

1) Answer

PUT recipes

```
{
  "mappings": {
    "_doc": {
      "dynamic": false,
      "properties": {
        "title": {
          "type": "text"
        },
        "description": {
          "type": "text"
        },
        "preparation_time_minutes": {
          "type": "integer"
        },
        "servings": {
          "properties": {
            "min": {
              "type": "integer"
            },
            "max": {
              "type": "integer"
            }
          }
        },
        "steps": {
          "type": "text"
        },
        "ingredients": {
          "type": "nested",
          "properties": {
            "name": {
              "type": "text"
            },
            "quantity": {
              "type": "keyword"
            }
          }
        }
      }
    }
  }
}
```

```

    }
  }
},
"created": {
  "type": "date",
  "format": "yyyy/MM/dd"
},
"ratings": {
  "type": "double"
}
}
}
}
}

```

```

PUT analyzed_index
{
  "settings": {
    "index": {
      "analysis": {
        "analyzer": {
          "custom_analyzer": {
            "type": "custom",
            "tokenizer": "standard",
            "filter": [
              "lowercase",
              "custom_stopwords",
              "synonyms_recipes"
            ]
          }
        }
      }
    }
  }
}

```

```

    }
  },
  "filter": {
    "custom_stopwords": {
      "type": "stop",
      "stopwords": "_english_"
    },
    "synonyms_recipes": {
      "type": "synonym",
      "synonyms_path": "synonyms_recipes.txt"
    }
  }
},
"mappings": {
  "_doc": {
    "properties": {
      "description": {
        "type": "text",
        "analyzer": "custom_analyzer"
      },
      "steps": {
        "type": "text",
        "analyzer": "custom_analyzer"
      }
    }
  }
}
}

```

2) Answer

```

curl -H "Content-Type: application/json"
-XPOST "http://localhost:9200/recipes/_doc/_bulk?pretty"
--data-binary @recipe.json

```

3) Answer

POST recipes/_update_by_query?conflicts=proceed

```
{
  "query": {
    "range": {
      "preparation_time_minutes": {
        "lte": 15
      }
    }
  },
  "script": {
    "lang": "painless",
    "source": ""
    if ((ctx._source.servings.max -
    ctx._source.servings.min).contains([1,2,3])) {

    }
  }
}
```

4) Answer

GET recipes/_search

GET product/_search

```
{
  "query": {
    "bool": {
      "must_not": {
        "exists": {
```

```
        "field": "tags"
      }
    }
  }
}
```

POST recipes/_update_by_query?conflicts=proceed

```
{
  "query": {
    "nested": {
      "path": "ingredients"
    }
  }
}
```

5) Answer

POST recipes/_delete_by_query

```
{
  "query": {
    "term": {
      "ratings": "NULL"
    }
  }
}
```

```
}  
}
```

6) Answer

PUT recipes/_mapping/_doc

```
{  
  "properties": {  
    "steps": {  
      "type": "text",  
      "fielddata": true  
    }  
  }  
}
```

GET recipes/_search

```
{  
  "_source": ["title", "ratings", "steps"],  
  "query": {  
    "nested": {  
      "path": "ingredients",  
      "query": {  
        "match": {  
          "ingredients.name": "egg"  
        }  
      }  
    }  
  },  
  "script_fields": {  
    "number_of_steps": {  
      "script": {  
        "lang": "painless",  
        "source": "params['_source']['steps'].size()"  
      }  
    }  
  },  
}
```

```
"sort": [
  {
    "ratings": {
      "mode": "avg"
    }
  }
]
```

7) Answer

GET recipes/_search

GET recipes/_doc/_search

```
{
  "size":0,
  "aggs":{
    "avg_amount":{
      "avg": {
        "field": "preparation_time_minutes"
      }
    }
  }
}
```

PUT recipes/_mapping/_doc

```
{
  "properties": {
    "num_of_ingredients": {
```

```

        "type": "integer"
    }
}
}
POST recipes/_doc/_update_by_query
{
  "query": {
    "match_all": {}
  },
  "script": {
    "source": "ctx._source.num_of_ingredients =
ctx._source.ingredients.size()"
  }
}

```

```

POST orders/_doc/_update_by_query
{
  "script": {
    "source": "ctx._source.enhance=10"
  },
  "query": {
    "match_all": {}
  }
}

```

```

GET recipes/_doc/_search
{
  "size": 0,
  "aggs": {
    "weighted_avg_amount": {
      "weighted_avg": {
        "value": {
          "field": "preparation_time_minutes"
        },
        "weight": {
          "field": "enhance"
        }
      }
    }
  }
}

```



```
}
```

GET recipes/_doc/_search

```
{
  "size": 0,
  "aggs": {
    "total_ingredients": {
      "max": {
        "field": "preparation_time_minutes"
      }
    }
  }
}
```

GET recipes/_doc/_search

```
{
  "size": 0,
  "aggs": {
    "total_ingredients": {
      "sum": {
        "field": "preparation_time_minutes"
      }
    }
  }
}
```

GET recipes/_doc/_search

```
{
  "size": 0,
  "aggs": {
    "total_ingredients": {
      "min": {
        "field": "preparation_time_minutes"
      }
    }
  }
}
```

GET recipes/_doc/_search

```
{
  "size": 0,
  "aggs": {
    "num_of_ingredients": {
      "terms": {
        "field": "created",
        "missing": "1970/01/01",
        "min_doc_count": 0
      }
    }
  }
}
```

GET recipes/_doc/_search

```
{
  "size": 0,
  "aggs": {
    "created": {
      "terms": {
        "field": "created",
        "size": 5,
        "show_term_doc_count_error": true,
        "order": {
          "_key": "asc"
        }
      }
    }
  }
}
```

GET recipes/_doc/_search

```
{
  "size": 0,
  "aggs": {
    "preparation_time_range": {
      "range": {
        "field": "preparation_time_minutes",
        "ranges": [
          {

```

```

        "from": 10,
        "to": 25
      }
    ]
  }
}
}
}

```

GET recipes/_doc/_search

```

{
  "size": 0,
  "aggs": {
    "preparation_time_range": {
      "range": {
        "field": "preparation_time_minutes",
        "ranges": [
          {
            "key": "quick recipes",
            "to": 10
          },
          {
            "key": "fairly quick recipes",
            "from": 10,
            "to": 25
          },
          {
            "key": "very long recipes",
            "from": 25
          }
        ]
      }
    }
  }
}

```

GET recipes/_doc/_search

```

{
  "size": 0,
  "aggs": {

```

```

    "created_range": {
      "date_range": {
        "field": "created",
        "format": "yyyy/mm/dd",
        "ranges": [
          {
            "to": "2010/01/01"
          },
          {
            "from": "2010/01/01"
          }
        ]
      }
    }
  }
}

```

GET recipes/_doc/_search

```

{
  "size": 0,
  "aggs": {
    "preparation_time_range": {
      "range": {
        "script": {
          "source": "doc.preparation_time_minutes.value"
        },
        "keyed": true,
        "ranges": [
          {
            "key": "quick recipes",
            "to": 10
          },
          {
            "key": "fairyl quick recipes",
            "from": 10,

```

```

        "to": 25
      },
      {
        "key": "very long recipes",
        "from": 25
      }
    ]
  },
  "aggs": {
    "statistics": {
      "stats": {
        "script": {
          "source": "doc.preparation_time_minutes.value"
        }
      }
    }
  }
}

```

GET recipes/_doc/_search

```

{
  "size": 0,
  "aggs": {
    "preparation_time_minutes": {
      "terms": {
        "field": "preparation_time_minutes"
      },
      "aggs": {
        "created": {
          "terms": {
            "field": "created"
          }
        }
      }
    }
  }
}

```

```
}
```

8) Answer

GET recipes/_doc/_search

```
{
  "query": {
    "bool": {
      "must": [
        {
          "match_phrase": {
            "title": {
              "query": "chips",
              "slop": 4
            }
          }
        },
        {
          "fuzzy": {
            "description": {
              "value": "ketchup",
              "fuzziness": 3
            }
          }
        }
      ],
      "filter": [
        {
          "range": {
            "created": {
              "gt": "2015/05/01"
            }
          }
        }
      ],
      "query_string": {
```



```

        "query": "shaken but not stirred",
        "cutoff_frequency": 0.005
    }
}
}
}

```

GET recipes/_search

```

{
  "query": {
    "common": {
      "steps": {
        "query": " hot soup",
        "cutoff_frequency": 0.001,
        "low_freq_operator": "and"
      }
    }
  }
}

```

GET recipes/_search

```

{
  "query": {
    "common": {
      "steps": {
        "query": "more butter",
        "cutoff_frequency": 0.008,
        "high_freq_operator": "or"
      }
    }
  }
}

```

10)

A) Answer


```

PUT store
{
  "mappings": {
    "_doc": {
      "dynamic": false,
      "properties": {
        "item_id": {
          "type": "integer"
        },
        "name": {
          "type": "text"
        },
        "stock": {
          "type": "integer"
        },
        "vendor": {
          "properties": {
            "name": {
              "type": "text"
            },
            "contact": {
              "type": "keyword"
            },
            "address": {
              "type": "geo_point"
            }
          }
        }
      }
    }
  }
}

```

B) Answer

```

PUT store/_doc/_bulk

```

```

{"index":{"_id":1}}
{"item_id":1,"name":"Soup","stock": 200, "vendor": {"name":
"Bhatbhateni", "contact": "02666738", "address": {"lat": 55.43, "lon":
43.54}}}}
{"index":{"_id":2}}
{"item_id":2,"name":"Choclote","stock": 350, "vendor": {"name":
"Kitkat", "contact": "01035362", "address": {"lat": 78.73, "lon": 44.74}}}}
{"index":{"_id":3}}
{"item_id":3,"name":"HandWash","stock": 200, "vendor": {"name":
"Dettol", "contact": "01419203", "address": {"lat": 66.56, "lon": 39.78}}}}
{"index":{"_id":4}}
{"item_id":4,"name":"Kajol","stock": 200, "vendor": {"name": "Loreal",
"contact": "01558732", "address": {"lat": 64.21, "lon": 42.74}}}}
{"index":{"_id":5}}
{"item_id":5,"name":"Chips","stock": 500, "vendor": {"name": "Lays",
"contact": "01437283", "address": {"lat": 66.32, "lon": 47.34}}}}

```

C) Answer

GET store/_search

```

{
  "query": {
    "bool": {
      "filter": {
        "geo_bounding_box": {
          "vendor.address": {
            "top_left": {
              "lat": 66.00,
              "lon": 42.00
            },
            "bottom_right": {
              "lat": 62.00,
              "lon": 50.00
            }
          }
        }
      }
    }
  }
}

```

```
}  
}
```

D) Answer

```
PUT category_items  
{  
  "mappings": {  
    "_doc": {  
      "dynamic": false,  
      "properties": {  
        "category": {  
          "type": "text"  
        },  
        "items": {  
          "type": "nested",  
          "properties": {  
            "item_ids": {  
              "type": "integer"  
            }  
          }  
        }  
      }  
    }  
  }  
}
```

E) Answer

```
PUT category_items/_doc/1  
{  
  "category": "cosmetic",  
  "items": [  
    {  
      "item_ids": 1  
    },  
    {  
      "item_ids": 2  
    },  
    {  
      "item_ids": 3  
    }  
  ]  
}
```

```

    {
      "item_ids": 2
    },
    {
      "item_ids": 4
    }
  ]
}

```

```

PUT category_items/_doc/2
{
  "category": "household",
  "items": [
    {
      "item_ids": 5
    },
    {
      "item_ids": 3
    }
  ]
}

```

F) Answer

```

GET store/_search
{
  "query": {
    "terms": {
      "item_id": {
        "index": "category_items",
        "type": "_doc",
        "id": 4,
        "path": "items.item_ids"
      }
    }
  }
}

```

11) Answer

POST /_aliases

```
{
  "actions": [
    {
      "add": {
        "index": "orders",
        "alias": "order_sample",
        "filter": {
          "bool": {
            "must": [
              {
                "query_string": {
                  "default_field": "status",
                  "query": "(processed) or (completed)"
                }
              },
              {
                "query_string": {
                  "default_field": "sales_channel",
                  "query": "(phone) and (app)"
                }
              }
            ]
          }
        },
        "range": {
          "total_amount": {
            "gte": 100
          }
        }
      }
    }
  ]
}
```

```

    ]
  }
}
]
}

```

12) Answer

```

GET order_sample/_search
{
  "query": {
    "term": {
      "status": {
        "value": "completed"
      }
    }
  }
}

```

```

GET order_sample/_search
{
  "query": {
    "range": {
      "total_amount": {
        "gte": 150,
        "lte": 200
      }
    }
  }
}

```

```
}
```

GET order_sample/_search

```
{
  "query": {
    "prefix": {
      "salesman.name": "lena"
    }
  }
}
```

GET order_sample/_search

```
{
  "query": {
    "wildcard": {
      "salesman.name": "l??a"
    }
  }
}
```

GET order_sample/_search

```
{
  "query": {
    "wildcard": {
      "salesman.name": "l*a"
    }
  }
}
```

GET order_sample/_search

```
{
  "query": {
    "match": {
      "salesman.name": "rene"
    }
  }
}
```

GET order_sample/_search

```
{
```

```
"query": {  
  "match": {  
    "salesman.name": {  
      "query": "lena",  
      "fuzziness": 2  
    }  
  }  
}
```