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NovelPlay: Novel information extraction for text-game generation

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ABSTRACT

The earliest works of fiction can be dated back to as far as that of Paleolithic and have encompassed a major part of human culture since (D. Robson. 2016). Presently according to (D. Robson, 2018) on average, adults are in contact with fictional stories for 6% of their life. In contrast to the artistic and entertainment aspects of fictional works, they also fulfill various social and psychological purposes from the improvement of communication (D. Kruger, M. Fisher, and I. Jobling. 2003), development of empathy and collaboration skills (D. Robson, 2016), (D. Smith, 2017), proxy to understand the real world, etc. Hence it is well-studied by academia. We focus on identifying and extracting information that can be gamified from a single work of fiction to the generation of text games and summarization of novels in which the choices (actions), its characters (actors), and scenarios (events) are abstracted through the fiction to provide a coherent and interactive text-game or summarization tool. Text-based games are often complex and nuanced player-interactive simulations in which the game state is described with text and the player can interact using a simple text command representing a choice. (e.g., choice 1: hit the witch we a bat, choice 2: run away from the witch, etc.). However, generating text games has its inherent challenges such as partial observability, sparse rewards, and dealing with combinatorial action spaces. (Hausknecht et al., 2021) articulates that even a modern state-of-the-art model only achieves 2.56% of the total possible score on a curated set of text-based games for human players (Atkinson et al., 2021). Acknowledging such challenges, we focus on extracting meaningful information that can be used for gamification of the extracted information or the development of interactive summarization tools for novels.