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# CS343 Graph Data Science

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## Cypher Intermediate Queries

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# STRING

- **STARTS WITH:** filter nodes or properties that have values beginning with a specific substring.
  - Example: WHERE m.title STARTS WITH 'The'
- **ENDS WITH:** filter nodes or properties that have values ending with a specific substring.
  - Example: WHERE a.name ENDS WITH 'Smith'
- **CONTAINS:** filter nodes or properties that have values containing a specific substring.
  - Example: WHERE m.title CONTAINS 'Matrix'
- **toLower:** convert a string to lowercase, enabling case-insensitive comparisons.
  - Example: WHERE toLower(a.name) CONTAINS 'john'
- **toUpper:** convert a string to uppercase.
  - Example: RETURN toUpper(m.title) AS uppercaseTitle

# STRING: Practice

Write queries for the following

- Retrieve movies whose titles start with 'The'
- Find actors whose names end with 'Smith'
- Retrieve movies with titles containing 'Matrix'
- Find actors whose names contain 'John' (case-insensitive)
- Retrieve movies released after 2000 with titles in uppercase:
- Find directors whose names start with 'Christopher' (case-sensitive):

# DISTINCT

- Eliminates duplicates: filter out duplicate values from the result set of a query

**RETURN DISTINCT expression**

Write queries for the following:

- Find actors who have acted in movies released after 2000
- Find pairs of co-actors in movies

# ORDER BY

- Sort the result set of a query based on one or more expressions.

```
MATCH (m:Movie)
RETURN m.title, m.released
ORDER BY m.released DESC
```

Write queries for the following:

- Retrieve movies ordered by release year in ascending order
- Find actors ordered by their names in alphabetical order
- Retrieve actors and their birth years, ordered by birth year in ascending order

# LIMIT / SKIP

- **LIMIT** clause is used to restrict the number of rows or elements returned
- **SKIP** clause is used to skip a specified number (n) of rows or elements from the beginning of the result set.

```
MATCH (a:Person)-[:ACTED_IN]->(m:Movie)
RETURN a.name, m.title
SKIP 5
LIMIT 5
```

- Returns the first five movies
- Returns the latest movie
- Returns list of movies for 3<sup>rd</sup> page where each page contain 10 movies

# Min, Max, Count

- **MIN:** find the minimum value of a numeric expression within a set of values.
  - **MAX:** find the maximum value of a numeric expression within a set of values.
  - **COUNT:** the number of elements in a set, whether they are nodes, relationships, or other expressions.
- 
- Count the total number of actors
  - Count the total number of movies
  - Count the total number of directors
  - Number of movies in which director also acted in the same movie
  - Number of actor who also directs at least one movies