# NETFLIX RECOMMENDATION SYSTEM

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# Recommendation System

### What is the purpose of a movie recommendation system?

"Movie recommendation systems are designed to provide personalized suggestions to users based on their viewing history, preferences, and other factors."

### Why are recommendation systems popular in the entertainment industry?

"With an overwhelming number of options available on streaming platforms, recommendation systems help users discover relevant content efficiently."

# Objectives

## Goal
To develop a machine learning model that recommends movies to users based on their unique tastes and preferences

## Techniques
Implement collaborative filtering, content-based filtering, or hybrid approaches to generate personalized suggestions

## Optimization
Evaluate model performance using metrics like RMSE and MAE, and optimize through hyperparameter tuning and iterative testing

## Adaptability
Incorporate real-time user interactions and contextual data to refine recommendations dynamically

# Proposed System

### Accessibility

Create a public dashboard so that it can be accessed from anywhere.

### Data Collection

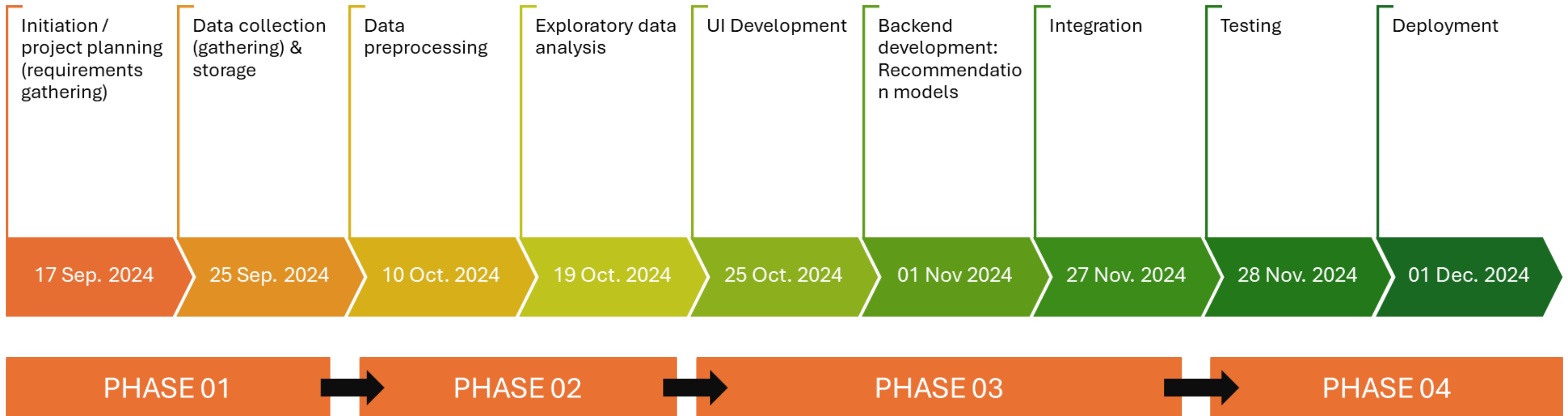Collect data from real-world people to gain insights

### Insights

Provide real-time trend analysis of people's preferences for watching movies on either OTT platforms or theaters

### Recommendation

Build a model to recommend movies based on specific criteria

# Project Timeline

| Initiation / project planning (requirements gathering) | Data collection (gathering) & storage | Data preprocessing | Exploratory data analysis | UI Development | Backend development: Recommendation models | Integration | Testing | Deployment |
|---|---|---|---|---|---|---|---|---|
| 17 Sep. 2024 | 25 Sep. 2024 | 10 Oct. 2024 | 19 Oct. 2024 | 25 Oct. 2024 | 01 Nov 2024 | 27 Nov. 2024 | 28 Nov. 2024 | 01 Dec. 2024 |

| PHASE 01 | PHASE 02 | PHASE 03 | PHASE 04 |
|---|---|---|---|

# Azure DevOps



| | Order | Work Item Type | Title | | State | Effort | Busin... | Value Area |
|---|---|---|---|---|---|---|---|---|
| + | 1 | Feature | 🏆 Frontend UI Development | | ● Active | | | Business |
| | | User Story | 📖 Troubleshooting errors caused in connecting Streamlit to... | | ● Closed | | | Business |
| | | User Story | 📖 Troubleshooting errors caused in connecting Google API ... | | ● Closed | | | Business |
| | | User Story | 📖 Integrations | | ● Closed | | | Business |
| | | User Story | 📖 User Interface | | ● Closed | | | Business |
| | | User Story | 📖 Research & Development | | ● Closed | | | Business |
| | | User Story | 📖 Brainstorming on Exploratory Data Analysis | | ● Closed | | | Business |
| | | User Story | 📖 Created multiple pages | | ● Closed | | | Business |
| | | User Story | 📖 Business Intelligence | | ● Closed | | | Business |
| | | User Story | 📖 Screen prototype and deciding its content | | ● Closed | | | Business |
| | 2 | Feature | 🏆 Model Building | | ● Active | | | Business |
| | | User Story | 📖 Research & Development | | ● Closed | | | Business |
| | | User Story | 📖 Exploratory Data Analysis | | ● Closed | | | Business |
| + | | User Story | 📖 Backend development: Model Implementation | | ● Closed | | | Business |
| | 3 | Feature | 🏆 Data Storage | | ● Active | | | Business |
| | | User Story | 📖 Migrating data to SQL Database : MongoDB | | ● Active | | | Business |
| | | User Story | 📖 Created Google form QR code | | ● Closed | | | Business |

# Technologies Used

## Software Tools

Jupyter Notebook, Data Analysis tools (Python libraries), and databases

## Hardware

Servers, storage solutions, and workstations

## Libraries & Framework

Machine learning frameworks – scikit–learn, and Python data processing and analysis libraries: Pandas, Streamlit, Plotly

## Personnel

Data scientists, data analyst, software developers, data engineers, and system administrators

## Collaboration Tools

Documentation tools and communication platforms – Microsoft Azure Boards

# Dataset I

| What is your age group? | Gender | Which mode do you prefer to watch movies? | Which one of the following genres do you prefer to watch? (Select your top most favorite) | Which of the following do you use most frequently to choose a streaming platform? | On which devices do you primarily watch content? | How often do you watch or consume content from streaming platforms? |
|---|---|---|---|---|---|---|
| 18-24 | Female | Platforms - Amazon Prime, Netflix, Hulu | Romance | Netflix | Laptop/PC | Once a week |
| 25-34 | Male | Theatre Hall | Thriller | Netflix | Laptop/PC | Daily |
| 18-24 | Female | Platforms - Amazon Prime, Netflix, Hulu | Thriller | Netflix | Laptop/PC | Several times a week |
| 18-24 | Male | Platforms - Amazon Prime, Netflix, Hulu | Comedy | Netflix | Smartphone | Several times a week |
| 18-24 | Female | Theatre Hall | Romance | Netflix | Laptop/PC | Occasionally |
| 18-24 | Male | Theatre Hall | Science Fiction | Netflix | Laptop/PC | Occasionally |
| 18-24 | Female | Platforms - Amazon Prime, Netflix, Hulu | Romance | Netflix | Laptop/PC | Several times a week |
| 18-24 | Female | Platforms - Amazon Prime, Netflix, Hulu | Horror | Netflix | Laptop/PC | Occasionally |
| 18-24 | Male | Platforms - Amazon Prime, Netflix, Hulu | Romance | Netflix | Laptop/PC | Several times a week |
| 18-24 | Male | Platforms - Amazon Prime, Netflix, Hulu | Comedy | YouTube | Laptop/PC | Occasionally |
| 18-24 | Female | Platforms - Amazon Prime, Netflix, Hulu | Horror | Netflix | Laptop/PC | Several times a week |
| 18-24 | Female | Platforms - Amazon Prime, Netflix, Hulu | Comedy | Netflix | Laptop/PC | Several times a week |
| 25-34 | Male | Theatre Hall | Romance | HBO Max | Laptop/PC | Daily |
| 18-24 | Male | Platforms - Amazon Prime, Netflix, Hulu | Action | Netflix | Smartphone | Daily |
| 18-24 | Female | Platforms - Amazon Prime, Netflix, Hulu | Romance | Netflix | Smartphone | Daily |

# Dataset II

| show_id | type | title | director | cast | country | date_added | release_ye | rating | duration | listed_in | description |
|---|---|---|---|---|---|---|---|---|---|---|---|
| s1 | TV Show | 3% |  | JoÃ£o Miguel, Bianca ( | Brazil | 14-Aug-20 | 2020 | TV-MA | 4 Seasons | Internatio | In a future where the elite inhabit an island paradise far fr |
| s2 | Movie | 7:19 | Jorge Mich | DemiÃ¡n Bichir, HÃ©c | Mexico | 23-Dec-16 | 2016 | TV-MA | 93 min | Dramas, Ir | After a devastating earthquake hits Mexico City, trapped |
| s3 | Movie | 23:59 | Gilbert Ch | Tedd Chan, Stella Chu | Singapore | 20-Dec-18 | 2011 | R | 78 min | Horror Mo | When an army recruit is found dead, his fellow soldiers ai |
| s4 | Movie | 9 | Shane Ack | Elijah Wood, John C. R | United States | 16-Nov-17 | 2009 | PG-13 | 80 min | Action & A | In a postapocalyptic world, rag-doll robots hide in fear fro |
| s5 | Movie | 21 | Robert Luk | Jim Sturgess, Kevin Sp | United States | 1-Jan-20 | 2008 | PG-13 | 123 min | Dramas | A brilliant group of students become card-counting exper |
| s6 | TV Show | 46 | Serdar Aka | Erdal BeÅŸikÃ§ioÄŸlu, | Turkey | 1-Jul-17 | 2016 | TV-MA | 1 Season | Internatio | A genetics professor experiments with a treatment for his |
| s7 | Movie | 122 | Yasir Al Ya | Amina Khalil, Ahmed D | Egypt | 1-Jun-20 | 2019 | TV-MA | 95 min | Horror Mo | After an awful accident, a couple admitted to a grisly hos |
| s8 | Movie | 187 | Kevin Reyn | Samuel L. Jackson, Jol | United States | 1-Nov-19 | 1997 | R | 119 min | Dramas | After one of his high school students attacks him, dedica |
| s9 | Movie | 706 | Shravan Ku | Divya Dutta, Atul Kulka | India | 1-Apr-19 | 2019 | TV-14 | 118 min | Horror Mo | When a doctor goes missing, his psychiatrist wife treats t |
| s10 | Movie | 1920 | Vikram Bh | Rajneesh Duggal, Adal | India | 15-Dec-17 | 2008 | TV-MA | 143 min | Horror Mo | An architect and his wife move into a castle that is slated |

# Screens



**Analysis**



**Movie Recommendation Model Page 1**



**Movie Recommendation Model Page 2**

# Project Demo

**[Netflix Recommendation System](#)**

# Future Scope

- With more data, we unlock deeper insights and extract valuable information from real-world datasets

- Utilize cutting-edge AI concepts like Large Memory Models (LMM) and Large Language Models (LLM) to deliver diverse, personalized recommendations

- Integrate multiple platforms, such as Amazon Prime Video, Hulu, and others, into a single hub for seamless user convenience

- Incorporate user-specific data storage to deliver tailored and highly relevant information and recommendations to individual users

https://docs.streamlit.io/

# THANK YOU

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