	HIGH
▼ Avoid URL redirects	A (100)	⬆	CONTENT	MEDIUM
▼ Make AJAX cacheable	A (100)	⬆	JS	MEDIUM
▼ Remove duplicate JavaScript and CSS	A (100)	⬆	CSS/JS	MEDIUM
▼ Avoid AlphaImageLoader filter	A (100)	⬆	CSS	MEDIUM
▼ Avoid HTTP 404 (Not Found) error	A (100)	⬆	CONTENT	MEDIUM



四、安全性测试

我们的页面不能通过控制台注入代码，在此不进行 XSS。

五、WebUI 测试

主要包括：

- 1、整体页面测试：页面直观可感（具体页面介绍见 task7），风格统一。
- 2、导航测试：页面结构、导航、菜单、连接的风格一致，Web 系统的主要部分可通过主页存取，Web 系统不需要需要站点地图、搜索引擎或其他的导航帮助。
- 3、图形测试：所有页面字的风格、颜色、格式一致。
- 4、内容测试：在当前页面可以找到与当前浏览信息相关的信息列表或入口；无语法，拼写错误。
- 5、表格测试：界面表格布局、颜色、风格统一。
- 6、兼容性测试：在多个常用浏览器打开，均可以正常使用，PC 端和手机端均可正常使用。