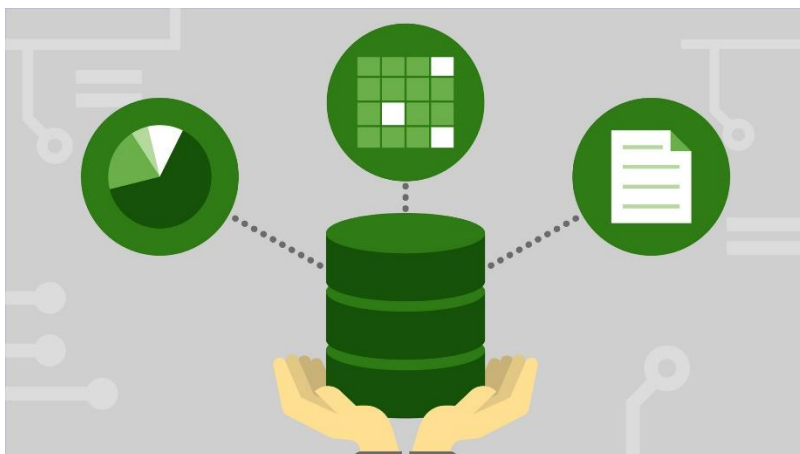


به نام خدا



دانشگاه تهران
پردیس دانشکده‌های فنی
دانشکده برق و کامپیوتر



آزمایشگاه پایگاه داده

دستورکار شماره ۹

شماره دانشجویی

۸۱۰۱۹۵۵۲۶

دی ۹۹

پارسا صدری سینکی

گزارش فعالیت‌های انجام شده

گزارش کار آزمایش Elasticsearch

بخش اول

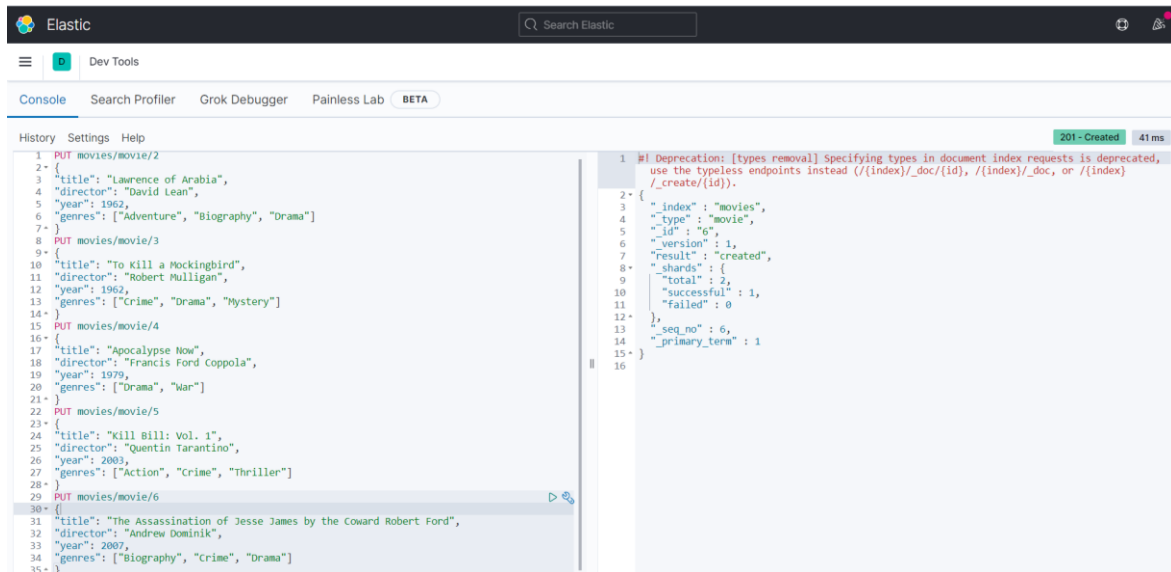
ورود داده:

The screenshot shows the Elastic Dev Tools interface. The left pane displays a PUT request to `/movies/movie/1` with a JSON body: `{ "title": "The Godfather", "director": "Francis Ford Coppola", "year": 1972 }`. The right pane shows the response, which includes a deprecation warning and a successful status: `{ "index": "movies", "type": "movie", "id": "1", "version": 1, "result": "created", "shards": { "total": 2, "successful": 1, "failed": 0 }, "seq_no": 0, "primary_term": 1 }`. The status bar at the top right indicates "201 - Created" and "759 ms".

ورود داده با شناسه تکراری باعث تغییر ورژن داکيومنت می شه:

The screenshot shows the Elastic Dev Tools interface. The left pane displays a PUT request to `/movies/movie/1` with the same JSON body as before. The right pane shows the response, which includes a deprecation warning and an updated status: `{ "index": "movies", "type": "movie", "id": "1", "version": 3, "result": "updated", "shards": { "total": 2, "successful": 1, "failed": 0 }, "seq_no": 7, "primary_term": 1 }`. The status bar at the top right indicates "200 - OK" and "58 ms".

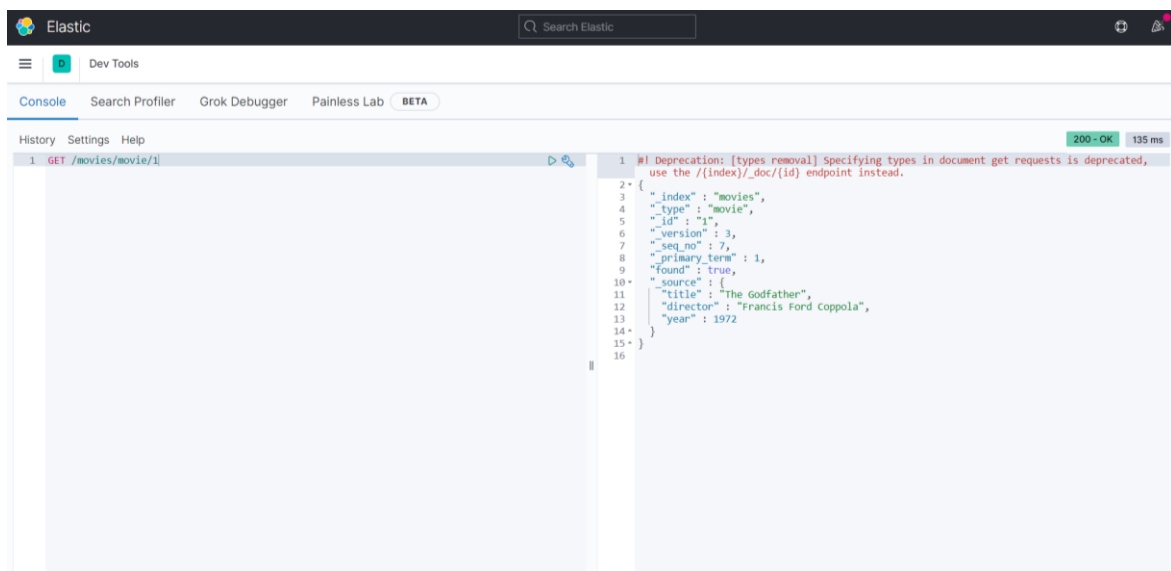
وروده چند داده مربوط به فیلم:



```
1 PUT movies/movie/2
2 {
3   "title": "Lawrence of Arabia",
4   "director": "David Lean",
5   "year": 1962,
6   "genres": ["Adventure", "Biography", "Drama"]
7 }
8 PUT movies/movie/3
9 {
10  "title": "To Kill a Mockingbird",
11  "director": "Robert Mulligan",
12  "year": 1962,
13  "genres": ["Crime", "Drama", "Mystery"]
14 }
15 PUT movies/movie/4
16 {
17  "title": "Apocalypse Now",
18  "director": "Francis Ford Coppola",
19  "year": 1979,
20  "genres": ["Drama", "War"]
21 }
22 PUT movies/movie/5
23 {
24  "title": "Kill Bill: Vol. 1",
25  "director": "Quentin Tarantino",
26  "year": 2003,
27  "genres": ["Action", "Crime", "Thriller"]
28 }
29 PUT movies/movie/6
30 {
31  "title": "The Assassination of Jesse James by the Coward Robert Ford",
32  "director": "Andrew Dominik",
33  "year": 2007,
34  "genres": ["Biography", "Crime", "Drama"]
35 }
```

```
1 #! Deprecation: [types removal] Specifying types in document index requests is deprecated,
2 use the typeless endpoints instead (/{index}/_doc/{id}, /{index}/_doc, or /{index}
3 /_create/{id}).
4 {
5   "index": "movies",
6   "type": "movie",
7   "id": "6",
8   "_version": 1,
9   "result": "created",
10  "shards": {
11    "total": 2,
12    "successful": 1,
13    "failed": 0
14  },
15  "seq_no": 6,
16  "_primary_term": 1
17 }
```

کوئری ساده برای دریافت اطلاعات فیلم با شناسه ۱:



```
1 GET /movies/movie/1
```

```
1 #! Deprecation: [types removal] Specifying types in document get requests is deprecated,
2 use the /{index}/_doc/{id} endpoint instead.
3 {
4   "_index": "movies",
5   "_type": "movie",
6   "_id": "1",
7   "_version": 3,
8   "_seq_no": 7,
9   "_primary_term": 1,
10  "found": true,
11  "_source": {
12    "title": "The Godfather",
13    "director": "Francis Ford Coppola",
14    "year": 1972
15  }
16 }
```

کوئری برای یافتن داکيومنت ها ی شامل کلمه kill:

The screenshot shows the Elastic Dev Tools interface. The left pane displays the search query: `POST movies/movie/_search` with a query string `{ "query": { "query_string": { "query": "kill" } } }`. The right pane shows the search results in JSON format. The results include two movies: "To Kill a Mockingbird" (1962) and "Kill Bill: vol. 1" (2003).

```

1 POST movies/movie/_search
2 {
3   "query": {
4     "query_string": {
5       "query": "kill"
6     }
7   }
8 }

```

```

15 {
16   "max_score": 1.0467482,
17   "hits": [
18     {
19       "_index": "movies",
20       "_type": "movie",
21       "_id": "3",
22       "_score": 1.0467482,
23       "_source": {
24         "title": "To Kill a Mockingbird",
25         "director": "Robert Mulligan",
26         "year": 1962,
27         "genres": [
28           "Crime",
29           "Drama",
30           "Mystery"
31         ]
32       }
33     },
34     {
35       "_index": "movies",
36       "_type": "movie",
37       "_id": "5",
38       "_score": 1.0467482,
39       "_source": {
40         "title": "Kill Bill: vol. 1",
41         "director": "Quentin Tarantino",
42         "year": 2003,
43         "genres": [
44           "Action",
45           "Crime",
46           "Thriller"
47         ]
48       }
49     }
50   ]
51 }

```

کوئری برای کلمه ford محدود به فیلد title:

The screenshot shows the Elastic Dev Tools interface. The left pane displays the search query: `POST /_search` with a query string `{ "query": { "query_string": { "query": "ford", "fields": ["title"] } } }`. The right pane shows the search results in JSON format. The results include one movie: "The Assassination of Jesse James by the Coward Robert Ford" (2007).

```

1 POST /_search
2 {
3   "query": {
4     "query_string": {
5       "query": "ford",
6       "fields": ["title"]
7     }
8   }
9 }

```

```

2 {
3   "took": 4,
4   "timed out": false,
5   "shards": {
6     "total": 6,
7     "successful": 6,
8     "skipped": 0,
9     "failed": 0
10  },
11  "hits": {
12    "total": {
13      "value": 1,
14      "relation": "eq"
15    },
16    "max_score": 0.9794736,
17    "hits": [
18      {
19        "_index": "movies",
20        "_type": "movie",
21        "_id": "6",
22        "_score": 0.9794736,
23        "_source": {
24          "title": "The Assassination of Jesse James by the Coward Robert Ford",
25          "director": "Andrew Dominik",
26          "year": 2007,
27          "genres": [
28            "Biography",
29            "Crime",
30            "Drama"
31          ]
32        }
33      }
34    ]
35  }
36 }

```

کوئری مشابه قبلی:

The screenshot shows the Elastic Dev Tools interface. The left pane displays the search query:

```
POST /_search
{
  "query": {
    "query_string": {"query": "title:ford"}
  }
}
```

The right pane shows the search results in JSON format:

```
{
  "took": 3,
  "timed_out": false,
  "shards": {
    "total": 6,
    "successful": 6,
    "skipped": 0,
    "failed": 0
  },
  "hits": {
    "total": {
      "value": 1,
      "relation": "eq"
    },
    "max_score": 0.9794736,
    "hits": [
      {
        "_index": "movies",
        "_type": "movie",
        "_id": "6",
        "_score": 0.9794736,
        "_source": {
          "title": "The Assassination of Jesse James by the Coward Robert Ford",
          "director": "Andrew Dominik",
          "year": 2007,
          "genres": [
            "Biography",
            "Crime",
            "Drama"
          ]
        }
      }
    ]
  }
}
```

کوئری ای که تمام نتایج ۲ کوئری قبل را بر می گرداند:

The screenshot shows the Elastic Dev Tools interface. The left pane displays the search query:

```
POST /_search
{
  "query": {
    "query_string": [{"query": "title:ford OR kill"}]
  }
}
```

The right pane shows the search results in JSON format:

```
{
  "took": 3,
  "timed_out": false,
  "shards": {
    "total": 6,
    "successful": 6,
    "skipped": 0,
    "failed": 0
  },
  "hits": [
    {
      "_index": "movies",
      "_type": "movie",
      "_id": "3",
      "_score": 1.0467482,
      "_source": {
        "title": "To Kill a Mockingbird",
        "director": "Robert Mulligan",
        "year": 1962,
        "genres": [
          "Crime",
          "Drama",
          "Mystery"
        ]
      }
    },
    {
      "_index": "movies",
      "_type": "movie",
      "_id": "5",
      "_score": 1.0467482,
      "_source": {
        "title": "Kill Bill: Vol. 1",
        "director": "Quentin Tarantino",
        "year": 2003,
        "genres": [
          "Action",
          "Crime",
          "Thriller"
        ]
      }
    }
  ]
}
```

فیلم هایی که کارگردان آن ها تارانتیو هست و در تیتراژ آن ها کلمه kill وجود دارد:

```

1 POST /_search
2 {
3   "query": {
4     "query_string": { "query": "(title:kill AND (director:Tarantino))" }
5   }
6 }

```

```

3 "took": 26,
4 "timed_out": false,
5 "shards": {
6   "total": 6,
7   "successful": 6,
8   "skipped": 0,
9   "failed": 0
10 },
11 "hits": {
12   "total": {
13     "value": 1,
14     "relation": "eq"
15   },
16   "max_score": 2.682807,
17   "hits": [
18     {
19       "_index": "movies",
20       "_type": "movie",
21       "_id": "5",
22       "_score": 2.682807,
23       "source": {
24         "title": "Kill Bill: Vol. 1",
25         "director": "Quentin Tarantino",
26         "year": 2003,
27         "genres": [
28           "Action",
29           "Crime",
30           "Thriller"
31         ]
32       }
33     }
34   ]
35 }

```

فیلم های با ژانر درام در سال ۱۹۶۲:

```

1 POST /_search
2 {
3   "query": {
4     "query_string": { "query": "(genres:Drama AND (year:1962))" }
5   }
6 }

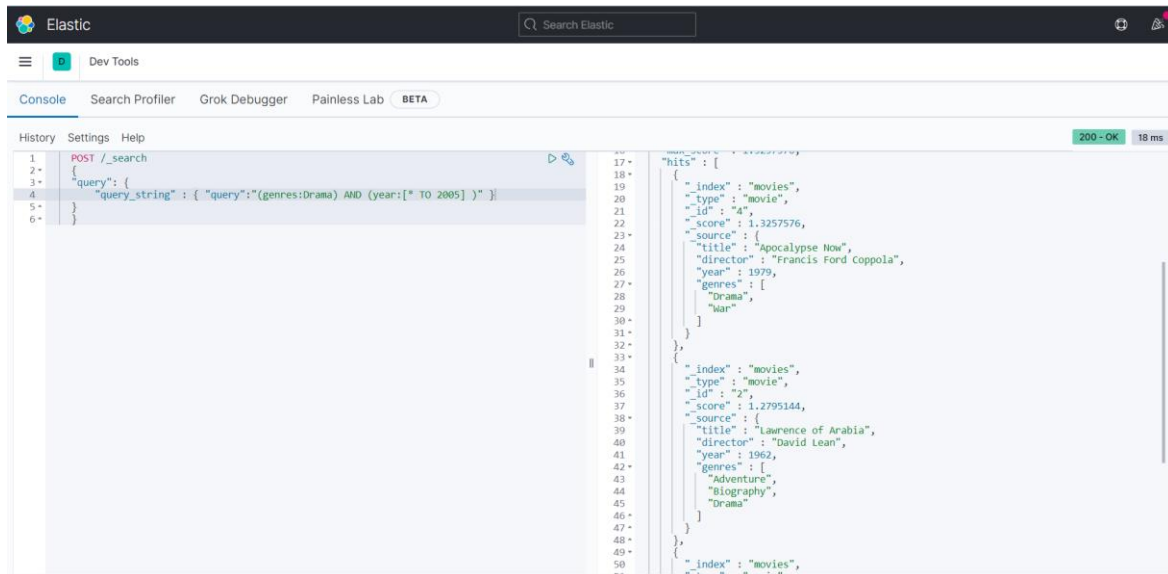
```

```

17 "hits": [
18   {
19     "_index": "movies",
20     "_type": "movie",
21     "_id": "2",
22     "_score": 1.2795144,
23     "source": {
24       "title": "Lawrence of Arabia",
25       "director": "David Lean",
26       "year": 1962,
27       "genres": [
28         "Adventure",
29         "Biography",
30         "Drama"
31       ]
32     }
33   },
34   {
35     "_index": "movies",
36     "_type": "movie",
37     "_id": "3",
38     "_score": 1.2795144,
39     "source": {
40       "title": "To Kill a Mockingbird",
41       "director": "Robert Mulligan",
42       "year": 1962,
43       "genres": [
44         "Crime",
45         "Drama",
46         "Mystery"
47       ]
48     }
49   }
50 ]

```

فیلم های درام که تا سال ۲۰۰۵ ساخته شدند:

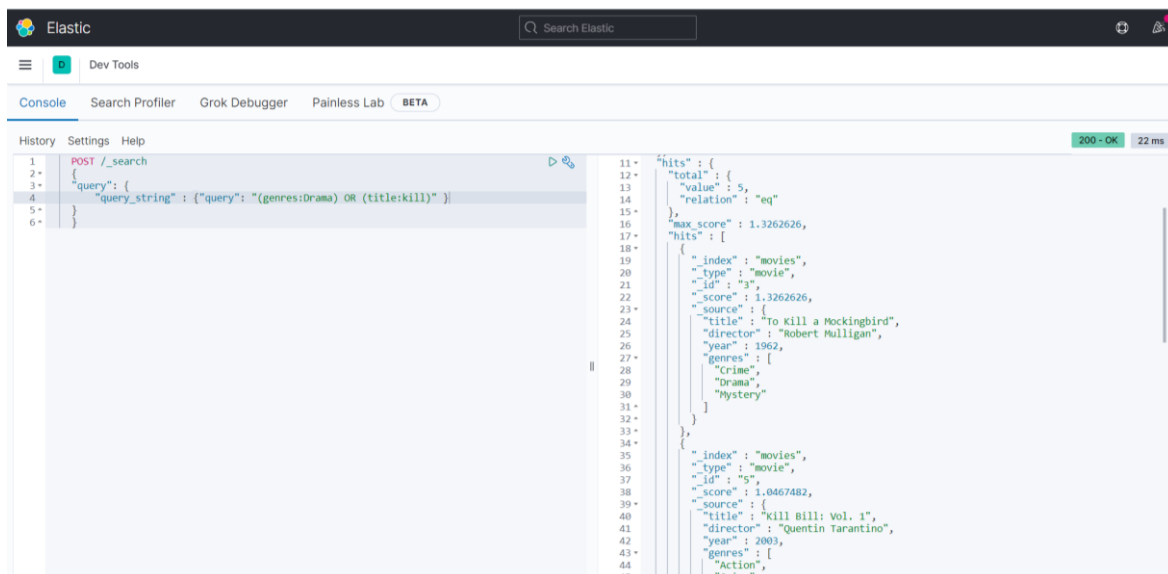


The screenshot shows the Elastic Dev Tools interface. The console displays a POST request to the `/_search` endpoint. The query is a JSON object with a `query_string` field. The results are shown in the right pane, displaying two hits. The first hit is for the movie "Apocalypse Now" (1979) by Francis Ford Coppola, with genres "Drama" and "War". The second hit is for "Lawrence of Arabia" (1962) by David Lean, with genres "Adventure", "Biography", and "Drama".

```
1 POST /_search
2 {
3   "query": {
4     "query_string": { "query": "(genres:Drama) AND (year:[* TO 2005] )" }
5   }
6 }
```

```
17 "hits": [
18   {
19     "_index": "movies",
20     "_type": "movie",
21     "_id": "4",
22     "_score": 1.3257576,
23     "_source": {
24       "title": "Apocalypse Now",
25       "director": "Francis Ford Coppola",
26       "year": 1979,
27       "genres": [
28         "Drama",
29         "War"
30       ]
31     }
32   },
33   {
34     "_index": "movies",
35     "_type": "movie",
36     "_id": "2",
37     "_score": 1.2795144,
38     "_source": {
39       "title": "Lawrence of Arabia",
40       "director": "David Lean",
41       "year": 1962,
42       "genres": [
43         "Adventure",
44         "Biography",
45         "Drama"
46       ]
47     }
48   }
49 ],
50 "_index": "movies",
```

فیلم های درام یا فیلم هایی که کلمه **kill** در تیتراژ آن ها موجود است:



The screenshot shows the Elastic Dev Tools interface. The console displays a POST request to the `/_search` endpoint. The query is a JSON object with a `query_string` field. The results are shown in the right pane, displaying two hits. The first hit is for the movie "To Kill a Mockingbird" (1962) by Robert Mulligan, with genres "Crime", "Drama", and "Mystery". The second hit is for "Kill Bill: Vol. 1" (2003) by Quentin Tarantino, with genres "Action" and "Crime".

```
1 POST /_search
2 {
3   "query": {
4     "query_string": { "query": "(genres:Drama) OR (title:kill)" }
5   }
6 }
```

```
11 "hits": {
12   "total": {
13     "value": 5,
14     "relation": "eq"
15   },
16   "max_score": 1.3262626,
17   "hits": [
18     {
19       "_index": "movies",
20       "_type": "movie",
21       "_id": "3",
22       "_score": 1.3262626,
23       "_source": {
24         "title": "To Kill a Mockingbird",
25         "director": "Robert Mulligan",
26         "year": 1962,
27         "genres": [
28           "Crime",
29           "Drama",
30           "Mystery"
31         ]
32       }
33     },
34     {
35       "_index": "movies",
36       "_type": "movie",
37       "_id": "5",
38       "_score": 1.0467482,
39       "_source": {
40         "title": "Kill Bill: Vol. 1",
41         "director": "Quentin Tarantino",
42         "year": 2003,
43         "genres": [
44           "Action",
45           "Crime"
46         ]
47       }
48     }
49   ]
50 }
```

کوئری قبلی با این تفاوت که اهمیت بیشتری به وجود کلمه **kill** در تیتتر می دهیم، یعنی آن ها در نتایج بالاتری مشاهده می شوند و **score** بیشتری می گیرند:

The screenshot shows the Elasticsearch Dev Tools interface. The console displays a POST request to the `/_search` endpoint with the following query:

```
POST /_search
{
  "query": {
    "query_string": { "query": "(genres:Drama) OR (title:kill*)" }
  }
}
```

The response shows two hits. The first hit is for the movie "To Kill a Mockingbird" with a score of 2.3730106. The second hit is for "Kill Bill: Vol. 1" with a score of 2.0934963.

کوئری فیلم های درام ولی با استفاده از درخت جستجو:

The screenshot shows the Elasticsearch Dev Tools interface. The console displays a POST request to the `/movies/movie/_search` endpoint with the following query:

```
POST /movies/movie/_search
{
  "query": {
    "match": {
      "genres": "drama"
    }
  }
}
```

The response shows two hits. The first hit is for the movie "Apocalypse Now" with a score of 0.32575765. The second hit is for "Lawrence of Arabia" with a score of 0.27951443.

فیلم هایی که کلمه فورد را در تیترا یا نام کارگردان دارند:

```

1 POST /movies/movie/_search
2 {
3   "query": {
4     "multi_match": {
5       "query": "ford",
6       "fields": [
7         "title",
8         "director"
9       ]
10    }
11  }
12 }

```

```

10 {
11   "hits": {
12     "total": {
13       "value": 3,
14       "relation": "eq"
15     },
16     "max_score": 2.9384212,
17     "hits": [
18       {
19         "_index": "movies",
20         "_type": "movie",
21         "_id": "0",
22         "_score": 2.9384212,
23         "_source": {
24           "title": "The Assassination of Jesse James by the Coward Robert Ford",
25           "director": "Andrew Dominik",
26           "year": 2007,
27           "genres": [
28             "Biography",
29             "Crime",
30             "Drama"
31           ]
32         }
33       },
34       {
35         "_index": "movies",
36         "_type": "movie",
37         "_id": "4",
38         "_score": 0.9218687,
39         "_source": {
40           "title": "Apocalypse Now",
41           "director": "Francis Ford Coppola",
42           "year": 1979,
43           "genres": [
44             "Drama",

```

فیلم هایی که کلمه kill را در تیترا دارند و ژانر آن ها درام است:

```

1 POST /movies/movie/_search
2 {
3   "query": {
4     "bool": {
5       "must": [
6         {
7           "match": {
8             "genres": "drama"
9           }
10        },
11        {
12           "match": {
13             "title": "kill"
14           }
15        }
16      ]
17    }
18  }
19 }

```

```

3   "took": 0,
4   "timed_out": false,
5   "shards": {
6     "total": 1,
7     "successful": 1,
8     "skipped": 0,
9     "failed": 0
10  },
11  "hits": {
12    "total": {
13      "value": 1,
14      "relation": "eq"
15    },
16    "max_score": 1.3262626,
17    "hits": [
18      {
19        "_index": "movies",
20        "_type": "movie",
21        "_id": "3",
22        "_score": 1.3262626,
23        "_source": {
24          "title": "To Kill a Mockingbird",
25          "director": "Robert Mulligan",
26          "year": 1962,
27          "genres": [
28            "Crime",
29            "Drama",
30            "Mystery"
31          ]
32        }
33      }
34    ]
35  }
36 }

```

فیلم هایی که کلمه ford یا kill را در تیتتر خود دارند و ژانر آن ها mystery نیست:

```

1 POST /movies/movie/_search
2 {
3   "query": {
4     "bool": {
5       "must": {
6         "bool": {
7           "should": [
8             {
9               "match": {
10                "title": "ford"
11              }
12            },
13            {
14              "match": {
15                "title": "kill"
16              }
17            }
18          ]
19        }
20      },
21      "must_not": {
22        "match": {
23          "genres": "Mystery"
24        }
25      }
26    }
27  }
28 }

```

```

10* }
11* "hits": {
12*   "total": {
13*     "value": 2,
14*     "relation": "eq"
15*   },
16*   "max_score": 1.0467482,
17*   "hits": [
18*     {
19*       "_index": "movies",
20*       "_type": "movie",
21*       "_id": "5",
22*       "_score": 1.0467482,
23*       "_source": {
24*         "title": "Kill Bill: Vol. 1",
25*         "director": "Quentin Tarantino",
26*         "year": 2003,
27*         "genres": [
28*           "Action",
29*           "Crime",
30*           "Thriller"
31*         ]
32*       }
33*     },
34*     {
35*       "_index": "movies",
36*       "_type": "movie",
37*       "_id": "6",
38*       "_score": 0.9794736,
39*       "_source": {
40*         "title": "The Assassination of Jesse James by the Coward Robert Ford",
41*         "director": "Andrew Dominik",
42*         "year": 2007,
43*         "genres": [
44*           "Biography",

```

فیلم هایی که kill را در تیتتر دارند و درام هستند و ساخت بعد ۱۹۶۰ هستند. برای این کوئری از فیلتر استفاده شده که تعداد داکيومنت هایی که باید برای تیتتر جستجو شوند کاهش یافته و سرعت عملیات افزایش یابد:

```

1 POST /movies/movie/_search
2 {
3   "query": {
4     "bool": {
5       "must": {
6         "match": { "title": "kill" }
7       },
8       "filter": {
9         "bool": {
10          "must": [
11            {
12              "range": {
13                "year": { "gte": 1960 }
14              }
15            },
16            {
17              "term": {
18                "genres": { "value": "drama" }
19              }
20            }
21          ]
22        }
23      }
24    }
25  }
26 }

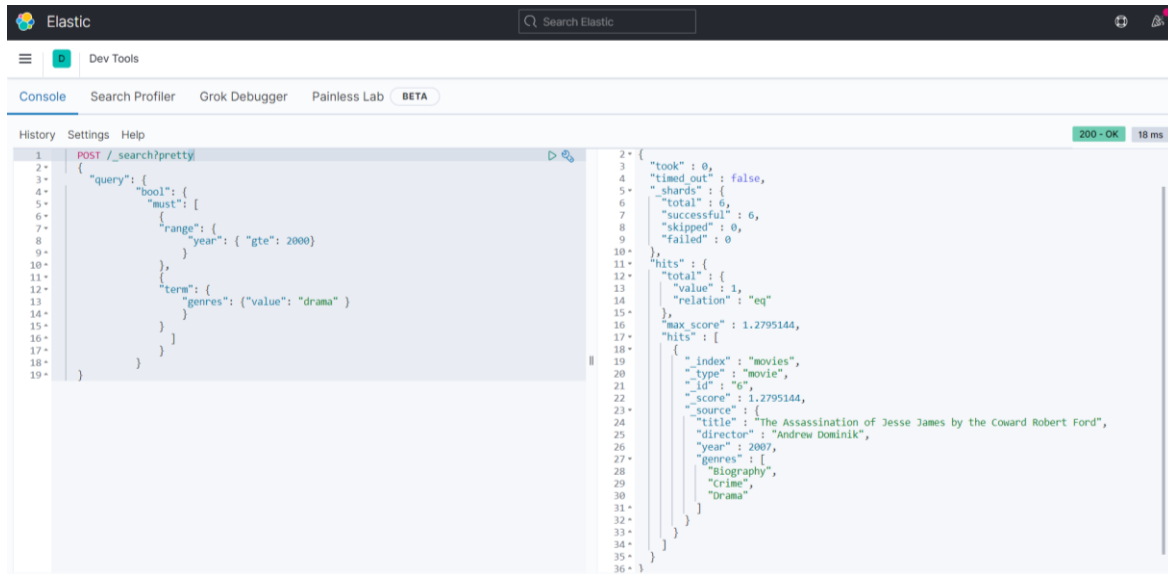
```

```

3 "took": 0,
4 "timed out": false,
5 "shards": {
6   "total": 1,
7   "successful": 1,
8   "skipped": 0,
9   "failed": 0
10 },
11 "hits": {
12   "total": {
13     "value": 1,
14     "relation": "eq"
15   },
16   "max_score": 1.0467482,
17   "hits": [
18     {
19       "_index": "movies",
20       "_type": "movie",
21       "_id": "3",
22       "_score": 1.0467482,
23       "_source": {
24         "title": "To Kill a Mockingbird",
25         "director": "Robert Mulligan",
26         "year": 1962,
27         "genres": [
28           "Crime",
29           "Drama",
30           "Mystery"
31         ]
32       }
33     }
34   ]
35 }

```

فیلم های درام بعد سال ۲۰۰۰:

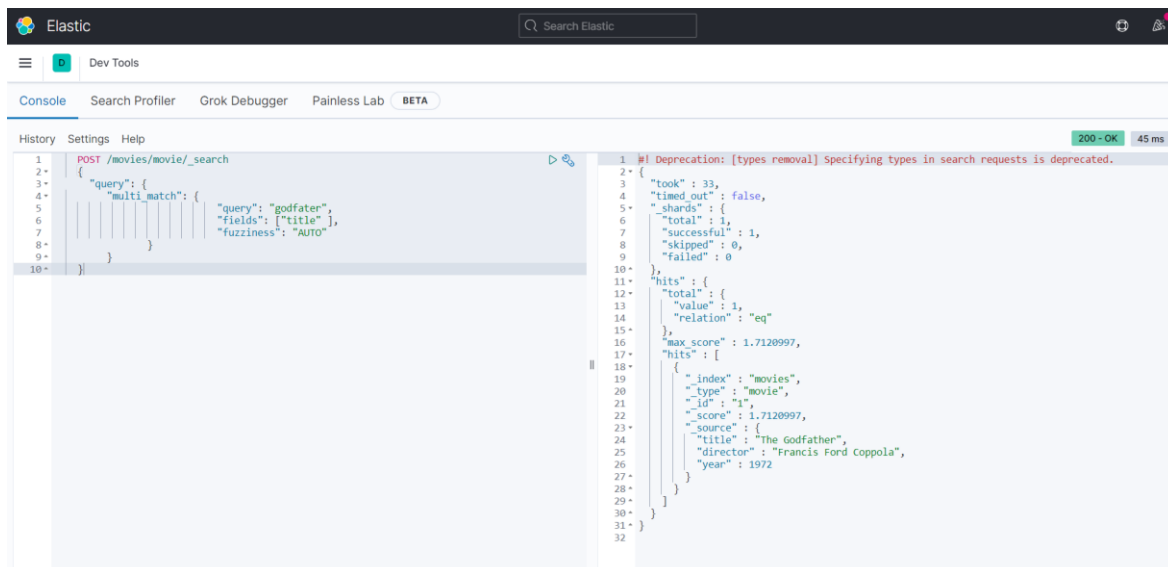


```

1 POST /_search?pretty
2 {
3   "query": {
4     "bool": {
5       "must": {
6         "range": {
7           "year": { "gte": 2000 }
8         }
9       },
10      "term": {
11        "genres": { "value": "drama" }
12      }
13    }
14  }
15 }
16
17
18
19
20 {
21   "took" : 0,
22   "timed_out" : false,
23   "_shards" : {
24     "total" : 6,
25     "successful" : 6,
26     "skipped" : 0,
27     "failed" : 0
28   },
29   "hits" : {
30     "total" : {
31       "value" : 1,
32       "relation" : "eq"
33     },
34     "max_score" : 1.2795144,
35     "hits" : [
36       {
37         "_index" : "movies",
38         "_type" : "movie",
39         "_id" : "6",
40         "_score" : 1.2795144,
41         "_source" : {
42           "title" : "The Assassination of Jesse James by the Coward Robert Ford",
43           "director" : "Andrew Dominik",
44           "year" : 2007,
45           "genres" : [
46             "Biography",
47             "Crime",
48             "Drama"
49           ]
50         }
51       }
52     ]
53   }
54 }

```

کوثری برای فیلم با اسم godfather ولی با وجود خطا املائی:



```

1 POST /movies/movie/_search
2 {
3   "query": {
4     "multi_match": {
5       "query": "godfather",
6       "fields": ["title"],
7       "fuzziness": "AUTO"
8     }
9   }
10 }
11
12
13
14
15
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```

جستجو برای کلمه **kill** و **bill** با این شرط که پشت سر هم و بدون فاصله بیشتر از دو تا بیایند:

```

1 POST /movies/movie/_search
2 {
3   "query": {
4     "multi_match": {
5       "query": "kill bill",
6       "fields": ["title"],
7       "type": "phrase",
8       "slop": 3
9     }
10  }
11 }

```

```

2 {
3   "took": 5,
4   "timed_out": false,
5   "shards": {
6     "total": 1,
7     "successful": 1,
8     "skipped": 0,
9     "failed": 0
10  },
11  "hits": {
12    "total": {
13      "value": 1,
14      "relation": "eq"
15    },
16    "max_score": 2.6128197,
17    "hits": [
18      {
19        "_index": "movies",
20        "_type": "movie",
21        "_id": "5",
22        "_score": 2.6128197,
23        "_source": {
24          "title": "Kill Bill: Vol. 1",
25          "director": "Quentin Tarantino",
26          "year": 2003,
27          "genres": [
28            "Action",
29            "Crime",
30            "Thriller"
31          ]
32        }
33      }
34    ]
35  }
36 }

```

جستجو برای کارگردان با اسم کامل که به ما نتیجه ای را بر نمی گرداند با وجود این که این نام موجود است:

```

1 POST /movies/movie/_search
2 {
3   "query": {
4     "term": {
5       "director": {
6         "value": "Francis Ford Coppola"
7       }
8     }
9   }
10 }

```

```

1 #! Deprecation: [types removal] Specifying types in search requests is deprecated.
2 {
3   "took": 0,
4   "timed_out": false,
5   "shards": {
6     "total": 1,
7     "successful": 1,
8     "skipped": 0,
9     "failed": 0
10  },
11  "hits": {
12    "total": {
13      "value": 0,
14      "relation": "eq"
15    },
16    "max_score": null,
17    "hits": [ ]
18  }
19 }
20

```

راه حل مشکل کوئری قبل:

```

1 POST /movies/movie/_search
2 {
3   "query": {
4     "term": {
5       "director.keyword": {
6         "value": "Francis Ford Coppola"
7       }
8     }
9   }
10 }

```

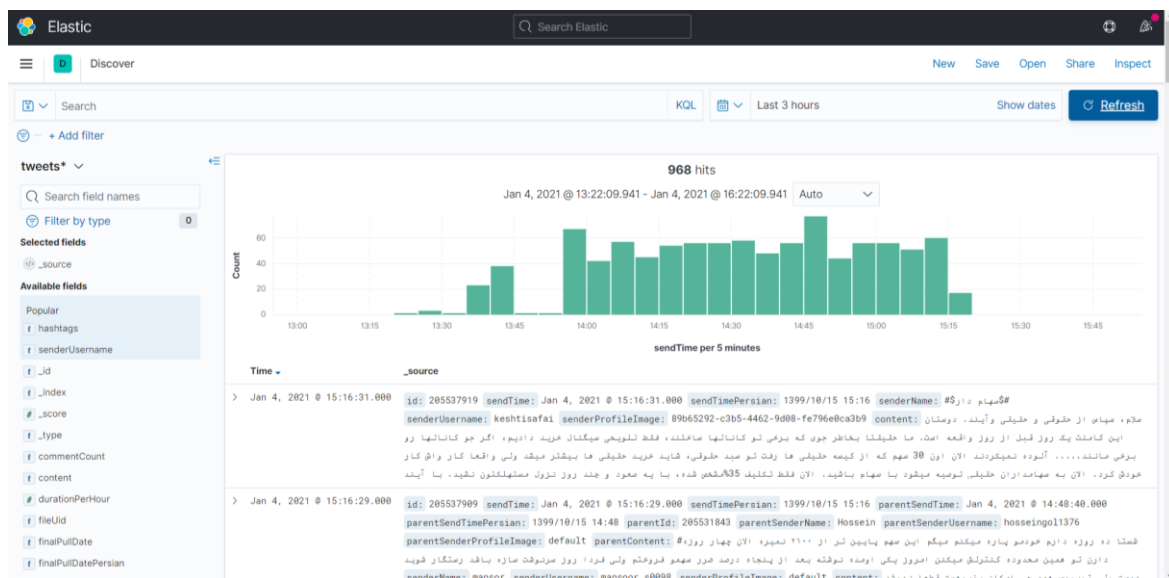
```

11 {
12   "hits": {
13     "total": {
14       "value": 2,
15       "relation": "eq"
16     },
17     "max_score": 1.0296195,
18     "hits": [
19       {
20         "_index": "movies",
21         "_type": "movie",
22         "_id": "4",
23         "_score": 1.0296195,
24         "_source": {
25           "title": "Apocalypse Now",
26           "director": "Francis Ford Coppola",
27           "year": 1979,
28           "genres": [
29             "Drama",
30             "War"
31           ]
32         }
33       },
34       {
35         "_index": "movies",
36         "_type": "movie",
37         "_id": "1",
38         "_score": 1.0296195,
39         "_source": {
40           "title": "The Godfather",
41           "director": "Francis Ford Coppola",
42           "year": 1972
43         }
44       }
45     ]
46   }
47 }

```

بخش دوم

ابتدا توسط کد `insertingTweetsInElasticsearch.py` ۱۰۰۰ توییت را دریافت می کنیم، و با `id` هر توییت آن ها را در `elasticsearch` وارد می کنیم. یک فیلد دیگر نیز به هر داکيومنت اضافه میکنیم، فیلد مربوط به هشتگ های استخراج شده از متن پیام توییت.



سپس در برنامه `kibana` ۳ ویزوالایزشن می سازیم و به داشبورد اضافه می کنیم.

۳ ویزوالایزشن عبارتند از:

ابر کلمات برای سهام هایی که بیشترین تکرار را داشتند.

تعداد بار تکرار هشتگ مربوط به هر سهم

میزان استفاده هر هشتگ در ساعات مختلف



مشکلات و توضیحات تکمیلی

1. یکی از کوئری ها کمی مشکل داشت که تصحیح شد.

کوئری اصلی:

```
POST /_search?pretty
{
  "query": {
    "bool": {
      "must": [
        {
          "range": {
            "year": { "gte": 2000 }
          },
          "term": {
            "genres": { "value":
"Drama" }
          }
        }
      ]
    }
  }
}
```

کوئری تصحیح شده:

```
POST /_search?pretty
{
  "query": {
    "bool": {
      "must": [
        {
          "range": {
            "year": { "gte": 2000 }
          }
        },

```

```

        {
            "term": {
                "genres": {
                    "value":
"drama" }
                }
            }
        ]
    }
}

```

2. به علت Removal of mapping types کد زیر کار نمی کند و کافیسست کد بعدی را بنویسیم.

```

PUT /movies/movie/_mapping
{
  "movie": {
    "properties": {
      "director": {
        "type": "text",
        "fields": {
          "original": {
            "type":
"keyword"
          }
        }
      }
    }
  }
}

```

کد تصحیح شده:

POST movies/movie/_search

```

{
  "query": {
    "term": {
      "director.keyword": {

```

Coppola"

"value": "Francis Ford

}

}

}

}