

File Format: JSON

Backend Code: C++, RapidJSON

User defined functions:

- Query (ex. All movies with the "Drama" genre)
- Search (ex. Typing in Actors/Movie name)
- Add/Remove (ex. Adding new entries, or even new fields)
- Sort (ex. Sort by highest rated movies)

Data Structure:

Movies (default fields)

- ID
- Title
- Year
- Genre
- Director
- Actors

People (default fields)

- ID
- Name
- DOB
- Movies

Things to Consider:

- Handling duplicates
- If a new field is created, what should the default value be?
- When do we read/update the file using what's stored in memory?
 - Ex. Does calling `getMovie(string movieName)` read the JSON if it's already in memory?
- Possibility:
 - Convert the JSON to a memory location->only write to JSON if something is modified
 - Race conditions?

Sample JSON file

(fields generated by ChatGPT)

```
{
  "movies": [
    {
      "id": 1,
      "title": "The Godfather",
      "year": 1972,
      "genre": ["Crime", "Drama"],
      "director": {
        "id": 1,
```

```
    "name": "Francis Ford Coppola"
  },
  "actors": [
    {
      "id": 1,
      "name": "Marlon Brando"
    },
    {
      "id": 2,
      "name": "Al Pacino"
    }
  ],
  "release_date": "1972-03-24",
  "rating": 9.2
},
{
  "id": 2,
  "title": "The Shawshank Redemption",
  "year": 1994,
  "genre": ["Drama"],
  "director": {
    "id": 2,
    "name": "Frank Darabont"
  },
  "actors": [
    {
      "id": 3,
      "name": "Tim Robbins"
    },
    {
      "id": 4,
      "name": "Morgan Freeman"
    }
  ],
  "release_date": "1994-09-23",
  "rating": 9.3
},
],
"people": [
  {
    "id": 1,
    "name": "Marlon Brando",
    "movies": ["The Godfather"],
    "date_of_birth": "1924-04-03"
```

```
    },
    {
      "id": 2,
      "name": "Al Pacino",
      "movies": ["The Godfather"],
      "date_of_birth": "1940-04-25"
    },
    {
      "id": 3,
      "name": "Tim Robbins",
      "movies": ["The Shawshank Redemption"],
      "date_of_birth": "1958-10-16"
    },
    {
      "id": 4,
      "name": "Morgan Freeman",
      "movies": ["The Shawshank Redemption"],
      "date_of_birth": "1937-06-01"
    },
    {
      "id": 5,
      "name": "Francis Ford Coppola",
      "movies": ["The Godfather"],
      "date_of_birth": "1939-04-07"
    },
    {
      "id": 6,
      "name": "Frank Darabont",
      "movies": ["The Shawshank Redemption"],
      "date_of_birth": "1959-01-28"
    }
  ]
}
```