# Project Summary

The goal of this project is to assess the best movie choice a group of people could make, using constraints based on factors related to the potential movie choices and the group. The idea demonstrates the use of a model that is similar to those used for watch recommendations made by platforms such as Netflix and YouTube.

# Propositions

## People propositions

### Preference proposition format:

likesRomancep1= Person 1 enjoys romantic movies

¬ likesHorrorp1=Person 1 does not enjoy horror

Propositions involving the other people (person 2, person 3 etc.) and other genres (action, comedy, etc.) will be in the same format.

### Age proposition format

A17p1=Person 1 is at least 17 years old (a = “atleast”)

Propositions involving the other people (person 2, person 3 etc.) and other ages (L13, L17, etc.) will be in the same format.

### Time proposition format

L1hp1=Person 1 has less than 1 hour to watch something

Propositions involving the other people (person 2, person 3 etc.) and other availability lengths (L2, L3, etc.) will be in the same format.

## Movie Propositions

### Genre proposition format

isActionm1 = the genre for Movie 1 is Action

Propositions involving the different movies (Movie 2, Movie 3, etc.,) and the different genres (action, horror, etc.) will follow the same format.

### Rating proposition format

PG13m1= Movie 1 is rated PG-13

Propositions involving the different movies (Movie 2, Movie 3, etc.,) and the different age ratings will follow the same format.

### Length proposition format

ML1m1= Movie 1 is less than 1 hour long

Propositions involving the different movies (Movie 2, Movie 3, etc.,) and the different movie lengths will follow the same format.

### Genres:

Action, Horror, Romance, Comedy, Documentary

# Constraints

### Determining age range

L13 → L17 = if someone is less than 13 years old then they are less than 17 also

All similar constraints dealing age ranges will follow the same format.

### Determining appropriate rating

L13 ∧ RatedR → ¬ AgeAppropriate= if someone is less than 13 years old and the movie is rated R then the movie is not appropriate

Propositions involving the different ages and ratings will follow the same format.

### Determining appropriate genre

isActionm1 ∧ likesActionp1 → likeable = if a move’s genre is action and a person enjoys action then the movie is enjoyable

Propositions involving the different genres and preferences will follow the same format.

**Determining if potential movie is a valid choice:**

likeable ∧ AgeApropriate ∧ enoughTime  → valid\_movie

# Model Exploration

Exploration 1:

Person 1- is 7, likes romantic, dislikes horror, has 2hours

Person 2- is 23, likes action, dislikes drama, has 3hours

Person 3- is 14, likes action, dislikes romantic, has 2 hours

Person 4-is 45, likes horror, dislike drama, has 1 hour

# Jape Proof Ideas

A represents is\_L13

B represents is\_L17

*Diagram

Description automatically generated with low confidence*

A represents  is \_L13

B represents  is  rated\_R

C age\_appropriate

*Chart

Description automatically generated with medium confidence*

A represents is\_action m1

B represents enjoys\_action p1

C represents enjoyable

*A picture containing logo

Description automatically generated*

A represents likeable

B represents age\_apropriate

C represents enough\_time

D represents valid\_movie

*A picture containing letter

Description automatically generated*

# First-Order Extension

# Propositions

## People propositions

**p1 = Person 1** (Format holds for other people )

### Preference propositions

**EA(p1)** = Person 1 enjoys action movies

**¬ EH (p1)** = Person 1 does not enjoy horror movies

### Age proposition format

**A17(p1)** = Person 1 is at least 17 years old

### Time proposition format

**L1h(p1)** = Person 1 has less than 1 hour to watch something

## Movie propositions

### Genre proposition format

**A(m1)** = the genre for Movie 1 is action

### Rating proposition format

**PG13(m1)** = Movie 1 is rated PG-13

### Length proposition format

**L1(m1)** = Movie 1 is less than 1 hour long

# Constraints

### Determining age range

**∀x(  L13(x) → L17(x) )** = if anyone is less than 13 years old then they are also less than 17 years old

### Determining appropriate rating

**∀x∀y(  L13(x) ∧ R(y) →¬AA(y) )**= if anyone is less than 13 and any movie is rated R then the movie is not age appropriate

### Determining appropriate genre

**∀y∀x(  A(y) ∧ EA(x) → E(x, y) )**= if anyone in joys action movies and any movie is an action movie then that person will enjoy that movie

# Requested Feedback

Provide 2-3 questions you’d like the TA’s and other students to comment on.