

Search System

Formula 1



Collection used for indexing

races_joined.csv:

- raceId
- year
- round
- circuitId
- date
- time
- url
- qualifying_text
- race_text

```
http://localhost:8983/solr/races/select?indent=true&q.op=AND&q=name%3Aportuguese

{
  "responseHeader": {
    "status": 0,
    "QTime": 0,
    "params": {
      "q": "name:portuguese",
      "indent": "true",
      "q.op": "AND",
      "_": "1639412176669"
    },
    "response": {
      "numFound": 18, "start": 0, "numFoundExact": true, "docs": [
        {
          "raceId": "238",
          "year": [1996],
          "round": [15],
          "circuitId": [27],
          "name": "Portuguese Grand Prix",
          "date": ["1996-09-22T00:00:00Z"],
          "time": ["\N"],
          "url": ["http://en.wikipedia.org/wiki/1996_Portuguese_Grand_Prix"],
          "race_text": "The 1996 Portuguese Grand Prix was a Formula One motor race held on 22 September 1996 at Autódromo do Estoril in Estoril, Portugal. It was the 15th and penultimate race of the",
          "id": "215b65dd-5bac-455e-bf43-943244115f21",
          "_version_": 1719048259378348032,
        },
        {
          "raceId": "252",
          "year": [1995],
          "round": [13],
          "circuitId": [27],
          "name": "Portuguese Grand Prix",
          "date": ["1995-09-24T00:00:00Z"],
          "time": ["\N"],
          "url": ["http://en.wikipedia.org/wiki/1995_Portuguese_Grand_Prix"],
          "qualifying_text": "Two practice sessions were held before the race; the first was held on Friday morning and the second on Saturday morning. Both sessions lasted 1hour and 45minutes with w",
          "race_text": "The 1995 Portuguese Grand Prix (formally the XXIV Grande Prémio de Portugal) was a Formula One motor race held on 24 September 1995 at the Autódromo do Estoril, Estoril, Portu",
          "id": "11013b29-83be-4e94-98ed-a9707e576656",
          "_version_": 1719048259397222402,
        },

```

Indexing process

Field-type: “text”

Schema Filters:

- ASCIIFoldingFilterFactory
- LowerCaseFilterFactory
- EnglishMinimalStemFilterFactory
- ManagedSynonymGraphFilterFactor
- FlattenGraphFilterFactory

Schema Tokenizers:

- StandardTokenizerFactory

Applied to fields:

- race_text
- qualifying_text
- name

Search results with illustrative queries: Query 1



Youngest drivers to ever win a race or a championship?

q: race_text:youngest AND race_text:driver AND race_text:win

Number of results: 18

Relevant results: 10

2008 Italian GP:

(...) Vettel's victory made him the **youngest driver to win** a Formula One race, at 21 years 73 days
(...)

2003 Hungarian GP:

(...) The 70-lap race was won by Renault's Fernando Alonso after starting from pole position, becoming at the time the **youngest** ever **driver to win** a Grand Prix, beating the previous record of Bruce McLaren (...)

Evaluation of Query 1

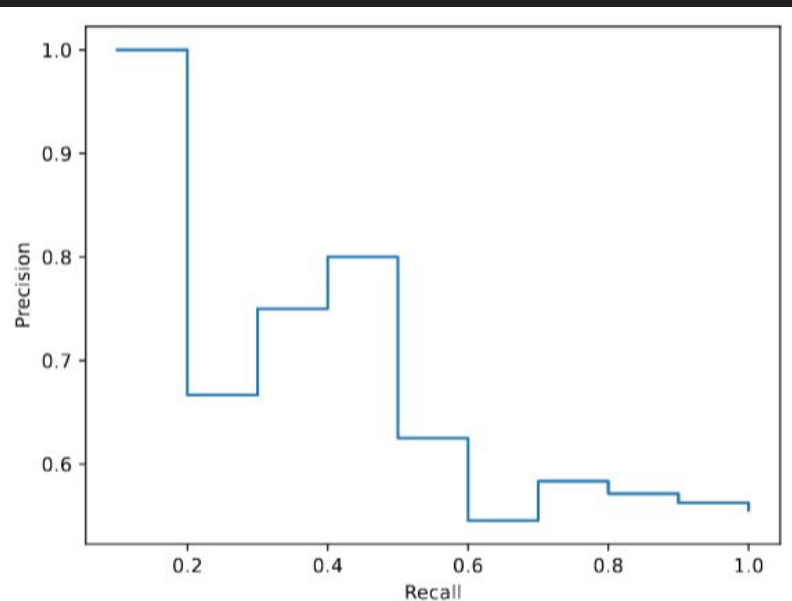


Figure 5. Precision-Recall Curve of Query 1

Metric	Value
Average Precision	0.689546
Precision at 10 (P@10)	0.6
Recall at 10 (R@10)	0.6

Search results with illustrative queries: Query 2



F1 incidents in the last 2 years that involved a certain driver

q: race_text:"incident Verstappen"~10 race_text:"crash Verstappen"~10
race_text:"accident Verstappen"~10 race_text:"collision Verstappen"~10
fq: date:[NOW-1YEAR/YEAR TO NOW]

Number of results: 5

Relevant results: 4

2021 British GP:

(...) Hamilton and Verstappen collided with each other at the ninth corner, (...)

2020 Tuscan GP:

(...) On the first lap at turn 2, Max Verstappen, Pierre Gasly, Kimi Räikkönen, and Romain Grosjean collided, resulting in Gasly and Verstappen retiring from the race (...)

Evaluation of Query 2

Metric	Value
Average Precision	0.479167
Precision at 10 (P@10)	0.4
Recall at 10 (R@10)	1.0

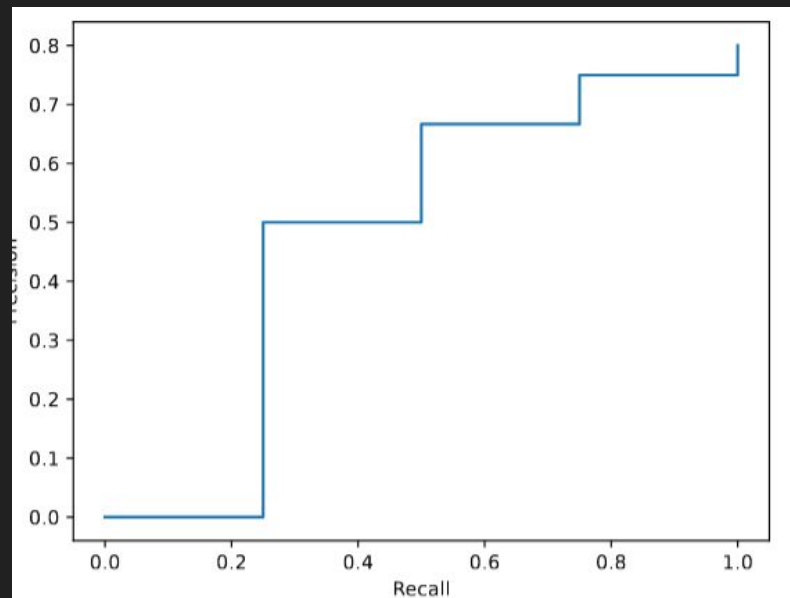


Figure 6. Precision-Recall Curve of Query 2

Search results with illustrative queries: Query 3



Races where a driver X wins the race and rains during the race

q: race_text:"rain" AND race_text:"Vettel win"~5

Number of results: 6

Relevant results: 5

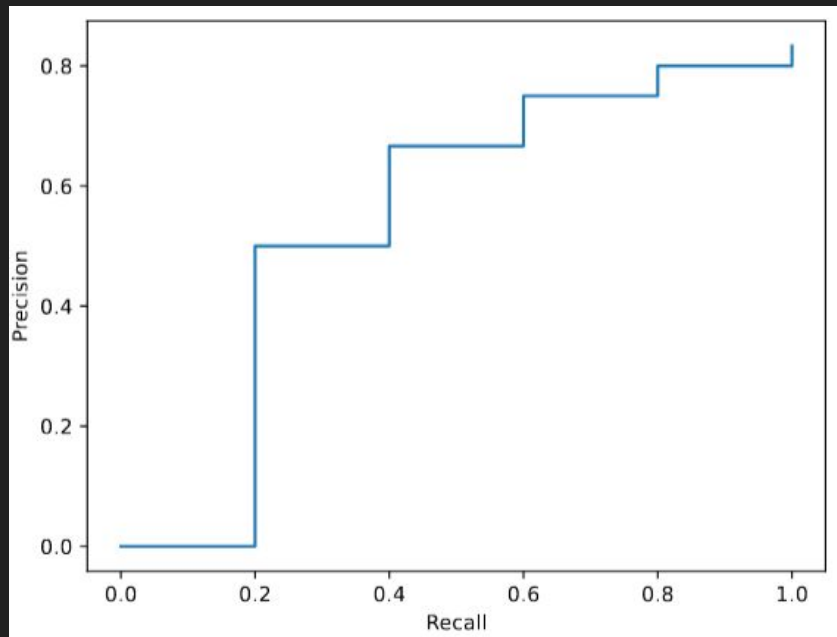
2011 Belgian GP:

The 44-lap race was **won** by Red Bull Racing's Sebastian **Vettel**,(...) The **rain** began falling again ahead (...)

2010 Japanese GP:

(...) which was delayed to the day of the race due to torrential **rain**. (...) before **Vettel** retook the position on the 39th lap, maintaining it for the rest of the race to achieve his second **victory** in Japan (...)

Evaluation of Query 3



Metric	Value
Average Precision	0.543333
Precision at 10 (P@10)	0.5
Recall at 10 (R@10)	1.0



Thank you!

Group 23

Diogo Nunes | up201808546

Jéssica Nascimento | up201806723

João Vítor Fernandes | up201806724