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Content Monetization Modeler

YOUTUBE

Reimagining the Future, One Idea at a Time

yoga priya s

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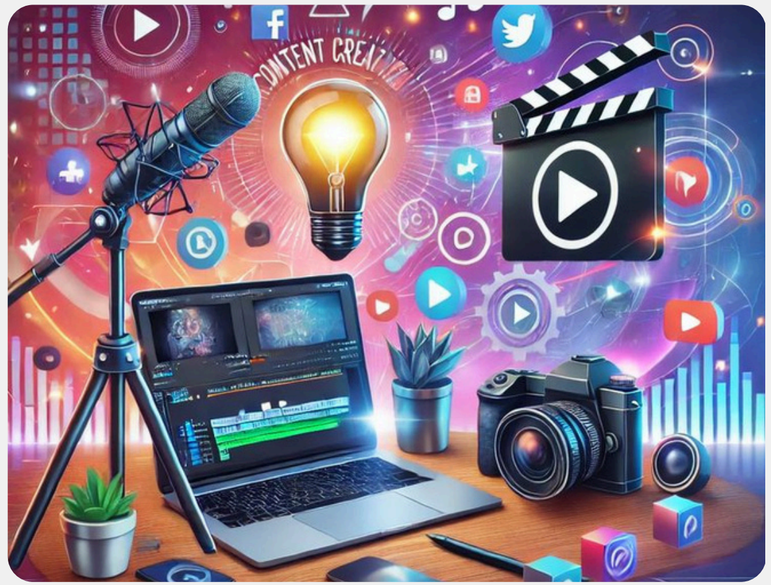
CONTENT MONETIZATION MODELER

01 OBJECTIVE:

- Predict YouTube ad revenue for individual videos using performance and contextual features.
- Implement results in an interactive Streamlit app for creators and media companies.

02 PROBLEM STATEMENT:

- YouTube revenue prediction is crucial for content strategy, business planning, and ad campaign ROI.
- Provides actionable insights for creators and companies to optimize content monetization.



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02

SKILLS & TECHNICAL STACK

SKILLS GAINED

- Regression Models & Predictive Modeling
- Feature Engineering & Data Cleaning
- Exploratory Data Analysis (EDA)
- Outlier Detection & Missing Value Handling
- Data Visualization & Interpretation
- Streamlit App Development

TOOLS & TECHNOLOGIES

- Python, Pandas, NumPy
- Scikit-learn, XGBoost, Gradient Boosting
- Matplotlib, Seaborn, Plotly
- Streamlit

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APPROACH METHODOLOGY

DATASET

Loaded ~122,000 rows CSV; inspected features and target variable.

EDA

Identified trends, correlations, and outliers; visualized key metrics (views, likes, comments, watch time).

PRE-PROCESS

- Handled missing values (~5%)
- Removed duplicates (~2%)
- Encoded categorical variables (category, device, country)

FEAT-ENG

- Engagement Rate = (Likes + Comments) / Views
- Avg Watch Time per View = Watch Time / Views

MODEL-BUILD

Tested Linear Regression, Decision Tree, Random Forest, Gradient Boosting, XGBoost.

EVALU-METRIC

- R^2 (Coefficient of Determination)
- RMSE (Root Mean Squared Error)
- MAE (Mean Absolute Error)
- R^2 → "Goodness of fit" (closer to 1 = better)
- RMSE → "Error size" (lower = better)
- MAE → "Average error" (lower = better)

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RESULTS INSIGHTS

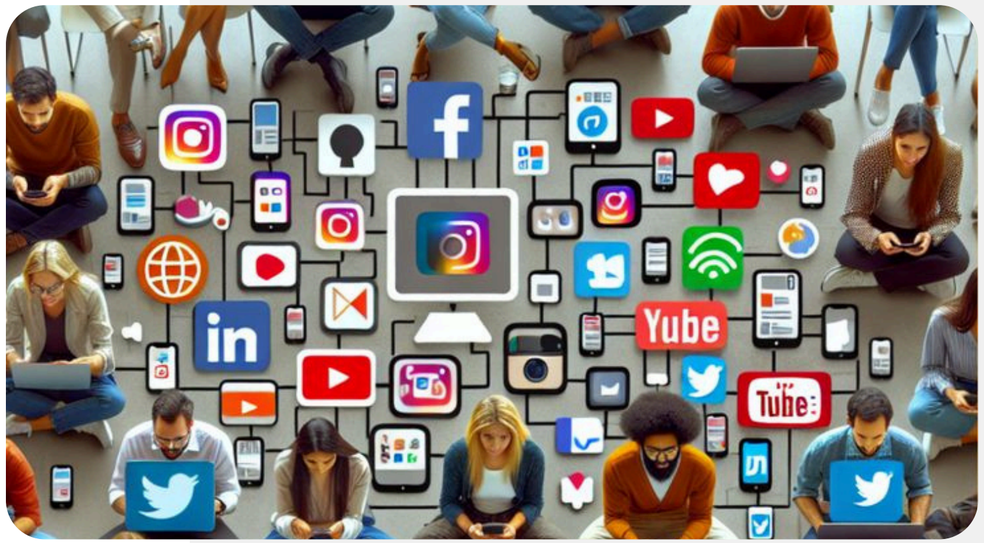
MODEL	R2	RMSE	MAE
LINEAR REGRESSION	**0.952582**	**13.478920**	**3.088809**
GRADIENT BOOSTING	0.952030	13.557114	3.653435
XGBOOST	0.950910	13.714480	3.675968
RANDOM FOREST	0.950118	13.824618	3.532572
DECISION TREE	0.899897	19.584236	5.326971

Key Insights

- Engagement Rate & Views strongly influence revenue.
- Subscribers and watch time are critical predictors.
- Certain categories (Music, Tech) generate higher ad revenue

Deliverables

- Cleaned dataset
- Trained regression model
- Streamlit interactive app for revenue prediction



05

STREAMLIT APP

STREAMLIT APP FEATURES

- Paste YouTube link → Get ad revenue estimate
- Displays key KPIs: Views, Likes, Comments, Subscribers
- Engagement insights & revenue in multiple currencies (USD, INR, BRL, IDR, JPY)
- Simple, intuitive interface

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BUSINESS USE CASES:

AN INSIDE LOOK AT HOW OUR PRODUCT WORKS AND WHAT SETS IT APART.

- Content Strategy Optimization
- Revenue Forecasting for media companies
- Creator Support Tools & Analytics Platforms
- Ad Campaign ROI Planning

THANK *You!*