Multi-Agent System to Monitor & Communicate Work Between Entertainers & Production Companies in Entertainment Industry

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This is a research project that concentrates on the construction of a multi-agent system that can allow entertainers and production companies to have communication and social ability to improve relationships between them. The system was constructed in Python and utilizes classes and direct methods to initialize agents and allow them to interact with the environment. The two agents are later joined together to give expected and actual results between the entertainers and the companies to show how progress is going with work. The entertainer's goal is to maximize the most revenue that he/she possibly can to increase his/her salary for the year, and the production company's goal is to display how much the entertainer can make with the set protocols listed on his/her contract. This connection with the two agents corresponds to the concept of agents having the weak notion to socialize amongst each other and the environment. Input statements allow them to have human interaction which makes them reactive as well. When the system reaches the comparison agent at the end, there is an autonomous feature that calculates the difference of the entertainer's expected salary and the current earnings.

When the system was being built, structure was formed based on actual entities in the entertainment industry. The entertainment industry is a large scope of many different types of entertainments, so the main entertainments focused on in the small window of construction were the music business, the NFL, and the NBA. In the music business the production company typically takes 25% of the overall revenue (Cornell), and the artists receive the remaining

amount after. These percentage cuts are legalized by contracts called "360 deals". From RIAA standards, an artist must have at least 1,500 streams to have 1 album sold, and artist normally get paid $0.005 per stream on distribution platforms such as Apple Music, Spotify, Pandora, and Tidal (Jacob). Moving on to sports, the NFL has teams that utilizes a system called the salary cap which is the amount of money available to pay football players for their work ("How Much Do NFL Draft Picks Make?", 00:06:11-00:07:05). The size of the salary cap depends on the amount of players on the team, how many games played, ticket sales from their stadiums, and how much players are getting paid from it. But all NFL teams get a boost to their salary cap from the leagues "national" revenue that is divided 32 ways amongst them ("How NFL Teams Make Money", 00:02:30-00:03:18). NFL salaries are not guaranteed, so if a football player gets released, injured, or sick he will not make his full expected salary. Colin Cowherd and Ray Lewis expressed this difficulty of non-guaranteed contracts on *The Herd* ("Ray Lewis explains why NFL players are jealous of NBA players | THE HERD", 00:01:40-00:02:15). On other hand, NBA players are athletes with the biggest salaries in sports. Not only are there contracts fully guaranteed, they have very lucrative endorsement deals to food chains, insurance companies, and sneaker companies. LeBron James' Nike sneaker deal is worth over $1B, and Kevin Durant's deal is worth over $300M for 10 years ("Why NBA Players Out Earn Other US Athletes", 00:01:02, 00:12:19).

The numbers of these salaries may not be exact numbers of what an artist, football player, or basketball player is really making due to unknown conditions to each individual's contract, but they are very good estimates of what these entertainers would make. The system opens the door for more areas of the entertainment industry to evaluate and has room for improvement in the businesses already defined.

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