

1、ElasticSearch回顾

Elasticsearch是用Java开发并且是当前最流行的开源的企业级搜索引擎。

能够达到实时搜索，稳定，可靠，快速，安装使用方便。

客户端支持Java、.NET (C#)、PHP、Python、Ruby等多种语言。

官方网站: <https://www.elastic.co/>

下载地址: <https://www.elastic.co/cn/start>

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应用场景

长沙好玩的地方



百度一下

长沙有哪些好玩的地方推荐? - 知乎



2020年12月22日 空中悬浮体验 ★★★☆☆3.西湖公园散步,58小镇(我长沙家旁边) ★★★☆☆4.大学城各种小吃,爬岳麓山观景,体力不行的可以坐缆车上山,玩滑道下山,鸟语林、欣赏湖...

知乎 百度快照

长沙最好玩的几个地方

名称: 长沙青天寨 服务特色: 项目丰富 游玩类型: 农家乐 现价: 90元起

长沙好玩的地方,2020年本人亲身游玩体验写下此篇旅游攻略,纯玩的经验分享,省心又省钱,多种玩法推荐,不走回头路,各种注意事项,自行游需看,交通便利,环境优美,项目丰富有趣..

长沙青天寨生态农业股份 2021-01 广告 保障

长沙有什么好玩的? - 知乎



2016年12月5日 国内出游必玩指南 1,914 人赞同了该回答 长沙并不是一个旅游城市,更多时候长沙被作为革命教育的地方,代表着人民对毛泽东的追思,对长沙人来说长沙有的也是情怀,而...

知乎 百度快照

长沙好玩的地方-2021长沙有什么好玩的地方推荐-去哪儿攻略



去哪儿攻略为您推荐长沙好玩的地方、长沙适合年轻人好玩的地方,2021长沙有什么好玩的地方快来看去哪儿攻略的推荐吧。

travel.qunar.com/p-cs300022-ch... 保障 百度快照

长沙 有哪些好玩的地方 - 百度知道



18个回答 - 回答时间: 2020年11月11日

最佳答案: 1、岳麓山 橘子洲和岳麓山,是长沙最值得去的两大景点,因为疫情期间岳麓书院没有开,我还小纠结了一会,要不要在这次行...

search.jd.com/Search?keyword=华为手机&enc=utf-8&wq=华为手机&pvid=e593f2f271264a45a859a6f1067e8443

手机 资料 白起老师 百度一下,你就知道

商品名称	价格	品牌/型号	配置/特点
畅享20 Pro 5G手机	¥2599.00	华为	12期免息可选, 送价值399元礼品, 全国联保/店铺延保1年
畅享20 SE手机	¥1899.00	华为	6.67英寸全高清大屏, 5000mAh大电池, 幻夜黑 (8GB+128GB), 1000+条评价
荣耀play4T 全网通手机	¥1499.00	荣耀	幻夜黑 (6G+128G) 标准版, 全国联保 品质保证
华为nova5i 手机	¥2099.00	华为	苏音蓝 (6GB+128GB), 全国联保 品质保证
荣耀Play3e 智能老人老年备用手机	¥958.00	荣耀	3020mAh长续航, 1300万大光圈相机, 幻夜黑, 1万+条评价

手机V15 6400万像素

2、图灵商城搜索效果实现:




根据关键字查询、根据品牌查询、商品类别、商品属性信息、价格区间、是否有库存、排序(销量、价格、上架时间等)



手机



手机 商品筛选 共 8 个商品


品牌:    朵唯

分类: 手机通讯 手机配件


cpu: 2核 4核 128G 32G 64G 钢化

颜色: 5G 白色 4G 蓝色 金色 黑色


综合排序 销量 价格 上架时间 ¥ - ¥ ☐ 仅显示有货




小米 手机




小米 11 手机



小米 10 手机



华为nova6se 手机 绮境森林 全...



华为P40 Pro 手机

3、ES索引库表结构分析

3.1 创建索引库

```
1
2 PUT product_db
3 {
4   "mappings": {
5     "properties": {
6       "id": {
7         "type": "long"
8       },
9       "name": {
10        "type": "text",
11        "analyzer": "ik_max_word"
12      },
13       "keywords": {
14        "type": "text",
15        "analyzer": "ik_max_word"
16      },
17       "subTitle": {
18        "type": "text",
19        "analyzer": "ik_max_word"
20      },
21       "salecount": {
22        "type": "long"
23      },
24       "putawayDate": {
```

```
25  "type": "date"
26  },
27  "price": {
28    "type": "double"
29  },
30
31  "promotionPrice": {
32    "type": "keyword"
33  },
34  "originalPrice": {
35    "type": "keyword"
36  },
37  "pic": {
38    "type": "keyword"
39  },
40  "sale": {
41    "type": "long"
42  },
43  "hasStock": {
44    "type": "boolean"
45  },
46  "brandId": {
47    "type": "long"
48  },
49  "brandName": {
50    "type": "keyword"
51  },
52  "brandImg": {
53    "type": "keyword"
54  },
55  "categoryId": {
56    "type": "long"
57  },
58  "categoryName": {
59    "type": "keyword"
60  },
61  "attrs": {
62    "type": "nested",
63    "properties": {
64      "attrId": {
65        "type": "long"
66      },
67      "attrName": {
```

```
68   "type": "keyword"
69 },
70   "attrValue": {
71     "type": "keyword"
72   }
73 }
74 }
75 }
76 }
77 }
78
```

索引数据准备

```
1  PUT /product_db/_doc/1
2  {
3    "id": "26",
4    "name": "小米 11 手机",
5    "keywords": "小米手机",
6    "subTitle": "AI智慧全面屏 6GB +64GB 亮黑色 全网通版 移动联通电信4G手机 双卡双待 双卡双待",
7    "price": "3999",
8    "promotionPrice": "2999",
9    "originalPrice": "5999",
10   "pic": "http://macro-oss.oss-cn-shenzhen.aliyuncs.com/mall/images/20180615/xiaomi.jpg",
11   "sale": 999,
12   "hasStock": true,
13   "salecount": 999,
14   "putawayDate": "2021-04-01",
15   "brandId": 6,
16   "brandName": "小米",
17   "brandImg": "http://macro-oss.oss-cn-shenzhen.aliyuncs.com/mall/images/20190129/1e34aef2a409119018a4c6258e39ecfb_222_222.png",
18   "categoryId": 19,
19   "categoryName": "手机通讯",
20   "attrs": [
21     {
22       "attrId": 1,
23       "attrName": "cpu",
24       "attrValue": "2核"
25     },
26     {
27       "attrId": 2,
28       "attrName": "颜色",
29       "attrValue": "黑色"
```

```
30  }
31  ]
32  }
33
34  PUT /product_db/_doc/2
35  {
36    "id": "27",
37    "name": "小米 10 手机",
38    "keywords": "小米手机",
39    "subTitle": "AI智慧全面屏 4GB +64GB 亮白色 全网通版 移动联通电信4G手机 双卡双待 双卡双待",
40    "price": "2999",
41    "promotionPrice": "1999",
42    "originalPrice": "3999",
43    "pic": "http://macro-oss.oss-cn-shenzhen.aliyuncs.com/mall/images/20180615/xiaomi.jpg",
44    "sale": 999,
45    "hasStock": false,
46    "salecount":99,
47    "putawayDate":"2021-04-02",
48    "brandId": 6,
49    "brandName": "小米",
50    "brandImg": "http://macro-oss.oss-cn-shenzhen.aliyuncs.com/mall/images/20190129/1e34aef2a409119018a4c6258e39ecfb_222_222.png",
51    "categoryId": 19,
52    "categoryName": "手机通讯",
53    "attrs": [
54      {
55        "attrId": 1,
56        "attrName": "cpu",
57        "attrValue": "4核"
58      },
59      {
60        "attrId": 2,
61        "attrName": "颜色",
62        "attrValue": "白色"
63      }
64    ]
65  }
66  PUT /product_db/_doc/3
67  {
68    "id": "28",
69    "name": "小米 手机",
70    "keywords": "小米手机",
```

```
71  "subTitle": "AI智慧全面屏 4GB +64GB 亮蓝色 全网通版 移动联通电信4G手机 双卡双待 双  
卡双待",  
72  "price": "2999",  
73  "promotionPrice": "1999",  
74  "originalPrice": "3999",  
75  "pic": "http://macro-oss.oss-cn-shenzhen.aliyuncs.com/mall/images/20180615/xi  
aomi.jpg",  
76  "sale": 999,  
77  "hasStock": true,  
78  "salecount":199,  
79  "putawayDate":"2021-04-03",  
80  "brandId": 6,  
81  "brandName": "小米",  
82  "brandImg": "http://macro-oss.oss-cn-shenzhen.aliyuncs.com/mall/images/201901  
29/1e34aef2a409119018a4c6258e39ecfb_222_222.png",  
83  "categoryId": 19,  
84  "categoryName": "手机通讯",  
85  "attrs": [  
86  {  
87  "attrId": 1,  
88  "attrName": "cpu",  
89  "attrValue": "2核"  
90  },  
91  {  
92  "attrId": 2,  
93  "attrName": "颜色",  
94  "attrValue": "蓝色"  
95  }  
96  ]  
97  }  
98  PUT /product_db/_doc/4  
99  {  
100  "id": "29",  
101  "name": "Apple iPhone 8 Plus 64GB 金色特别版 移动联通电信4G手机",  
102  "keywords": "苹果手机",  
103  "subTitle": "苹果手机 Apple产品年中狂欢节, 好物尽享, 美在智慧! 速来 >> 勾选[保障服  
务][原厂保2年], 获得AppleCare+全方位服务计划, 原厂延保售后无忧。",  
104  "price": "5999",  
105  "promotionPrice": "4999",  
106  "originalPrice": "7999",  
107  "pic": "http://macro-oss.oss-cn-shenzhen.aliyuncs.com/mall/images/20180615/5a  
cc5248N6a5f81cd.jpg",  
108  "sale": 999,  
109  "hasStock": true,
```

```
110   "salecount":1199,
111   "putawayDate":"2021-04-04",
112   "brandId": 51,
113   "brandName": "苹果",
114   "brandImg": "http://macro-oss.oss-cn-shenzhen.aliyuncs.com/mall/images/20180607/timg.jpg",
115   "categoryId": 19,
116   "categoryName": "手机通讯",
117   "attrs": [
118   {
119     "attrId": 1,
120     "attrName": "cpu",
121     "attrValue": "4核"
122   },
123   {
124     "attrId": 2,
125     "attrName": "颜色",
126     "attrValue": "金色"
127   }
128   ]
129 }
130 PUT /product_db/_doc/5
131 {
132   "id": "30",
133   "name": "HLA海澜之家简约动物印花短袖T恤",
134   "keywords": "海澜之家衣服",
135   "subTitle": "HLA海澜之家短袖T恤",
136   "price": "199",
137   "promotionPrice": "99",
138   "originalPrice": "299",
139   "pic": "http://macro-oss.oss-cn-shenzhen.aliyuncs.com/mall/images/20180615/5ad83a4fN6ff67ecd.jpg!cc_350x449.jpg",
140   "sale": 999,
141   "hasStock": true,
142   "salecount":19,
143   "putawayDate":"2021-04-05",
144   "brandId": 50,
145   "brandName": "海澜之家",
146   "brandImg": "http://macro-oss.oss-cn-shenzhen.aliyuncs.com/mall/images/20190129/99d3279f1029d32b929343b09d3c72de_222_222.jpg",
147   "categoryId": 8,
148   "categoryName": "T恤",
149   "attrs": [
150   {
```



```
151   "attrId": 3,
152   "attrName": "尺寸",
153   "attrValue": "M"
154 },
155 {
156   "attrId": 4,
157   "attrName": "颜色",
158   "attrValue": "黑色"
159 }
160 ]
161 }
162 PUT /product_db/_doc/6
163 {
164   "id": "31",
165   "name": "HLA海澜之家蓝灰花纹圆领针织布短袖T恤",
166   "keywords": "海澜之家衣服",
167   "subTitle": "HLA海澜之家短袖T恤",
168   "price": "299",
169   "promotionPrice": "199",
170   "originalPrice": "299",
171   "pic": "http://macro-oss.oss-cn-shenzhen.aliyuncs.com/mall/images/20180615/5a
c98b64N70acd82f.jpg!cc_350x449.jpg",
172   "sale": 999,
173   "hasStock": true,
174   "salecount": 399,
175   "putawayDate": "2021-04-06",
176   "brandId": 50,
177   "brandName": "海澜之家",
178   "brandImg": "http://macro-oss.oss-cn-shenzhen.aliyuncs.com/mall/images/201901
29/99d3279f1029d32b929343b09d3c72de_222_222.jpg",
179   "categoryId": 8,
180   "categoryName": "T恤",
181   "attrs": [
182     {
183       "attrId": 3,
184       "attrName": "尺寸",
185       "attrValue": "X"
186     },
187     {
188       "attrId": 4,
189       "attrName": "颜色",
190       "attrValue": "蓝灰"
191     }
192   ]
193 }
```

```
192 ]
193 }
194 PUT /product_db/_doc/7
195 {
196   "id": "32",
197   "name": "HLA海澜之家短袖T恤男基础款",
198   "keywords": "海澜之家衣服",
199   "subTitle": "HLA海澜之家短袖T恤",
200   "price": "269",
201   "promotionPrice": "169",
202   "originalPrice": "399",
203   "pic": "http://macro-oss.oss-cn-shenzhen.aliyuncs.com/mall/images/20180615/5a51eb88Na4797877.jpg",
204   "sale": 999,
205   "hasStock": true,
206   "salecount": 399,
207   "putawayDate": "2021-04-07",
208   "brandId": 50,
209   "brandName": "海澜之家",
210   "brandImg": "http://macro-oss.oss-cn-shenzhen.aliyuncs.com/mall/images/20190129/99d3279f1029d32b929343b09d3c72de_222_222.jpg",
211   "categoryId": 8,
212   "categoryName": "T恤",
213   "attrs": [
214     {
215       "attrId": 3,
216       "attrName": "尺寸",
217       "attrValue": "L"
218     },
219     {
220       "attrId": 4,
221       "attrName": "颜色",
222       "attrValue": "蓝色"
223     }
224   ]
225 }
226 PUT /product_db/_doc/8
227 {
228   "id": "33",
229   "name": "小米（MI）小米电视4A ",
230   "keywords": "小米电视机家用电器",
231   "subTitle": "小米（MI）小米电视4A 55英寸 L55M5-AZ/L55M5-AD 2GB+8GB HDR 4K超高清人工智能网络液晶平板电视",
232   "price": "2269",
```

```
233   "promotionPrice": "2169",
234   "originalPrice": "2399",
235   "pic": "http://macro-oss.oss-cn-shenzhen.aliyuncs.com/mall/images/20180615/5t
02804dN66004d73.jpg",
236   "sale": 999,
237   "hasStock": true,
238   "salecount":132,
239   "putawayDate":"2021-04-09",
240   "brandId": 6,
241   "brandName": "小米",
242   "brandImg": "http://macro-oss.oss-cn-shenzhen.aliyuncs.com/mall/images/201901
29/1e34aef2a409119018a4c6258e39ecfb_222_222.png",
243   "categoryId": 35,
244   "categoryName": "手机数码",
245   "attrs": [
246   {
247     "attrId": 5,
248     "attrName": "屏幕尺寸",
249     "attrValue": "52"
250   },
251   {
252     "attrId": 6,
253     "attrName": "机身颜色",
254     "attrValue": "黑色"
255   }
256 ]
257 }
258 PUT /product_db/_doc/9
259 {
260   "id": "34",
261   "name": "小米（MI）小米电视4A 65英寸",
262   "keywords": "小米电视机家用电器",
263   "subTitle": "小米（MI）小米电视4A 65英寸 L55M5-AZ/L55M5-AD 2GB+8GB HDR 4K超高清
人工智能网络液晶平板电视",
264   "price": "3269",
265   "promotionPrice": "3169",
266   "originalPrice": "3399",
267   "pic": "http://macro-oss.oss-cn-shenzhen.aliyuncs.com/mall/images/20180615/5t
028530N51eee7d4.jpg",
268   "sale": 999,
269   "hasStock": true,
270   "salecount":999,
271   "putawayDate":"2021-04-10",
272   "brandId": 6,
```

```
273   "brandName": "小米",
274   "brandImg": "http://macro-oss.oss-cn-shenzhen.aliyuncs.com/mall/images/20190129/1e34aef2a409119018a4c6258e39ecfb_222_222.png",
275   "categoryId": 35,
276   "categoryName": "手机数码",
277   "attrs": [
278     {
279       "attrId": 5,
280       "attrName": "屏幕尺寸",
281       "attrValue": "65"
282     },
283     {
284       "attrId": 6,
285       "attrName": "机身颜色",
286       "attrValue": "金色"
287     }
288   ]
289 }
290 PUT /product_db/_doc/10
291 {
292   "id": "35",
293   "name": "耐克NIKE 男子 休闲鞋 ROSHE RUN 运动鞋 511881-010黑色41码",
294   "keywords": "耐克运动鞋 鞋子",
295   "subTitle": "耐克NIKE 男子 休闲鞋 ROSHE RUN 运动鞋 511881-010黑色41码",
296   "price": "569",
297   "promotionPrice": "369",
298   "originalPrice": "899",
299   "pic": "http://macro-oss.oss-cn-shenzhen.aliyuncs.com/mall/images/20180615/5b235bb9Nf606460b.jpg",
300   "sale": 999,
301   "hasStock": true,
302   "salecount": 399,
303   "putawayDate": "2021-04-11",
304   "brandId": 58,
305   "brandName": "NIKE",
306   "brandImg": "http://macro-oss.oss-cn-shenzhen.aliyuncs.com/mall/images/20180615/timg (51).jpg",
307   "categoryId": 29,
308   "categoryName": "男鞋",
309   "attrs": [
310     {
311       "attrId": 7,
312       "attrName": "尺码",
313       "attrValue": "42"
```

```
314 },
315 {
316   "attrId": 8,
317   "attrName": "颜色",
318   "attrValue": "黑色"
319 }
320 ]
321 }
322 PUT /product_db/_doc/11
323 {
324   "id": "36",
325   "name": "耐克NIKE 男子 气垫 休闲鞋 AIR MAX 90 ESSENTIAL 运动鞋 AJ1285-101白色41
码",
326   "keywords": "耐克运动鞋 鞋子",
327   "subTitle": "AIR MAX 90 ESSENTIAL 运动鞋 AJ1285-101白色",
328   "price": "769",
329   "promotionPrice": "469",
330   "originalPrice": "999",
331   "pic": "http://macro-oss.oss-cn-shenzhen.aliyuncs.com/mall/images/20180615/5t
19403eN9f0b3cb8.jpg",
332   "sale": 999,
333   "hasStock": true,
334   "salecount": 499,
335   "putawayDate": "2021-04-13",
336   "brandId": 58,
337   "brandName": "NIKE",
338   "brandImg": "http://macro-oss.oss-cn-shenzhen.aliyuncs.com/mall/images/201806
15/timg (51).jpg",
339   "categoryId": 29,
340   "categoryName": "男鞋",
341   "attrs": [
342     {
343       "attrId": 7,
344       "attrName": "尺码",
345       "attrValue": "44"
346     },
347     {
348       "attrId": 8,
349       "attrName": "颜色",
350       "attrValue": "白色"
351     }
352   ]
353 }
354 PUT /product_db/_doc/12
```

```
355 {
356   "id": "37",
357   "name": "(华为)HUAWEI MateBook X Pro 2019款 13.9英寸3K触控全面屏 轻薄笔记本",
358   "keywords": "轻薄笔记本华为 笔记本电脑",
359   "subTitle": "轻薄华为笔记本 电脑",
360   "price": "4769",
361   "promotionPrice": "4469",
362   "originalPrice": "4999",
363   "pic": "http://tuling-mall.oss-cn-shenzhen.aliyuncs.com/tulingmall/images/20200317/800_800_1555752016264mp.png",
364   "sale": 999,
365   "hasStock": true,
366   "salecount": 699,
367   "putawayDate": "2021-04-14",
368   "brandId": 3,
369   "brandName": "华为",
370   "brandImg": "http://macro-oss.oss-cn-shenzhen.aliyuncs.com/mall/images/20190129/17f2dd9756d9d333bee8e60ce8c03e4c_222_222.jpg",
371   "categoryId": 19,
372   "categoryName": "手机通讯",
373   "attrs": [
374     {
375       "attrId": 9,
376       "attrName": "容量",
377       "attrValue": "16G"
378     },
379     {
380       "attrId": 10,
381       "attrName": "网络",
382       "attrValue": "4G"
383     }
384   ]
385 }
386 PUT /product_db/_doc/13
387 {
388   "id": "38",
389   "name": "华为nova6se 手机 绮境森林 全网通（8G+128G)",
390   "keywords": "轻薄笔记本华为 手机",
391   "subTitle": "华为nova6se 手机",
392   "price": "6769",
393   "promotionPrice": "6469",
394   "originalPrice": "6999",
395   "pic": "http://macro-oss.oss-cn-shenzhen.aliyuncs.com/mall/images/20180607/5ac1bf58Ndefaac16.jpg",
```

```
396   "sale": 999,
397   "hasStock": true,
398   "salecount":899,
399   "putawayDate":"2021-04-15",
400   "brandId": 3,
401   "brandName": "华为",
402   "brandImg": "http://macro-oss.oss-cn-shenzhen.aliyuncs.com/mall/images/20190129/17f2dd9756d9d333bee8e60ce8c03e4c_222_222.jpg",
403   "categoryId": 19,
404   "categoryName": "手机通讯",
405   "attrs": [
406     {
407       "attrId": 9,
408       "attrName": "容量",
409       "attrValue": "64G"
410     },
411     {
412       "attrId": 10,
413       "attrName": "网络",
414       "attrValue": "5G"
415     }
416   ]
417 }
418 PUT /product_db/_doc/14
419 {
420   "id": "39",
421   "name": "iPhone7/6s/8钢化膜苹果8Plus全屏复盖抗蓝光防窥防偷看手机膜",
422   "keywords": "手机膜",
423   "subTitle": "iPhone7/6s/8钢化膜苹果8Plus全屏复盖抗蓝光防窥防偷看手机膜",
424   "price": "29",
425   "promotionPrice": "39",
426   "originalPrice": "49",
427   "pic": "http://tuling-mall.oss-cn-shenzhen.aliyuncs.com/tulingmall/images/20200311/6df99dab78bb2014.jpg",
428   "sale": 999,
429   "hasStock": true,
430   "salecount":799,
431   "putawayDate":"2021-04-16",
432   "brandId": 51,
433   "brandName": "苹果",
434   "brandImg": "http://tuling-mall.oss-cn-shenzhen.aliyuncs.com/tulingmall/images/20200311/2b84746650fc122d67749a876c453619.png",
435   "categoryId": 30,
436   "categoryName": "手机配件",
```

```
437   "attrs": [  
438     {  
439       "attrId": 11,  
440       "attrName": "手机膜-材料",  
441       "attrValue": "钢化"  
442     },  
443     {  
444       "attrId": 12,  
445       "attrName": "手机膜-颜色",  
446       "attrValue": "白色"  
447     }  
448   ]  
449 }  
450  
451 PUT /product_db/_doc/15  
452 {  
453   "id": "40",  
454   "name": "七匹狼短袖T恤男纯棉舒适春夏修身运动休闲短袖三条装 圆领3条装",  
455   "keywords": "七匹狼服装 衣服",  
456   "subTitle": "七匹狼短袖T恤男纯棉舒适春夏修身运动休闲短袖三条装 圆领3条装",  
457   "price": "129",  
458   "promotionPrice": "139",  
459   "originalPrice": "149",  
460   "pic": "http://tuling-mall.oss-cn-shenzhen.aliyuncs.com/tulingmall/images/20200311/19e846e727dff337.jpg",  
461   "sale": 999,  
462   "hasStock": true,  
463   "salecount": 199,  
464   "putawayDate": "2021-04-20",  
465   "brandId": 49,  
466   "brandName": "七匹狼",  
467   "brandImg": "http://macro-oss.oss-cn-shenzhen.aliyuncs.com/mall/images/20190129/18d8bc3eb13533fab466d702a0d3fd1f40345bcd.jpg",  
468   "categoryId": 8,  
469   "categoryName": "T恤",  
470   "attrs": [  
471     {  
472       "attrId": 3,  
473       "attrName": "尺寸",  
474       "attrValue": "M"  
475     },  
476     {  
477       "attrId": 4,
```



```
478   "attrName": "颜色",
479   "attrValue": "白色"
480 }
481 ]
482 }
483 PUT /product_db/_doc/16
484 {
485   "id": "41",
486   "name": "华为P40 Pro手机",
487   "keywords": "华为手机",
488   "subTitle": "华为P40 Pro手机",
489   "price": "2129",
490   "promotionPrice": "2139",
491   "originalPrice": "2149",
492   "pic": "http://macro-oss.oss-cn-shenzhen.aliyuncs.com/mall/images/20180607/5a
c1bf58Ndefaac16.jpg",
493   "sale": 999,
494   "hasStock": true,
495   "salecount": 199,
496   "putawayDate": "2021-05-03",
497   "brandId": 3,
498   "brandName": "华为",
499   "brandImg": "http://macro-oss.oss-cn-shenzhen.aliyuncs.com/mall/images/201901
29/17f2dd9756d9d333bee8e60ce8c03e4c_222_222.jpg",
500   "categoryId": 19,
501   "categoryName": "手机通讯",
502   "attrs": [
503   {
504     "attrId": 9,
505     "attrName": "容量",
506     "attrValue": "128G"
507   },
508   {
509     "attrId": 10,
510     "attrName": "网络",
511     "attrValue": "5G"
512   }
513 ]
514 }
515 PUT /product_db/_doc/17
516 {
517   "id": "42",
518   "name": "朵唯智能手机 4G全网通 老人学生双卡双待手机",
```

```
519   "keywords": "朵唯手机",
520   "subTitle": "朵唯手机后置双摄, 国产虎贲芯片! 优化散热结构! 浅薄机身! 朵唯4月特惠!",
521   "price": "3129",
522   "promotionPrice": "3139",
523   "originalPrice": "3249",
524   "pic": "http://macro-oss.oss-cn-shenzhen.aliyuncs.com/mall/images/20180615/xiaomi.jpg",
525   "sale": 999,
526   "hasStock": true,
527   "salecount": 1199,
528   "putawayDate": "2021-06-01",
529   "brandId": 59,
530   "brandName": "朵唯",
531   "brandImg": "http://tuling-mall.oss-cn-shenzhen.aliyuncs.com/tulingmall/images/20200311/2b84746650fc122d67749a876c453619.png",
532   "categoryId": 19,
533   "categoryName": "手机通讯",
534   "attrs": [
535     {
536       "attrId": 9,
537       "attrName": "容量",
538       "attrValue": "32G"
539     },
540     {
541       "attrId": 10,
542       "attrName": "网络",
543       "attrValue": "4G"
544     }
545   ]
546 }
547
```

检索DSL语句构建

```
1  POST /product_db/_doc/_search
2  {
3    "from": 0,
4    "size": 8,
5    "query": {
6      "bool": {
7        "must": [
8          {
9            "match": {
```

```
10  "name": {
11  "query": "手机"
12  }
13  }
14  }
15  ],
16  "filter": [
17  {
18  "term": {
19  "hasStock": {
20  "value": true
21  }
22  }
23  },
24  {
25  "range": {
26  "price": {
27  "from": "1",
28  "to": "5000"
29  }
30  }
31  }
32  ]
33  }
34  }, "sort": [
35  {
36  "salecount": {
37  "order": "asc"
38  }
39  }
40  ],
41  "aggregations": {
42  "brand_agg": {
43  "terms": {
44  "field": "brandId",
45  "size": 50
46  },
47  "aggregations": {
48  "brand_name_agg": {
49  "terms": {
50  "field": "brandName"
51  }
52  },
```

```
53   "brand_img_agg": {
54     "terms": {
55       "field": "brandImg"
56     }
57   }
58 }
59 },
60 "category_agg": {
61   "terms": {
62     "field": "categoryId",
63     "size": 50,
64     "min_doc_count": 1
65   },
66   "aggregations": {
67     "category_name_agg": {
68       "terms": {
69         "field": "categoryName"
70       }
71     }
72   }
73 },
74 "attr_agg": {
75   "nested": {
76     "path": "attrs"
77   },
78   "aggregations": {
79     "attr_id_agg": {
80       "terms": {
81         "field": "attrs.attrId"
82       },
83       "aggregations": {
84         "attr_name_agg": {
85           "terms": {
86             "field": "attrs.attrName"
87           }
88         },
89         "attr_value_agg": {
90           "terms": {
91             "field": "attrs.attrValue"
92           }
93         }
94       }
95     }
```

```

96  }
97  }
98  },
99  "highlight": {
100   "pre_tags": [
101    "<b style='color:red'>"
102   ],
103   "post_tags": [
104    "</b>"
105   ],
106   "fields": {
107    "name": {}
108   }
109  }
110 }
111
112

```

Postman测试

```

1 http://127.0.0.1:8085/searchList?price=1_5000&keyword=手机&sort=salecount_asc&hasStock=1&pageNum=1&pageSize=20&categoryId=19&attrs=2_蓝色&attrs=1_2核

```

java代码实现

```

1 控制层：
2 @ResponseBody
3 @RequestMapping(value = "/searchList")
4 public CommonResult<ESResponseResult> listPage(ESRequestParam param, HttpServletRequest request) {
5
6     //1、根据传递来的页面的查询参数，去es中检索商品
7     ESResponseResult searchResult = tulingMallSearchService.search(param);
8
9     return CommonResult.success(searchResult);
10 }

```

```

1 服务层：
2 @Override
3 public ESResponseResult search(ESRequestParam param) {
4

```

```

5  try {
6  //1、构建检索对象-封装请求相关参数信息
7  SearchRequest searchRequest = startBuildRequestParam(param);
8
9  //2、进行检索操作
10 SearchResponse response = client.search(searchRequest,
    RequestOptions.DEFAULT);
11
12 //3、分析响应数据，封装成指定的格式
13 ESResponseResult responseResult = startBuildResponseResult(response, param);
14 return responseResult;
15 } catch (Exception e) {
16 e.printStackTrace();
17 }
18
19 return null;
20
21 }
22
23 /**
24  * 封装请求参数信息
25  * 关键字查询、根据属性、分类、品牌、价格区间、是否有库存等进行过滤、分页、高亮、以及
    聚合统计品牌分类属性
26  *
27  */
28 private SearchRequest startBuildRequestParam(ESRequestParam param) {
29
30 SearchSourceBuilder searchSourceBuilder = new SearchSourceBuilder();
31
32 /**
33  * 关键字查询、根据属性、分类、品牌、价格区间、是否有库存等进行过滤、分页、高亮、以及
    聚合统计品牌分类属性
34  */
35 BoolQueryBuilder boolQueryBuilder = new BoolQueryBuilder();
36
37 //1、
38 if (!StringUtils.isEmpty(param.getKeyword())) {
39 //单字段查询
40 //boolQueryBuilder.must(QueryBuilders.matchQuery("name", param.getKeyword
    ()));
41 //多字段查询
42 boolQueryBuilder.must(QueryBuilders.multiMatchQuery(param.getKeyword(), "name", "ke
    ywords", "subTitle"));
43 }

```

```

44
45 //2、根据类目ID进行过滤
46 if (null != param.getCategoryId()) {
47     boolQueryBuilder.filter(QueryBuilders.termQuery("categoryId", param.getCategoryId()));
48 }
49
50 //3、根据品牌ID进行过滤
51 if (null != param.getBrandId() && param.getBrandId().size() > 0) {
52     boolQueryBuilder.filter(QueryBuilders.termsQuery("brandId",
53         param.getBrandId()));
54 }
55 //4、根据属性进行相关过滤
56 if (param.getAttrs() != null && param.getAttrs().size() > 0) {
57
58     param.getAttrs().forEach(item -> {
59         //attrs=1_白色&2_4核
60         BoolQueryBuilder boolQuery = QueryBuilders.boolQuery();
61
62         //attrs=1_64G
63         String[] s = item.split("_");
64         String attrId = s[0];
65         String[] attrValues = s[1].split(":");//这个属性检索用的值
66         boolQuery.must(QueryBuilders.termQuery("attrs.attrId", attrId));
67         boolQuery.must(QueryBuilders.termsQuery("attrs.attrValue", attrValues));
68
69         NestedQueryBuilder nestedQueryBuilder = QueryBuilders.nestedQuery("attrs", boolQuery, ScoreMode.None);
70         boolQueryBuilder.filter(nestedQueryBuilder);
71     });
72 }
73 }
74
75 //5、是否有库存
76 if (null != param.getHasStock()) {
77     boolQueryBuilder.filter(QueryBuilders.termQuery("hasStock",
78         param.getHasStock() == 1));
79 }
80
81 //6、根据价格过滤
82 if (!StringUtils.isEmpty(param.getPrice())) {
83     //价格的输入形式为：10-100（起始价格和最终价格）或-100（不指定起始价格）或10-（不限
84     //制最终价格）

```

```
84 RangeQueryBuilder rangeQueryBuilder = QueryBuilders.rangeQuery("price");
85 String[] price = param.getPrice().split("_");
86 if (price.length == 2) {
87     rangeQueryBuilder.gte(price[0]).lte(price[1]);
88 } else if (price.length == 1) {
89     if (param.getPrice().startsWith("_")) {
90         rangeQueryBuilder.lte(price[1]);
91     }
92     if (param.getPrice().endsWith("_")) {
93         rangeQueryBuilder.gte(price[0]);
94     }
95 }
96 boolQueryBuilder.filter(rangeQueryBuilder);
97 }
98
99 //封装所有查询条件
100 searchSourceBuilder.query(boolQueryBuilder);
101
102
103 /**
104  * 实现排序、高亮、分页操作
105  */
106
107 //排序
108 //页面传入的参数值形式 sort=price_asc/desc
109 if (!StringUtils.isEmpty(param.getSort())) {
110     String sort = param.getSort();
111     String[] sortFiledss = sort.split("_");
112     System.out.println("sortFiledss:" + sortFiledss.length);
113     if (!StringUtils.isEmpty(sortFiledss[0])) {
114         SortOrder sortOrder = "asc".equalsIgnoreCase(sortFiledss[1]) ? SortOrder.ASC :
SortOrder.DESC;
115         searchSourceBuilder.sort(sortFiledss[0], sortOrder);
116     }
117 }
118
119 //分页查询
120 searchSourceBuilder.from((param.getPageNum() - 1) *
SearchConstant.PAGE_SIZE);
121 searchSourceBuilder.size(SearchConstant.PAGE_SIZE);
122
123 //高亮显示
124 if (!StringUtils.isEmpty(param.getKeyword())) {
125
```



```

126 HighlightBuilder highlightBuilder = new HighlightBuilder();
127 highlightBuilder.field("name");
128 highlightBuilder.preTags("<b style='color:red'>");
129 highlightBuilder.postTags("</b>");
130
131 searchSourceBuilder.highlighter(highlightBuilder);
132 }
133
134
135 /**
136  * 对品牌、分类信息、属性信息进行聚合分析
137  */
138 //1. 按照品牌进行聚合
139 TermsAggregationBuilder brand_agg = AggregationBuilders.terms("brand_agg");
140 brand_agg.field("brandId").size(50);
141
142
143 //1.1 品牌的子聚合-品牌名聚合
144 brand_agg.subAggregation(AggregationBuilders.terms("brand_name_agg")
145     .field("brandName").size(1));
146 //1.2 品牌的子聚合-品牌图片聚合
147 brand_agg.subAggregation(AggregationBuilders.terms("brand_img_agg")
148     .field("brandImg").size(1));
149
150 searchSourceBuilder.aggregation(brand_agg);
151
152 //2. 按照分类信息进行聚合
153 TermsAggregationBuilder category_agg = AggregationBuilders.terms("category_ag
154     g");
155 category_agg.field("categoryId").size(50);
156
157 category_agg.subAggregation(AggregationBuilders.terms("category_name_agg").fi
158     eld("categoryName").size(1));
159
160 searchSourceBuilder.aggregation(category_agg);
161
162 //2. 按照属性信息进行聚合
163 NestedAggregationBuilder attr_agg = AggregationBuilders.nested("attr_agg", "a
164     ttrs");
165 //2.1 按照属性ID进行聚合
166 TermsAggregationBuilder attr_id_agg =
167     AggregationBuilders.terms("attr_id_agg").field("attrs.attrId");
168 attr_agg.subAggregation(attr_id_agg);
169 //2.1.1 在每个属性ID下，按照属性名进行聚合

```

```

166 attr_id_agg.subAggregation(AggregationBuilders.terms("attr_name_agg").field("attr
s.attrName").size(1));
167 //2.1.1 在每个属性ID下，按照属性值进行聚合
168 attr_id_agg.subAggregation(AggregationBuilders.terms("attr_value_agg").field("att
rs.attrValue").size(50));
169 searchSourceBuilder.aggregation(attr_agg);
170
171 System.out.println("构建的DSL语句 {}:" + searchSourceBuilder.toString());
172
173 SearchRequest searchRequest = new SearchRequest(new String[]{SearchConstant.I
NDEX_NAME}, searchSourceBuilder);
174
175 return searchRequest;
176 }
177
178
179 /**
180  * 封装查询到的结果信息
181  * 关键字查询、根据属性、分类、品牌、价格区间、是否有库存等进行过滤、分页、高亮、以及
聚合统计品牌分类属性
182  */
183 private ESResponseResult startBuildResponseResult(SearchResponse response, ESRe
questParam param) {
184
185     ESResponseResult result = new ESResponseResult();
186
187     //1、获取查询到的商品信息
188     SearchHits hits = response.getHits();
189
190     List<EsProduct> esModels = new ArrayList<>();
191     //2、遍历所有商品信息
192     if (hits.getHits() != null && hits.getHits().length > 0) {
193         for (SearchHit hit : hits.getHits()) {
194             String sourceAsString = hit.getSourceAsString();
195             EsProduct esModel = JSON.parseObject(sourceAsString, EsProduct.class);
196
197             //2.1 判断是否按关键字检索，若是就显示高亮，否则不显示
198             if (!StringUtils.isEmpty(param.getKeyword())) {
199                 //2.2 拿到高亮信息显示标题
200                 HighlightField name = hit.getHighlightFields().get("name");
201                 //2.3 判断name中是否含有查询的关键字(因为是多字段查询，因此可能不包含指定的关键字，
假设不包含则显示原始name字段的信息)
202                 String nameValue = name != null ? name.getFragments()[0].string() : esModel.getName();

```

```

203     esModel.setName(nameValue);
204 }
205 esModels.add(esModel);
206 }
207 }
208 result.setProducts(esModels);
209
210 //3、当前商品涉及到的所有品牌信息，小米手机和小米电脑都属于小米品牌，过滤重复品牌信息
211 Set<ESResponseResult.BrandVo> brandVos = new LinkedHashSet<>();
212 //获取到品牌的聚合
213 ParsedLongTerms brandAgg = response.getAggregations().get("brand_agg");
214 for (Terms.Bucket bucket : brandAgg.getBuckets()) {
215     ESResponseResult.BrandVo brandVo = new ESResponseResult.BrandVo();
216
217     //获取品牌的id
218     long brandId = bucket.getKeyAsNumber().longValue();
219     brandVo.setBrandId(brandId);
220
221     //获取品牌的名字
222     ParsedStringTerms brandNameAgg = bucket.getAggregations().get("brand_name_agg");
223     String brandName = brandNameAgg.getBuckets().get(0).getKeyAsString();
224     brandVo.setBrandName(brandName);
225
226     //获取品牌的LOGO
227     ParsedStringTerms brandImgAgg =
    bucket.getAggregations().get("brand_img_agg");
228     String brandImg = brandImgAgg.getBuckets().get(0).getKeyAsString();
229     brandVo.setBrandImg(brandImg);
230     System.out.println("brandId:" + brandId + "brandName:" + brandName + "brandImg");
231     brandVos.add(brandVo);
232 }
233 System.out.println("brandVos.size:" + brandVos.size());
234 result.setBrands(brandVos);
235
236
237 //4、当前商品相关的所有类目信息
238 //获取到分类的聚合
239 List<ESResponseResult.categoryVo> categoryVos = new ArrayList<>();
240
241 ParsedLongTerms categoryAgg = response.getAggregations().get("category_agg");
242
243

```

```
244     for (Terms.Bucket bucket : categoryAgg.getBuckets()) {
245         ESResponseResult.categoryVo categoryVo = new ESResponseResult.categoryVo();
246         //获取分类id
247         String keyAsString = bucket.getKeyAsString();
248         categoryVo.setCategoryId(Long.parseLong(keyAsString));
249
250         //获取分类名
251         ParsedStringTerms categoryNameAgg = bucket.getAggregations().get("category_name_agg");
252         String categoryName = categoryNameAgg.getBuckets().get(0).getKeyAsString();
253         categoryVo.setCategoryName(categoryName);
254         categoryVos.add(categoryVo);
255     }
256
257     result.setCategorys(categoryVos);
258
259
260
261     //5、获取商品相关的所有属性信息
262     List<ESResponseResult.AttrVo> attrVos = new ArrayList<>();
263     //获取属性信息的聚合
264     ParsedNested attrsAgg = response.getAggregations().get("attr_agg");
265     ParsedLongTerms attrIdAgg = attrsAgg.getAggregations().get("attr_id_agg");
266     for (Terms.Bucket bucket : attrIdAgg.getBuckets()) {
267         ESResponseResult.AttrVo attrVo = new ESResponseResult.AttrVo();
268         //获取属性ID值
269         long attrId = bucket.getKeyAsNumber().longValue();
270         attrVo.setAttrId(attrId);
271
272         //获取属性的名字
273         ParsedStringTerms attrNameAgg =
            bucket.getAggregations().get("attr_name_agg");
274         String attrName = attrNameAgg.getBuckets().get(0).getKeyAsString();
275         attrVo.setAttrName(attrName);
276
277         //获取属性的值
278         ParsedStringTerms attrValueAgg = bucket.getAggregations().get("attr_value_agg");
279         List<String> attrValues = attrValueAgg.getBuckets().stream().map(item ->
            item.getKeyAsString()).collect(Collectors.toList());
280         attrVo.setAttrValue(attrValues);
281
282         attrVos.add(attrVo);
283     }
284
```

```
285 result.setAttrs(attrVos);
286
287 //6、进行分页操作
288 result.setPageNum(param.getPageNum());
289 //获取总记录数
290 long total = hits.getTotalHits().value;
291 result.setTotal(total);
292
293 //计算总页码
294 int totalPages = (int) total % SearchConstant.PAGE_SIZE == 0 ?
295 (int) total / SearchConstant.PAGE_SIZE : ((int) total / SearchConstant.PAGE_S
296 IZE + 1);
297
298 List<Integer> pageNavs = new ArrayList<>();
299 for (int i = 1; i <= totalPages; i++) {
300 pageNavs.add(i);
301 }
302 result.setPageNavs(pageNavs);
303
304 return result;
305 }
306
```

文档: ES电商项目笔记.note

链接: [http://note.youdao.com/noteshare?](http://note.youdao.com/noteshare?id=dc7be4dfa0d34d984223d4b87139b9c2&sub=WEB6ff8b811d7ec1cc069861d1d00ae3fcf)

id=dc7be4dfa0d34d984223d4b87139b9c2&sub=WEB6ff8b811d7ec1cc069861d1d00ae3fcf