CODE:

```python
import pandas as pd

from elasticsearch import Elasticsearch

es = Elasticsearch([{'host':'localhost','port':
9200,'scheme':'http'}],verify_certs=False)

def create_collection(collection_name):
    if not es.indices.exists(index=collection_name):
        es.indices.create(index=collection_name)
        print(f"Collection '{collection_name}' created.")
    else:
        print(f"Collection '{collection_name}' already exists.")

def get_emp_count(collection_name):
    count = es.count(index=collection_name)
    print(f"Employee count in '{collection_name}':{count['count']}")
    return count['count']

def index_data(collection_name, df):
    for index, row in df.iterrows():
        es.index(index=collection_name, id=row['Employee ID'],
document=row.to_dict())
    print(f"Data indexed in collection '{collection_name}'.")

def del_emp_by_id(collection_name, emp_id):
    es.delete(index=collection_name, id=emp_id)
    print(f"Employee with ID '{emp_id}' deleted from '{collection_name}'.")

def search_by_column(collection_name, column_name, value):
    query = {
        "query": {
            "match": {
```

```python
                column_name: value
            }
        }
    }
    results = es.search(index=collection_name, query=query)
    print(f"Search results for '{column_name}' = '{value}' in '{collection_name}':")
    for hit in results['hits']['hits']:
        print(hit['_source'])
def get_dep_facet(collection_name):
    query = {
        "aggs": {
            "departments": {
                "terms": {
                    "field": "Department.keyword"  # Use .keyword for aggregations
                }
            }
        }
    }
    results = es.search(index=collection_name, body=query)
    print(f"Department facets for '{collection_name}':")
    for bucket in results['aggregations']['departments']['buckets']:
        print(f"{bucket['key']}: {bucket['doc_count']} employees")
if __name__ == "__main__":
    v_name_collection = 'Hash_varsha'
    v_phone_collection = 'Hash_1234'
```

```
data_path = 'C:\Users\rosha\Downloads\Documents\Employee
Sample Data 1.csv'

df = pd.read_csv(data_path)

create_collection(v_name_collection)

create_collection(v_phone_collection)

index_data(v_name_collection, df)

index_data(v_phone_collection, df)

get_emp_count(v_name_collection)

search_by_column(v_name_collection, 'Department', 'IT')

search_by_column(v_name_collection, 'Gender', 'Male')

del_emp_by_id(v_name_collection, 'E02003')

get_emp_count(v_name_collection)

get_dep_facet(v_name_collection)

get_dep_facet(v_phone_collection)
```
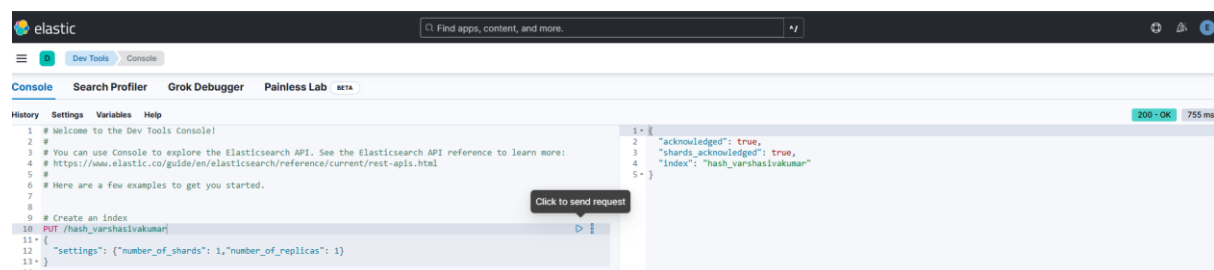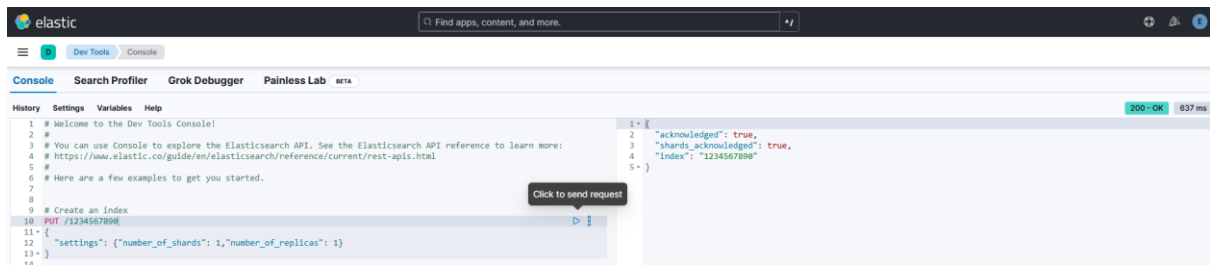
Input & Output:

A & B:

```
v_name_collection = 'Hash_varsha'

v_phone_collection = 'Hash_1234'
```
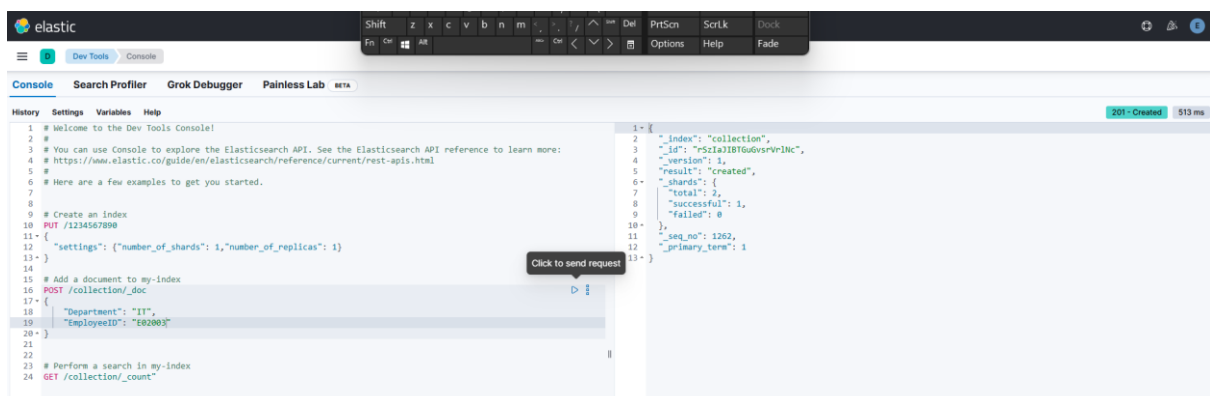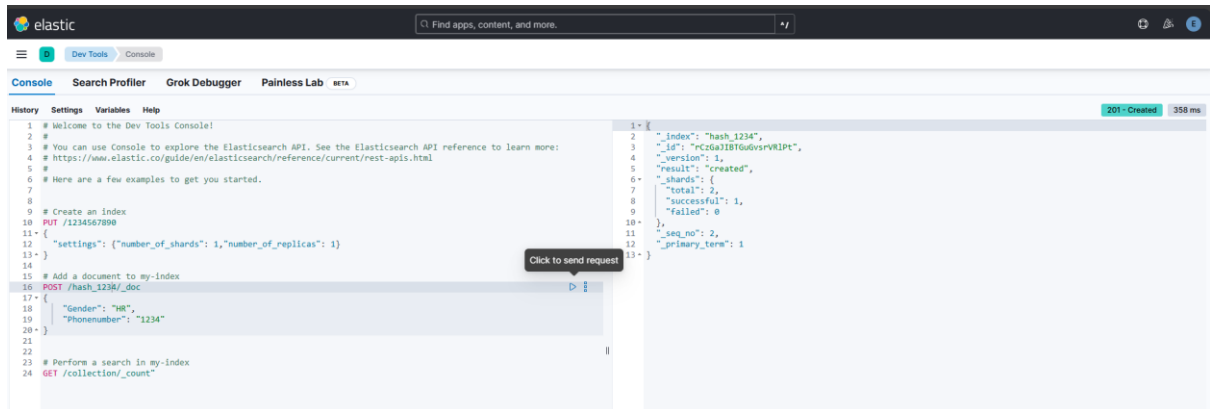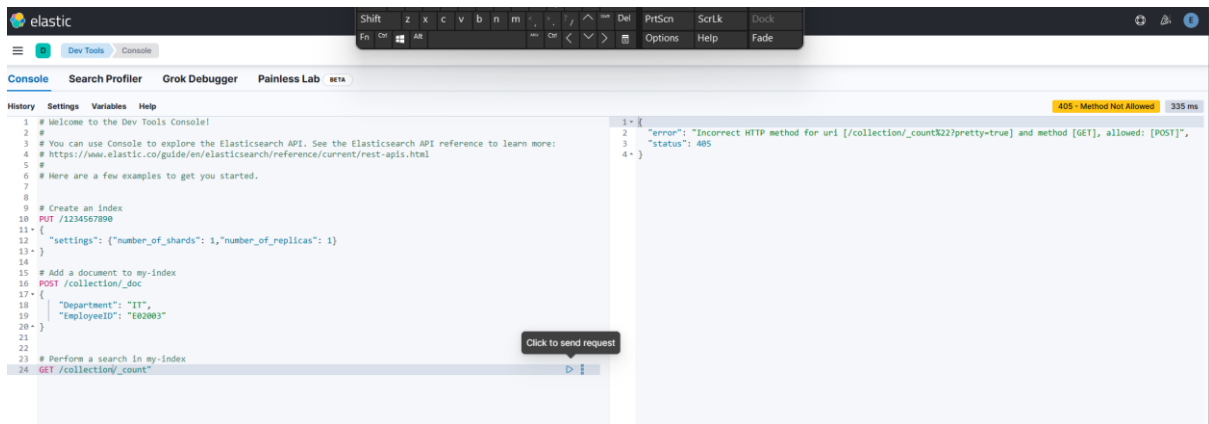
C:

D:

```
# Welcome to the Dev Tools Console!
#
# You can use Console to explore the Elasticsearch API. See the Elasticsearch API reference to learn more:
# https://www.elastic.co/guide/en/elasticsearch/reference/current/rest-apis.html
#
# Here are a few examples to get you started.

# Create an index
PUT /1234567890
{
  "settings": {"number_of_shards": 1,"number_of_replicas": 1}
}
```

```
200 - OK    637 ms
{
  "acknowledged": true,
  "shards_acknowledged": true,
  "index": "1234567890"
}
```

E & F & G:


```
# Welcome to the Dev Tools Console!
#
# You can use Console to explore the Elasticsearch API. See the Elasticsearch API reference to learn more:
# https://www.elastic.co/guide/en/elasticsearch/reference/current/rest-apis.html
#
# Here are a few examples to get you started.

# Create an index
PUT /1234567890
{
  "settings": {"number_of_shards": 1,"number_of_replicas": 1}
}

# Add a document to my-index
POST /hash_1234/_doc
{
  "Gender": "HR",
  "Phonenumber": "1234"
}

# Perform a search in my-index
GET /collection/_count"
```

```
201 - Created    358 ms
{
  "_index": "hash_1234",
  "_id": "rCzGaJIBTGuGvsrVrlPt",
  "_version": 1,
  "result": "created",
  "_shards": {
    "total": 2,
    "successful": 1,
    "failed": 0
  },
  "_seq_no": 2,
  "_primary_term": 1
}
```



```
# Add a document to my-index
POST /collection/_doc
{
  "Department": "IT",
  "EmployeeID": "E02003"
}

# Perform a search in my-index
GET /collection/_count"
```

```
201 - Created    513 ms
{
  "_index": "collection",
  "_id": "rSzIaJIBTGuGvsrVrlNc",
  "_version": 1,
  "result": "created",
  "_shards": {
    "total": 2,
    "successful": 1,
    "failed": 0
  },
  "_seq_no": 1262,
  "_primary_term": 1
}
```



```
# Add a document to my-index
POST /collection/_doc
{
  "Department": "IT",
  "EmployeeID": "E02003"
}

# Perform a search in my-index
GET /collection/_count"
```

```
201 - Created    513 ms
{
  "_index": "collection",
  "_id": "rSzIaJIBTGuGvsrVrlNc",
  "_version": 1,
  "result": "created",
  "_shards": {
    "total": 2,
    "successful": 1,
    "failed": 0
  },
  "_seq_no": 1262,
  "_primary_term": 1
}
```

H:

I:

J = E (same step is repeated)

K ,L & M:

elastic

Find apps, content, and more.
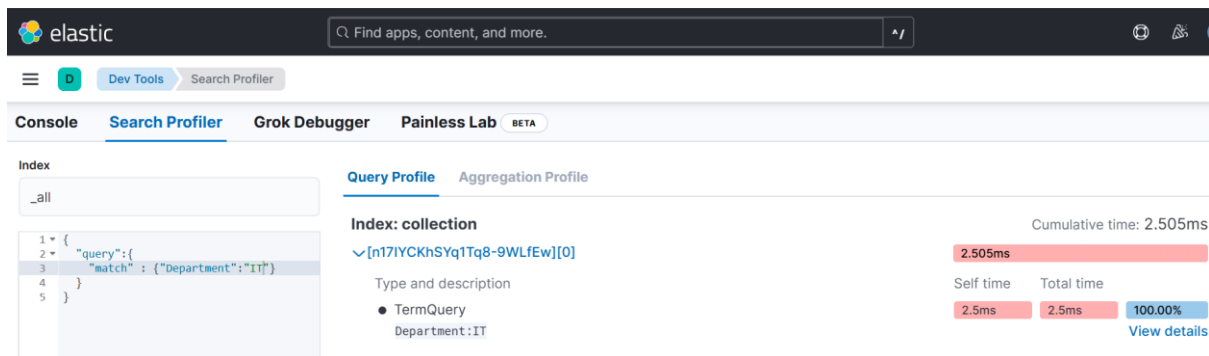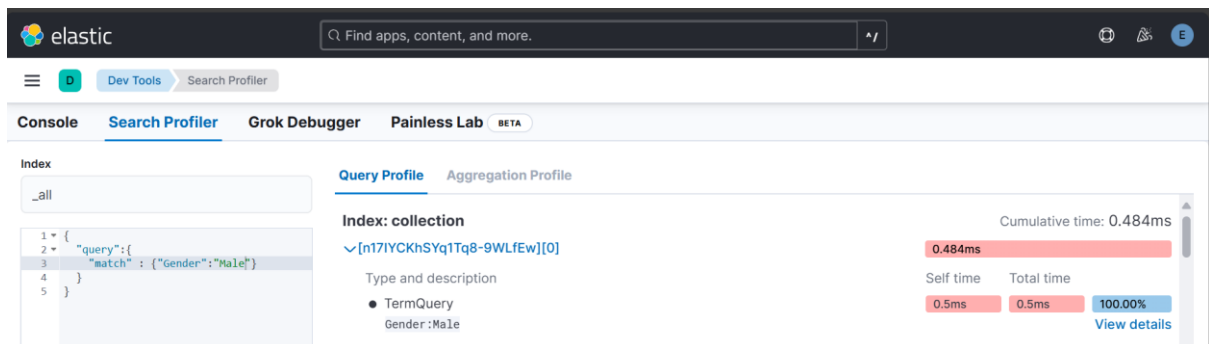
Dev Tools › Search Profiler

Console **Search Profiler** **Grok Debugger** **Painless Lab** BETA

Index

_all

```
1 ▾ {
2 ▾   "query":{
3         "match" : {"Gender":"Male"}
4     }
5 }
```

Query Profile Aggregation Profile

Index: collection Cumulative time: 0.484ms

∨ [n17IYCKhSYq1Tq8-9WLfEw][0] 0.484ms

Type and description Self time Total time
● TermQuery 0.5ms 0.5ms 100.00%
  Gender:Male View details

N & O:

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Dev Tools › Console

Console **Search Profiler** **Grok Debugger** **Painless Lab** BETA

History Settings Variables Help 200 - OK 376 ms

```
1  # Welcome to the Dev Tools Console!
2  #
3  # You can use Console to explore the Elasticsearch API. See the
   Elasticsearch API reference to learn more:
4  # https://www.elastic.co/guide/en/elasticsearch/reference/current/rest
   -apis.html
5  #
6  # Here are a few examples to get you started.
7
8  GET /collection/_search
9 ▾ {
10    "size": 0,
11 ▾  "aggs": {
12 ▾    "departments": {
13 ▾      "terms": {
14           "field": "Department.keyword"
15 ▴       }
16 ▴     }
17 ▴   }
18 ▴ }
```

```
1 ▾ {
2     "took": 12,
3     "timed_out": false,
4 ▾   "_shards": {
5       "total": 1,
6       "successful": 1,
7       "skipped": 0,
8       "failed": 0
9 ▴   },
10 ▾  "hits": {
11 ▾    "total": {
12         "value": 1263,
13         "relation": "eq"
14 ▴     },
15       "max_score": null,
16       "hits": []
17 ▴   },
18 ▾   "aggregations": {
19 ▾    "departments": {
20         "doc_count_error_upper_bound": 0,
21         "sum_other_doc_count": 0,
22         "buckets": []
23 ▴     }
24 ▴   }
25 ▴ }
```

elastic

Find apps, content, and more.

Dev Tools › Console

Console **Search Profiler** **Grok Debugger** **Painless Lab** BETA

History Settings Variables Help 200 - OK 343 ms

```
1  # Welcome to the Dev Tools Console!
2  #
3  # You can use Console to explore the Elasticsearch API. See the
   Elasticsearch API reference to learn more:
4  # https://www.elastic.co/guide/en/elasticsearch/reference/current/rest
   -apis.html
5  #
6  # Here are a few examples to get you started.
7
8  GET /hash_1234/_search        Click to send request
9 ▾ {
10    "size": 0,
11 ▾  "aggs": {
12 ▾    "departments": {
13 ▾      "terms": {
14           "field": "Department.keyword"
15 ▴       }
16 ▴     }
17 ▴   }
18 ▴ }
```

```
1 ▾ {
2     "took": 1,
3     "timed_out": false,
4 ▾   "_shards": {
5       "total": 1,
6       "successful": 1,
7       "skipped": 0,
8       "failed": 0
9 ▴   },
10 ▾  "hits": {
11 ▾    "total": {
12         "value": 3,
13         "relation": "eq"
14 ▴     },
15       "max_score": null,
16       "hits": []
17 ▴   },
18 ▾   "aggregations": {
19 ▾    "departments": {
20         "doc_count_error_upper_bound": 0,
21         "sum_other_doc_count": 0,
22         "buckets": []
23 ▴     }
24 ▴   }
25 ▴ }
```