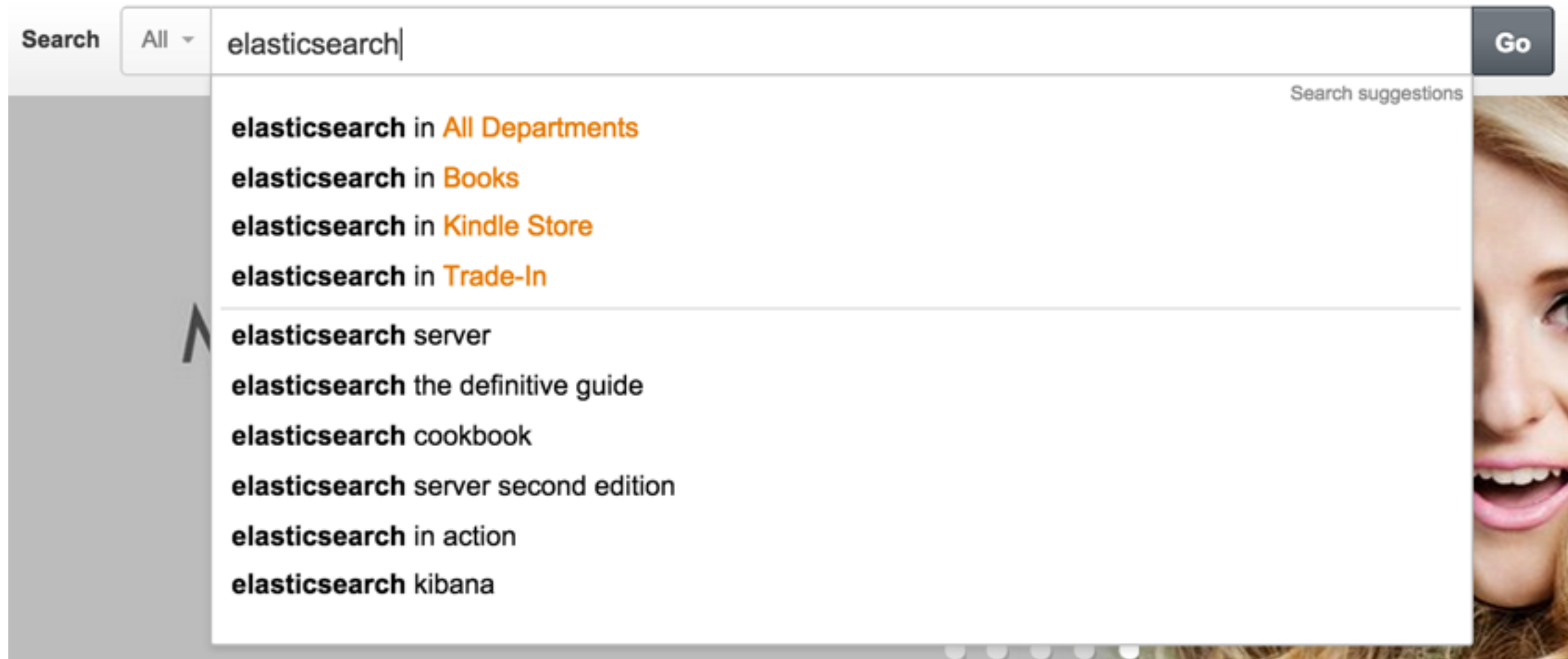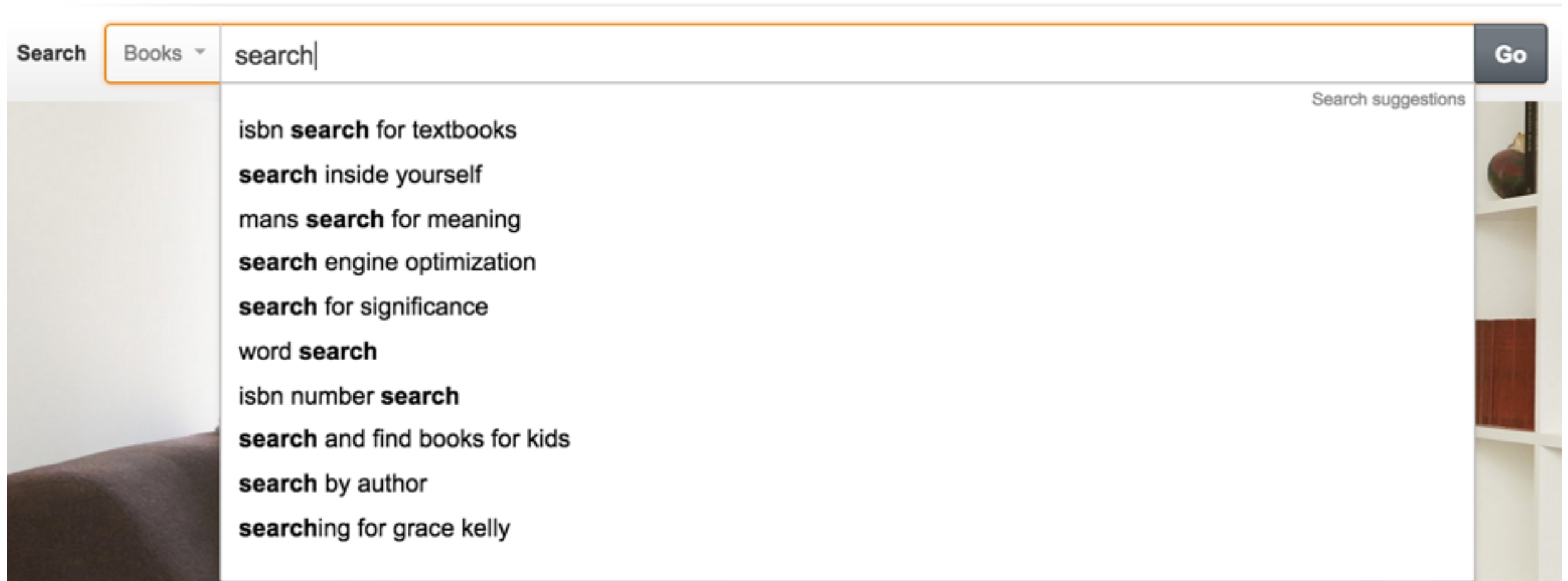# elasticsearch
for developer

Auto-Suggestion

book_08_suggestion.txt

Auto-suggestion with Elasticsearch

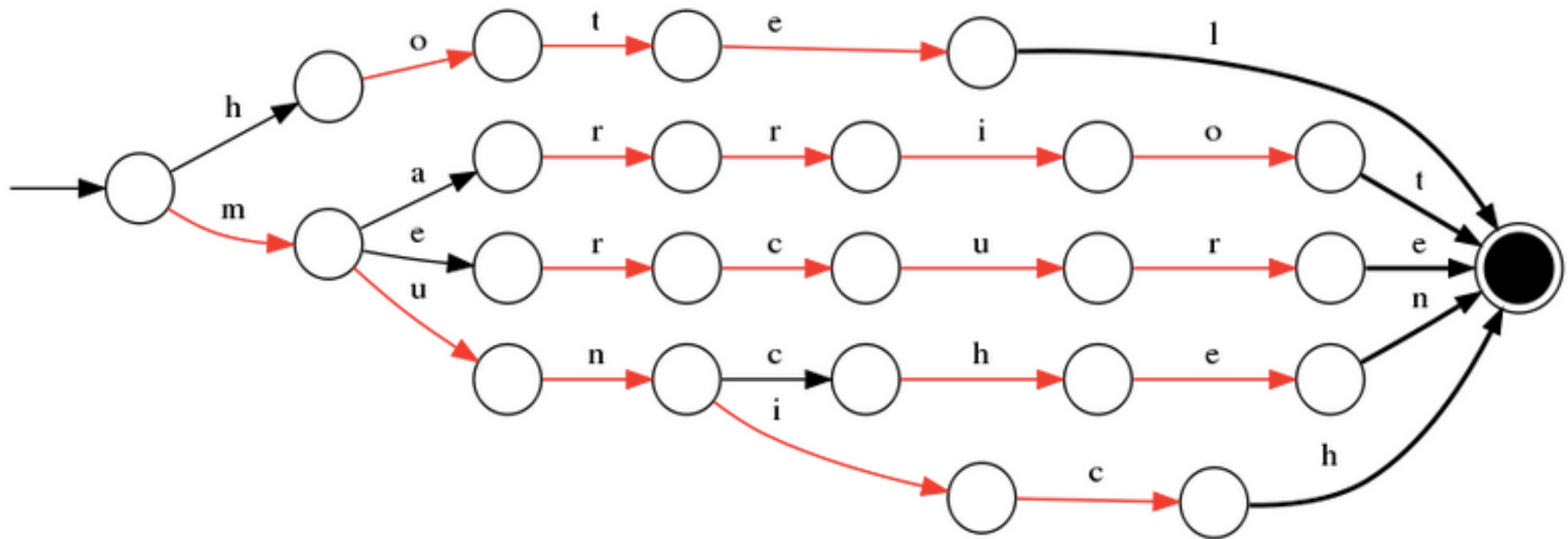# Auto-suggestion with Elasticsearch

Suggestion

- Completion suggestion
- Ngram

Completion suggestion

Finite State Transducers (FST)

http://www.elasticsearch.org/blog/you-complete-me/

http://www.elasticsearch.org/guide/en/elasticsearch/reference/current/search-suggesters-completion.html

Example

How to add data to suggest ?

Elasticsearch book 1
Elasticsearch book 2
Elasticsearch book 3

Create new index

```
PUT /suggestion
{
  "mappings": {
    "book": {
      "properties": {
        "title": {
          "type": "string"
        },
        "title_suggest": {
          "type": "completion"
        }
}}}}
```

Create document

```
PUT  /suggestion/book/1
{
  "title" : "Elasticsearch book one",
  "title_suggest" : "Elasticsearch book one"
}
```

Try with "elas"

```
POST /suggestion/_suggest
{
  "title" : {
    "text" : "elas",
    "completion" : {
      "field" : "title_suggest",
      "size" : 10
    }
  }
}
```

Result

```json
"title": [
    {
        "text": "elas",
        "offset": 0,
        "length": 4,
        "options": [
            {
                "text": "Elasticsearch book three",
                "score": 1
            },
            {
                "text": "Elasticsearch book two",
                "score": 1
            },
            {
                "text": "Elasticsearch for developer",
                "score": 1
            }
        ]
    }
]
```

Try with "book"

```
[
"title": [
    {
        "text": "book",
        "offset": 0,
        "length": 4,
        "options": []
    }
]
]
```

Problem ?

Elasticsearch book 1
Elasticsearch book 2
Elasticsearch book 3

Elas → Found **3** documents

Book → Data not found

Multiple inputs

```
PUT /suggestion/book/1
{
  "title": "Elasticsearch book one",
  "title_suggest": {
    "input": [
      "Elasticsearch book one",
      "Book elasticsearch"
    ]
  }
}
```

Try with "book" again

```
'',
"title": [
    {
        "text": "book",
        "offset": 0,
        "length": 4,
        "options": [
            {
                "text": "Book elasticsearch",
                "score": 1
            }
        ]
    }
]
```

Problem ?

```json
,
"title": [
    {
        "text": "book",
        "offset": 0,
        "length": 4,
        "options": [
            {
                "text": "Book elasticsearch",
                "score": 1
            }
        ]
    }
]
```

Multiple inputs again

```
PUT /suggestion/book/1
{
  "title": "Elasticsearch book one",
  "title_suggest": {
    "input": [
      "Elasticsearch book one",
      "Book elasticsearch",
      "buy now …",
    ]
  }
}
```

Try with "book" again

```
",
"title": [
    {
        "text": "b",
        "offset": 0,
        "length": 1,
        "options": [
            {
                "text": "Book elasticsearch",
                "score": 1
            },
            {

                "text": "buy now .... ",
                "score": 1
            }
        ]
    }
]
```

Problem ?

```
 ,
"title": [
    {
        "text": "b",
        "offset": 0,
        "length": 1,
        "options": [
            {
                "text": "Book elasticsearch",
                "score": 1
            },
            {

                "text": "buy now .... ",
                "score": 1
            }
        ]
    }
]
```

Single output

```
PUT /suggestion/book/1
{
  "title": "Elasticsearch book one",
  "title_suggest": {
    "input": [
      "Elasticsearch book one",
      "Book elasticsearch",
      "buy now .... "
    ],
    "output": "Elasticsearch book one"
  }
}
```

Try with "book" again

```
"title": [
    {
        "text": "b",
        "offset": 0,
        "length": 1,
        "options": [
            {
                "text": "Elasticsearch book one",
                "score": 1
            }
        ]
    }
]
```

Promotion for Book two ?

```json
"title": [
    {
        "text": "e",
        "offset": 0,
        "length": 1,
        "options": [
            {
                "text": "Elasticsearch book one",
                "score": 1
            },
            {
                "text": "Elasticsearch book three",
                "score": 1
            },
            {
                "text": "Elasticsearch book two",
                "score": 1
            }
        ]
    }
]
```

Boost score of book two

```
PUT /suggestion/book/2
{
  "title": "Elasticsearch book two",
  "title_suggest": {
    "input": [
        "Elasticsearch book one", "discount"
    ],
    "output": "Elasticsearch book two",
    "weight": 10
  }
}
```

Try with "elas" again

```
"title": [
  {
    "text": "e",
    "offset": 0,
    "length": 1,
    "options": [
      {
        "text": "Elasticsearch book two",
        "score": 10
      },
      {
        "text": "Elasticsearch book one",
        "score": 1
      },
      {
        "text": "Elasticsearch book three",
        "score": 1
      }
    ]
  }
]
```

New use case

ถ้าต้องการ ID ของหนังสือล่ะ ?

Id	Title
1	Elasticsearch Book One
2	Elasticsearch Book Two
3	Elasticsearch Book Three

Mapping

```json
{
    "suggestion": {
        "mappings": {
            "book": {
                "properties": {
                    "title": {
                        "type": "string"
                    },
                    "title_suggest": {
                        "type": "completion",
                        "analyzer": "simple",
                        "payloads": false,
                        "preserve_separators": true,
                        "preserve_position_increments": true,
                        "max_input_length": 50
                    }
                }
            }
        }
    }
}
```

Mapping

```
{
    "suggestion": {
        "mappings": {
            "book": {
                "properties": {
                    "title": {
                        "type": "string"
                    },
                    "title_suggest": {
                        "type": "completion",
                        "analyzer": "simple",
                        "payloads": false,
                        "preserve_separators": true,
                        "preserve_position_increments": true,
                        "max_input_length": 50
                    }
                }
            }
        }
    }
}
```

Need payloads = true

How to ?

1. ลบ index

2. สร้าง index ด้วย payload=true

Create new index with payloads

```
PUT /suggestion
{
  "mappings": {
    "book": {
      "properties": {
        "title": {
          "type": "string"
        },
        "title_suggest": {
          "type": "completion",
          "payloads": "true"
        }
}}}}
```

Create document

```
PUT  /suggestion/book/1
{
  "title": "Elasticsearch book one",
  "title_suggest": {
    "input": [
        "Elasticsearch book one"
    ],
    "payload": {
      "product_id": 1
    }
  }
}
```

Try with "elas" again

```json
},
"title": [
    {
        "text": "elas",
        "offset": 0,
        "length": 4,
        "options": [
            {
                "text": "Elasticsearch book one",
                "score": 1,
                "payload": {
                    "product_id": 1
                }
            },
            {
                "text": "Elasticsearch book three",
                "score": 1,
                "payload": {
                    "product_id": 3
                }
            },
            {
                "text": "Elasticsearch book two",
                "score": 1,
                "payload": {
                    "product_id": 2
                }
            }
        ]
    }
]
```