THE MACHINE LEARNING CANVAS

Designed for:
Designed by:
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PREDICTION TASK

Type of task? Entity on which predictions are made? Possible outcomes? Wait time before observation?

We want to predict the "Average playtime" for a video game using its attributes.

DECISIONS

How are predictions turned into proposed value for the end-user? Mention parameters of the process / application that does that.

The decisions involve categorizing the video game into a video game with low average playtime, or a game with a high average playtime. This would inform the business leaders and executive on how to strategize for the specific game.

VALUE PROPOSITION

Who is the end-user? What are their objectives? How will they benefit from the ML system? Mention workflow/interfaces.

The end-user is the business executive who will plan the business strategy for a specific game. Their goal is to maximize the profit, which grows with the number of users and the average hours played by each player. Our ML system would help them focus on either increasing the user count or average playtime.

DATA COLLECTION

Strategy for initial train set & continuous update. Mention collection rate, holdout on production entities, cost/constraints to observe outcomes.

We will use the Steam games dataset for initial training (https://www.kaggle.com/datasets/mexwell/steamgames). We can scrape Steam for more games for continuous training and updates.

DATA SOURCES

Where can we get (raw) information on entities and observed outcomes? Mention database tables, API methods, websites to scrape, etc.

For the raw original data, we can use the Steam API. We have a collection of scraping results in our initial training dataset.

IMPACT SIMULATION

Can models be deployed? Which test data to assess performance? Cost/gain values for (in)correct decisions? Fairness constraint?

Our models will be deployed to an interface that can be easily used by business executives. For testing, we will use a subset of the original dataset. We can simulate the impact of the model by choosing business strategies based on testing outcomes and extrapolating their impact on the revenue.

MAKING PREDICTIONS

When do we make real-time / batch pred.? Time available for this + featurization + post-processing? Compute target?

We will make single real-time predictions. The prediction is not very time sensitive. A processing time of a few minutes is acceptable.

BUILDING MODELS

How many prod models are needed? When would we update? Time available for this (including featurization and analysis)?

We can have different models of different architectures/input features which will be used as an ensemble to make predictions. This will be chosen depending on the ensemble performance compared to a single model.

FEATURES

Input representations available at prediction time, extracted from raw data sources.

The input features for predictions contain different attributes of the game such as its release date, genre, language, required age, available platform, and a text description of the game.

MONITORING

Metrics to quantify value creation and measure the ML system's impact in production (on end-users and business)?

Mean squared error for the average playtime, as well as the accuracy of the game category.