





ACCT 414 (SMU-X) - ACCOUNTING ANALYTICS CAPSTONE | G2 GROUP 1

CATHAY CINEPLEXES







10VIE PREDICTION & OPTIMISATION MODEL

BACKGROUND

29 screens across 4 locations



The company is currently facing challenges in negotiating fair film rental terms with distributors and optimising movie session planning.

PROBLEM STATEMENT

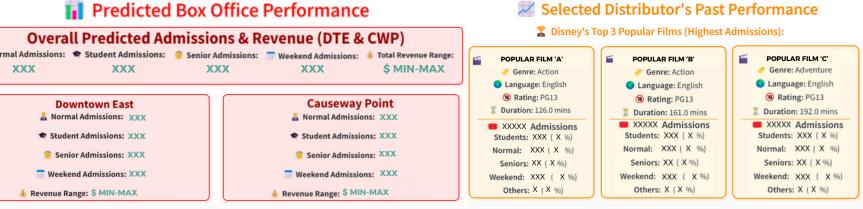
How can Cathay Cineplexes **predict** the performance of a prospective movie, and subsequently optimize the programming for the movie?



App Used: Streamlit

Streamlit

BOX OFFICE PREDICTION DASHBOARD



User Input: Distributor & film characteristics

(Distributor, MPAA Rating, Film Duration, Language, Genre, Lead Actor Names, Film Director Name, Film Budget, Production Company, Film Release Month, Popularity Score)

Output:

Avg Admits per Film

XXX

- Predicted Total Revenue
- Outlet-Level Predictions
- Selected distributor's past performance
- Similar old films based on input

Similar Old Films Based on New Film's Characteristics Select Film Characteristics to Find Similar Old Films: Use Selected Language Use Selected Distributor Use Selected Rating SIMILAR FILM 'A' SIMILAR FILM 'C' **XXX** Admissions XXXX Admissions XXXX Admission Distributor: 'EFG' Distributor: 'HE ♦ Genre: Action ★ Genre: Action Language: English O Language: English Language: English Rating: PG (8) Rating: PG Rating: PG

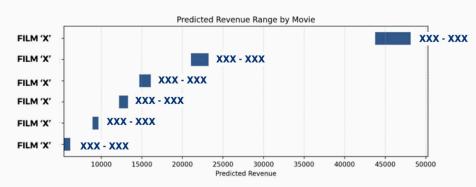
XXX English Action Combined Past Performance (Selected Genre & Language & Ratings): XXX Combined Past Performance (Selected Genre & Language): XXX Combined Past Performance (Selected Genre & Ratings): XXX Combined Past Performance (Selected Language & Ratings): XXX

OUR APPROACH TEST DATA EXTRACT NUMERCIA MISSING COMPARE MODEL CATHAY'S DATA **EVALUATION** LINEAR MODEL FFATURE REGRESSION **OUTLIERS PREDICTION** IMDB DATA **ACCURACY** RANDOM **FOREST EXPLANATORY** WINSORIZE **POWER** CATEGORICA K-MEANS REMOVE ENERALISABILIT DATA **DEPLOY INTO APP**

SESSION OPTIMISATION DASHBOARD

TOP MOVIE BY PREDICTED REVENUE RANGE

Chart visualizes the gap between each movies to display the significance of gaps between rankings



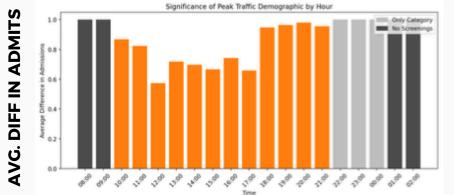
HOURLY ADMISSIONS SIGNIFICANCE

Selected Film Characteristics Past Performance

Selected Language's Past Performance
Selected Rating's Past Performance

PG

Significance shows how much more admissions the top demographic is bringing in compared to the rest



User Input:

Outlet, Month, Day

Output:

- Outlet Historical Information (Time trends, Demographic trends, Movie comparisons)
- Ranking of Movies/ demographic

TIME