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Artificial Intelligence

Project Milestone

If you’ve been playing video games for long enough, it’s likely you’ve accrued at least a few games that you later regretted purchasing and which are now collecting dust on a shelf or in a box somewhere. Perhaps you pre-ordered a new game from a big developer because the trailers showed so much promise, only to have the actual product be mediocre at best. Or perhaps you were considering buying a game, but couldn’t find any objective critical analyses of it because the developer placed an embargo on reviews until after its release. After a time, you get to the point where you are no longer willing to gamble $60 on a game that may or may not even be worth your time.

The goal of this project is to create an algorithm that can predict will decent accuracy whether or not a user should purchase a new game. The final decision will be based mainly on the user’s gaming history – what kinds of games they have purchased and played in the past – but will also take into account the critical reception of the game itself. This paper will provide a brief overview of the algorithm’s design and planned methods of developing and testing the algorithm.

As far as pre-existing work done in this field, the closest parallel that can be drawn to this project would be the Steam Discovery Queue (which is heavily responsible for the inspiration behind the project). There are several thousands of games available through Steam, developer Valve’s PC-based game distribution platform, many of which do not get the amount of exposure they deserve for the amount of effort and polish that was put into creating them. To remedy this, Valve created the queue, and integrated it into the Steam homepage. The queue compiles a list of games which includes current best-sellers as well as lesser-known indie games, particularly ones which share qualities with games the user already owns. The user can then look through each item in the queue and, based on a short description of the game and some user reviews, decide whether they are interested in the game or not interested in the game. Once the user has finished, the Discovery Queue will generate a new list (the next day) taking into account the choices the user made in the previous list.

To accurately predict whether a user should but the game in question or not, this algorithm will be fed data from the user’s games library. Numerical values will be assigned to represent different genres, critical review scores, player review scores, and user play duration. Then, the values of the game in question will be compared against those of the items in the user’s game library. The algorithm will determine if the game is similar enough to games the user enjoyed and spent a decent amount of time playing. Based on this, the game will then be assigned an overall score, on a scale from 1 to 10 with 10 being the best, to determine whether or not it is worth buying.

So far, very little practical development has been done for the project. However, based on the information presented in class, it is likely I will end up using a Multi-layer perceptron to sort through the data. I anticipate that the most time-consuming part of the project will be accumulating data. Since using only the games libraries of myself and my close friends would most likely be insufficient, I may have to result to generating the bulk of the data randomly. I’m assuming we will be going over how to do the multi-layer perceptron in more detail in one of the assignments or in future class lectures; if not, I may have to use a k-neighbors algorithm instead (or just a regular perceptron, but I doubt I’d be able to count on accuracy in that case).