

# MOVIE RENTAL DATA ANALYSIS

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# MOTION PICTURES DATA ANALYSIS

- The Motion Picture Association (MPA) is a movie rating system.
- Sakila is a movie rental store with a vast collection of movies in DVDs and blue ray disc formats.
- The management wants to analyze the data to understand what kind of movies and actors are often rented. This analysis would help them stock up the inventory of movies to improve their business.

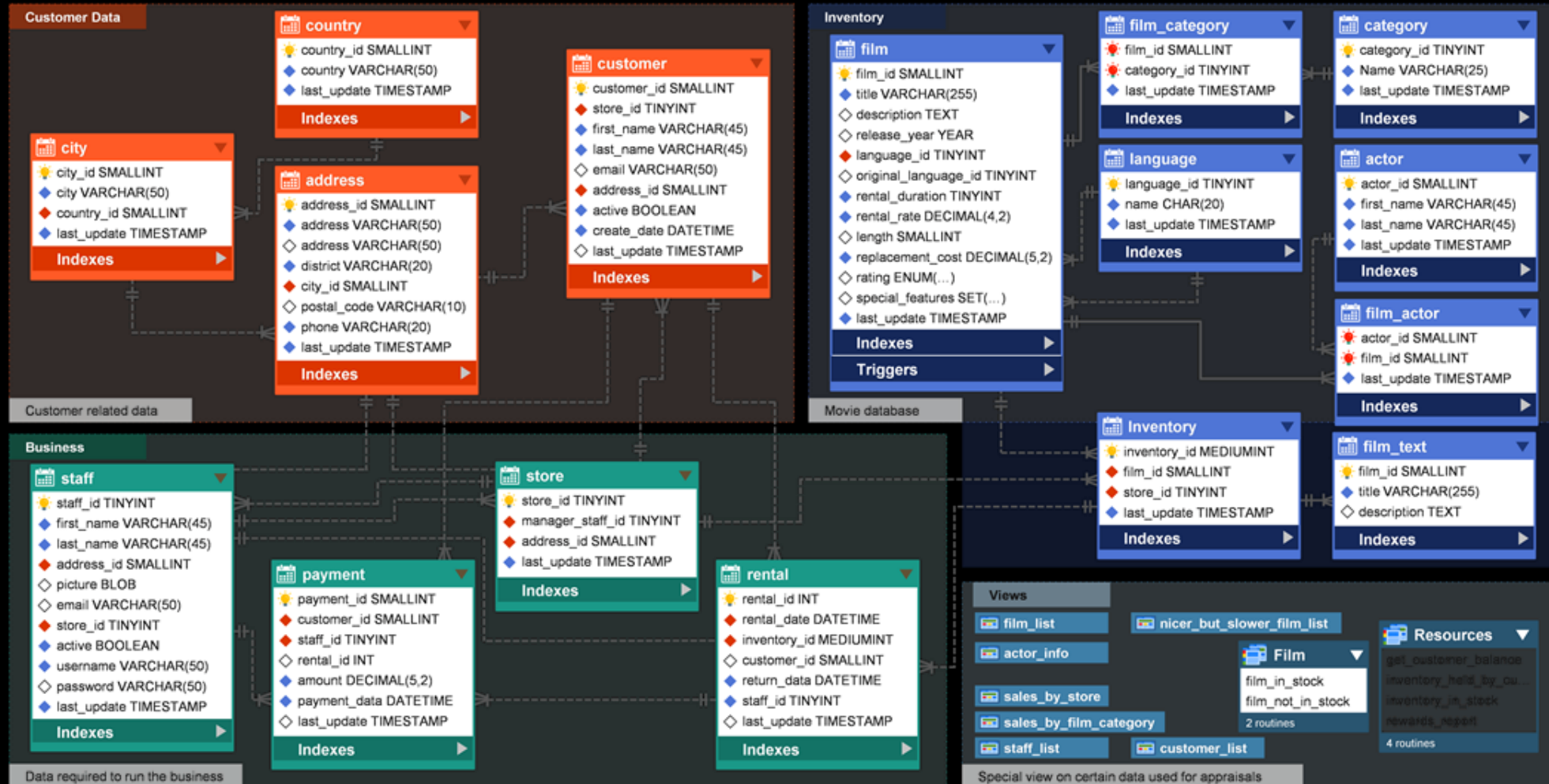
# OBJECTIVE

what kind of  
movies are  
most often  
rented

which genres  
they belong to

and which  
actors  
appeared in  
them

# SAKILA DATABASE SCHEMA DIAGRAM





# FULL NAMES OF ACTORS

| full_name           |
|---------------------|
| ▶ PENELOPE GUINESS  |
| NICK WAHLBERG       |
| ED CHASE            |
| JENNIFER DAVIS      |
| JOHNNY LOLLOBRIGIDA |
| BETTE NICHOLSON     |
| GRACE MOSTEL        |
| MATTHEW JOHANSSON   |
| JOE SWANK           |
| CHRISTIAN GABLE     |
| ZERO CAGE           |
| KARL BERRY          |
| UMA WOOD            |
| VIVIEN BERGEN       |
| CUBA OLIVIER        |
| FRED COSTNER        |

# ACTORS HAVING UNIQUE FIRST NAME

|   | count(*) | first_name |
|---|----------|------------|
| ▶ | 1        | JENNIFER   |
|   | 1        | BETTE      |
|   | 1        | GRACE      |
|   | 1        | JOE        |
|   | 1        | ZERO       |
|   | 1        | KARL       |
|   | 1        | UMA        |
|   | 1        | FRED       |
|   | 1        | HELEN      |
|   | 1        | BOB        |
|   | 1        | ELVIS      |
|   | 1        | ALEC       |
|   | 1        | SISSY      |
|   | 1        | TIM        |
|   | 1        | JUDY       |
|   | 1        | VAL        |

Result 16 ×

## ACTORS HAVING UNIQUE LAST NAME

|   | count(*) | last_name |
|---|----------|-----------|
| ▶ | 1        | ASTAIRE   |
|   | 1        | BACALL    |
|   | 1        | BALE      |
|   | 1        | BALL      |
|   | 1        | BARRYMORE |
|   | 1        | BASINGER  |
|   | 1        | BERGEN    |
|   | 1        | BERGMAN   |
|   | 1        | BIRCH     |
|   | 1        | BLOOM     |
|   | 1        | BRIDGES   |
|   | 1        | BULLOCK   |
|   | 1        | CARREY    |
|   | 1        | CHAPLIN   |
|   | 1        | CLOSE     |
|   | 1        | COSTNER   |

Result 17 ×

THE NUMBER OF  
TIMES EACH  
LAST NAME  
APPEARS IN THE  
DATABASE.

|   | last_name | COUNT OF LAST<br>NAME |
|---|-----------|-----------------------|
| ▶ | AKROYD    | 3                     |
|   | ALLEN     | 3                     |
|   | ASTAIRE   | 1                     |
|   | BACALL    | 1                     |
|   | BAILEY    | 2                     |
|   | BALE      | 1                     |
|   | BALL      | 1                     |
|   | BARRYMORE | 1                     |
|   | BASINGER  | 1                     |
|   | BENING    | 2                     |
|   | BERGEN    | 1                     |
|   | BERGMAN   | 1                     |
|   | BERRY     | 3                     |
|   | BIRCH     | 1                     |
|   | BLOOM     | 1                     |

Result 19 ×



MOVIES BASED ON THEIR RATINGS  
TO DETERMINE IF THEY ARE  
SUITABLE FOR KIDS OR SOME  
PARENTAL ASSISTANCE IS  
REQUIRED

- movies with the rating "R"
- The movies with the rating "R" are not suitable for audience under 17 years of age.

|   | TITLE                |
|---|----------------------|
| ▶ | AIRPORT POLLOCK      |
|   | ALONE TRIP           |
|   | AMELIE HELLFIGHTERS  |
|   | AMERICAN CIRCUS      |
|   | ANACONDA CONFESSIONS |
|   | ANALYZE HOOSIERS     |
|   | ANYTHING SAVANNAH    |
|   | APOCALYPSE FLAMINGOS |
|   | ARMY FLINTSTONES     |
|   | BADMAN DAWN          |
|   | BANGER PINOCCHIO     |
|   | BEAR GRACELAND       |
|   | BEAST HUNCHBACK      |
|   | BEVERLY OUTLAW       |
|   | BOOGIE AMELIE        |
|   | BOULEVARD MOB        |

# MOVIES THAT ARE NOT RATED "R"

|   | TITLE            |
|---|------------------|
| ▶ | ACADEMY DINOSAUR |
|   | ACE GOLDFINGER   |
|   | ADAPTATION HOLES |
|   | AFFAIR PREJUDICE |
|   | AFRICAN EGG      |
|   | AGENT TRUMAN     |
|   | AIRPLANE SIERRA  |
|   | ALABAMA DEVIL    |
|   | ALADDIN CALENDAR |
|   | ALAMO VIDEOTAPE  |
|   | ALASKA PHANTOM   |
|   | ALI FOREVER      |
|   | ALICE FANTASIA   |
|   | ALIEN CENTER     |
|   | ALLEY EVOLUTION  |
|   | ALTER VICTORY    |

film 22 ×



REPLACEMENT COST OF A MOVIE COPY(DISC - DVD/BLUERAY).

THE REPLACEMENT COST REFERS TO THE AMOUNT CHARGED TO THE CUSTOMER IF THE MOVIE DISC IS NOT RETURNED

OR IS RETURNED IN A DAMAGED STATE.

# THE MOVIES WHERE THE REPLACEMENT COST IS UP TO \$11.

| title                   | replacement_cost |
|-------------------------|------------------|
| THEORY MERMAID          | 9.99             |
| THIN SAGEBRUSH          | 9.99             |
| TOOTSIE PILOT           | 10.99            |
| TRAINSPOTTING STRANG... | 10.99            |
| TRANSLATION SUMMER      | 10.99            |
| TROJAN TOMORROW         | 9.99             |
| TRUMAN CRAZY            | 9.99             |
| TURN STAR               | 10.99            |
| VALENTINE VANISHING     | 9.99             |
| VIDEOTAPE ARSENIC       | 10.99            |
| WAIT CIDER              | 9.99             |
| WARLOCK WEREWOLF        | 10.99            |
| WITCHES PANIC           | 10.99            |
| WRONG BEHAVIOR          | 10.99            |
| YOUNG LANGUAGE          | 9.99             |
| ZHIVAGO CORE            | 10.99            |

film 23 ×

# THE MOVIES WHERE THE REPLACEMENT COST IS BETWEEN \$11 AND \$20

|   | title               | replacement_cost |
|---|---------------------|------------------|
| ▶ | ACE GOLDFINGER      | 12.99            |
|   | ADAPTATION HOLES    | 18.99            |
|   | AGENT TRUMAN        | 17.99            |
|   | AIRPORT POLLOCK     | 15.99            |
|   | ALAMO VIDEOTAPE     | 16.99            |
|   | ALONE TRIP          | 14.99            |
|   | AMERICAN CIRCUS     | 17.99            |
|   | ANALYZE HOOSIERS    | 19.99            |
|   | ANGELS LIFE         | 15.99            |
|   | ANNIE IDENTITY      | 15.99            |
|   | ANONYMOUS HUMAN     | 12.99            |
|   | ANTHEM LUKE         | 16.99            |
|   | ANTITRUST TOMAT...  | 11.99            |
|   | APACHE DIVINE       | 16.99            |
|   | APOCALYPSE FLAMI... | 11.99            |
|   | APOLLO TEEN         | 15.99            |

film 24 ×



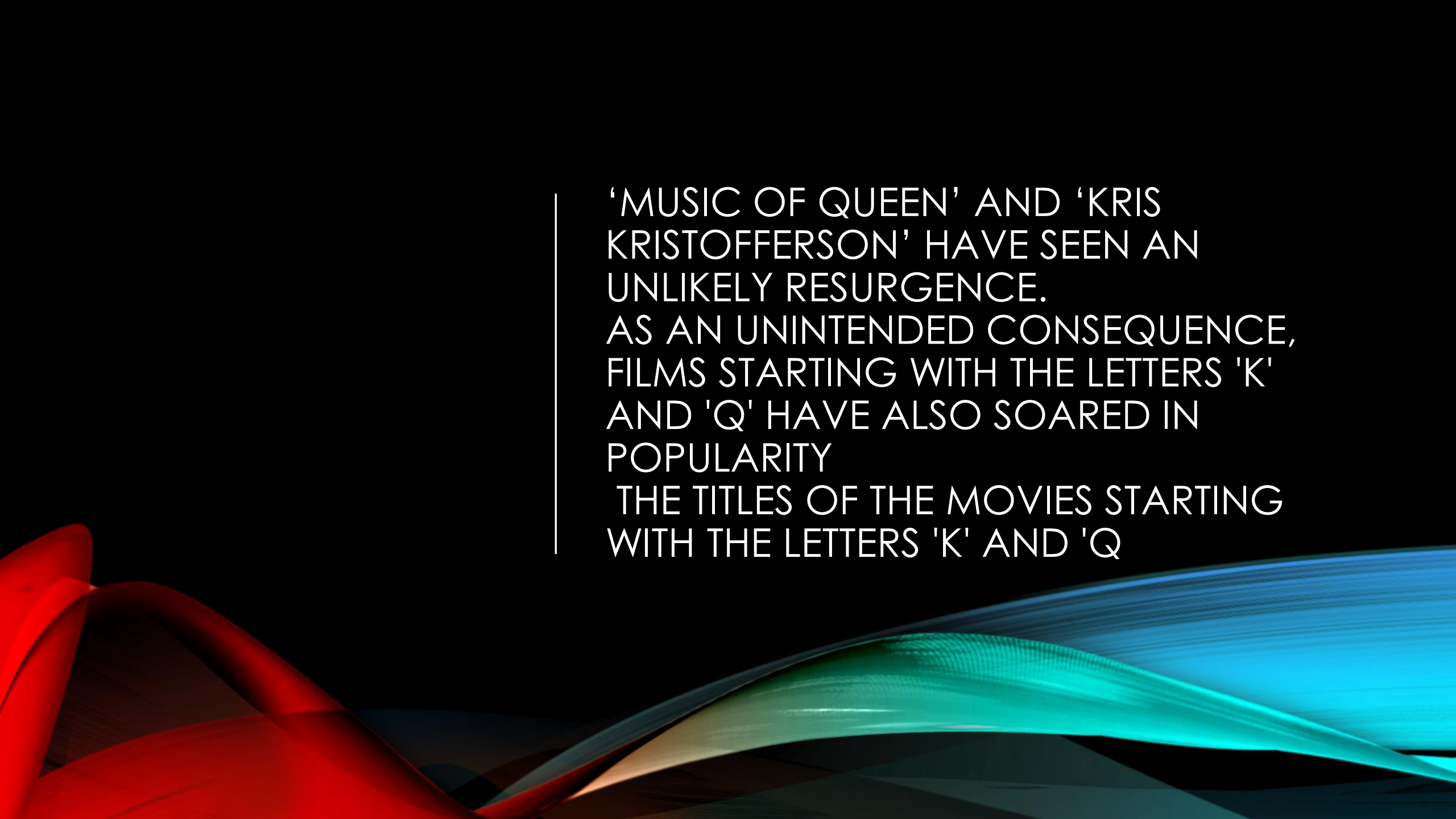
|   | title                    | replacement_cost |
|---|--------------------------|------------------|
| ▶ | ARABIA DOGMA             | 29.99            |
|   | BALLROOM MOCKINGBIRD     | 29.99            |
|   | BLINDNESS GUN            | 29.99            |
|   | BONNIE HOLOCAUST         | 29.99            |
|   | CHARIOTS CONSPIRACY      | 29.99            |
|   | CLOCKWORK PARADISE       | 29.99            |
|   | CLYDE THEORY             | 29.99            |
|   | CRUELTY UNFORGIVEN       | 29.99            |
|   | CUPBOARD SINNERS         | 29.99            |
|   | DESPERATE TRAINSPOTTING  | 29.99            |
|   | DIRTY ACE                | 29.99            |
|   | DOCTOR GRAIL             | 29.99            |
|   | EARTH VISION             | 29.99            |
|   | EVERYONE CRAFT           | 29.99            |
|   | EXTRAORDINARY CONQUER... | 29.99            |
|   | FANTASIA PARK            | 29.99            |

film 25 ×

MOVIES WITH  
HIGHEST  
REPLACEMENT  
COST.

DISPLAY THE NAMES OF THE TOP 3  
MOVIES WITH THE GREATEST NUMBER  
OF ACTORS

|   | film_id | title             | actor_count |
|---|---------|-------------------|-------------|
| ▶ | 508     | LAMBS CINCINATTI  | 15          |
|   | 87      | BOONDOCK BALLROOM | 13          |
|   | 249     | DRACULA CRYSTAL   | 13          |



'MUSIC OF QUEEN' AND 'KRIS KRISTOFFERSON' HAVE SEEN AN UNLIKELY RESURGENCE. AS AN UNINTENDED CONSEQUENCE, FILMS STARTING WITH THE LETTERS 'K' AND 'Q' HAVE ALSO SOARED IN POPULARITY

THE TITLES OF THE MOVIES STARTING WITH THE LETTERS 'K' AND 'Q'

# THE TITLES OF THE MOVIES STARTING WITH THE LETTERS 'K' AND 'Q'

|   | title            |
|---|------------------|
| ▶ | KANE EXORCIST    |
|   | KARATE MOON      |
|   | KENTUCKIAN GIANT |
|   | KICK SAVANNAH    |
|   | KILL BROTHERHOOD |
|   | KILLER INNOCENT  |
|   | KING EVOLUTION   |
|   | KISS GLORY       |
|   | KISSING DOLLS    |
|   | KNOCK WARLOCK    |
|   | KRAMER CHOCOLATE |
|   | KWAI HOMEWARD    |
|   | QUEEN LUKE       |
|   | QUEST MUSSOLINI  |
|   | QUILLS BULL      |

8THE FILM 'AGENT TRUMAN' HAS BEEN  
A GREAT SUCCESS.  
THE NAMES OF ALL ACTORS WHO  
APPEARED IN THIS FILM.

|   | movie        | list of actors  |
|---|--------------|---|
| ▶ | AGENT TRUMAN | WARREN NOLTE, JAYNE NEESON, SANDRA KILMER, KIRSTEN PALTROW, KENNETH HOFFMAN, MORGAN WILLIAMS, REESE WES |



SALES HAVE BEEN LAGGING  
AMONG YOUNG FAMILIES.

SO THE MANAGEMENT  
WANTS TO PROMOTE FAMILY  
MOVIES.

ALL THE MOVIES  
CATEGORIZED AS FAMILY

# ALL THE MOVIES CATEGORIZED AS FAMILY

|   | film_id | title              |
|---|---------|--------------------|
| ▶ | 5       | AFRICAN EGG        |
|   | 31      | APACHE DIVINE      |
|   | 43      | ATLANTIS CAUSE     |
|   | 50      | BAKED CLEOPATRA    |
|   | 53      | BANG KWAI          |
|   | 63      | BEDAZZLED MARRIED  |
|   | 71      | BILKO ANONYMOUS    |
|   | 80      | BLANKET BEVERLY    |
|   | 82      | BLOOD ARGONAUTS    |
|   | 83      | BLUES INSTINCT     |
|   | 94      | BRAVEHEART HUMAN   |
|   | 139     | CHASING FIGHT      |
|   | 145     | CHISUM BEHAVIOR    |
|   | 147     | CHOCOLAT HARRY     |
|   | 175     | CONFUSED CANDLES   |
|   | 183     | CONVERSATION DO... |

Result 40 ×



OBSERVING THE RENTAL RATES AND RENTAL FREQUENCIES (NUMBER OF TIME THE MOVIE DISC IS RENTED).

AVERAGE RENTAL RATES OF MOVIES BASED ON THEIR RATINGS

THE OUTPUT IS SORTED IN DESCENDING ORDER OF THE AVERAGE RENTAL RATES



|   | RATING | MIN(rental_rate) | MAX(rental_rate) | avg(rental_rate) |
|---|--------|------------------|------------------|------------------|
| ► | G      | 0.99             | 4.99             | 2.888876         |
|   | R      | 0.99             | 4.99             | 2.938718         |
|   | NC-17  | 0.99             | 4.99             | 2.970952         |
|   | PG-13  | 0.99             | 4.99             | 3.034843         |
|   | PG     | 0.99             | 4.99             | 3.051856         |

DISPLAYING THE MOVIES IN  
DESCENDING ORDER OF  
THEIR RENTAL FREQUENCIES .

SO THAT MANAGEMENT  
CAN MAINTAIN MORE  
COPIES OF THOSE MOVIES

|   | film_id | title               | rental_frequency |
|---|---------|---------------------|------------------|
| ▶ | 103     | BUCKET BROTHERHOOD  | 34               |
|   | 738     | ROCKETEER MOTHER    | 33               |
|   | 331     | FORWARD TEMPLE      | 32               |
|   | 382     | GRIT CLOCKWORK      | 32               |
|   | 489     | JUGGLER HARDLY      | 32               |
|   | 730     | RIDGEMONT SUBMARINE | 32               |
|   | 767     | SCALAWAG DUCK       | 32               |
|   | 31      | APACHE DIVINE       | 31               |
|   | 369     | GOODFELLAS SALUTE   | 31               |
|   | 418     | HOBBIT ALIEN        | 31               |
|   | 621     | NETWORK PEAK        | 31               |
|   | 735     | ROBBERS JOON        | 31               |
|   | 753     | RUSH GOODFELLAS     | 31               |
|   | 891     | TIMBERLAND SKY      | 31               |
|   | 973     | WIFE TURN           | 31               |
|   | 1000    | ZORRO ARK           | 31               |

Result 42 ×



FILM CATEGORIES, THE  
DIFFERENCE BETWEEN  
THE AVERAGE FILM  
REPLACEMENT COST  
(DISC-DVD/BLEU RAY)  
AND THE AVERAGE  
FILM RENTAL RATE IS  
GREATER THAN \$15

| category_name | avg_replacement_cost | avg_rental_rate |
|---------------|----------------------|-----------------|
| Action        | 20.911875            | 2.646250        |
| Animation     | 20.126364            | 2.808182        |
| Children      | 20.056667            | 2.890000        |
| Classics      | 21.007544            | 2.744386        |
| Comedy        | 19.024483            | 3.162414        |
| Documentary   | 19.622353            | 2.666471        |
| Drama         | 21.086774            | 3.022258        |
| Family        | 19.729130            | 2.758116        |
| Foreign       | 18.647534            | 3.099589        |
| Games         | 20.285082            | 3.252295        |
| Horror        | 19.865000            | 3.025714        |
| Music         | 19.440980            | 2.950784        |
| New           | 19.418571            | 3.116984        |
| Sci-Fi        | 21.153934            | 3.219508        |
| Sports        | 20.395405            | 3.125135        |
| Travel        | 19.025088            | 3.235614        |

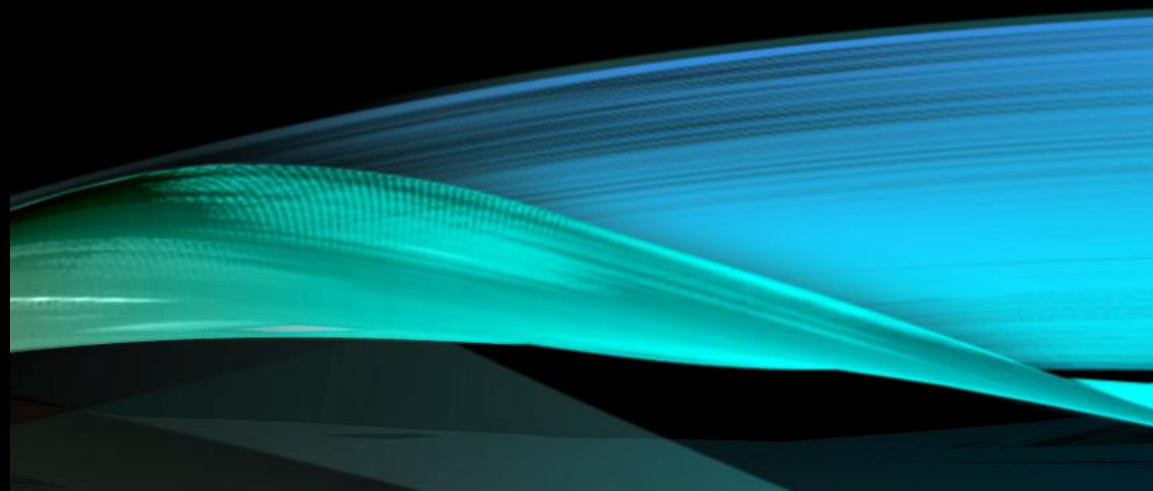
Result 44 ×

# THE FILM CATEGORIES IN WHICH THE NUMBER OF MOVIES IS GREATER THAN 70

|   |         |    |
|---|---------|----|
| ▶ | Foreign | 73 |
|   | Sports  | 74 |



THANK YOU





# ANY QUESTIONS

Feel free to ask

