ESRB Classifier

Project Proposal (v3)

## Predicting ESRB Rating by Random Forest Classification

### Problem Description

The Entertainment Software Rating Board (ESRB) is a self-regulatory organization that assigns age and content ratings to consumer video games in the United States and Canada. The board assigns ratings to games based on their content, using judgment similar to the motion picture rating systems used in many countries, using a combination of six age-based levels intended to aid consumers in determining a game's content and suitability, along with a system of "content descriptors" which detail specific types of content present in a particular game:

A group of black and white logos

Description automatically generated

Given a dataset containing a Boolean representation of the presence of these content descriptors, we aim to train a classification algorithm to predict the ESRB rating a sample video game would receive in a typical review process, without the need to assess its content manually. Typically, this is done by humans who receive instruction in the classification process using a traditional rubric method of grading. An accurate classification algorithm could reduce the time it takes for a developer or publisher to receive a preliminary rating and allow them to more quickly develop informed plans for release.

### Sample Classification Data

The dataset we are using to train and test our algorithm is a collection of released and reviewed games with fields indicating the presence of ESRB content descriptors used in the current ESRB process. The non-testing data contains 1895 entries, with 36 features for each game inclusive of name of the game and console release status:

A screen shot of a computer

Description automatically generated

The dataset we are using to train and test our algorithm is a collection of released and reviewed games with fields denoting the presence in game of the content descriptors used in the current ESRB process. The non-testing data contains 1895 entries, with 36 features for each game inclusive of name of the game and console release status:

title console mild violence mild lyrics

alcohol reference animated blood no descriptors suggestive themes

blood blood and gore nudity mild suggestive themes

cartoon violence crude humor partial nudity use of alcohol

drug reference fantasy violence sexual content use of drugs and alcohol

intense violence language sexual themes violence

lyrics mature humor simulated gambling esrb rating

mild blood mild cartoon violence strong language

mild fantasy violence mild language strong sexual content

The program should then be able to classify any game given a random set of features. After the trained algorithm classifies a hypothetical sample game, we suggest similar titles which have already undergone the current ESRB rating procedure to help a human reviewer check their work by comparing with older games to check for consistency between ratings. This added context has the potential to smooth friction between the targeted rating and the reviewer and reduce the frequency of contested ratings. We believe that this feature set will give us a high degree of classification accuracy, as we have access to the descriptor values used in many previous actual reviews, and many binary features where the classification threshold is clear and cases discrete. We have a test dataset that is disjoint with the training dataset with several hundred entries.

### Team Members

Ali Elayni

Richard Recar

Armand Soto