

SI 568 Project Report

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1. Introduction

My project develops a word adventure game based on the generative OpenAI API. It is an open world game, but the world is restricted by a series of world settings, such as the final boss, the secret of the world, the capacity of player, and etc. The world is full of NPCs of different identities and personalities, and players can either talk to them to get useful information or turn against them. Any behaviors of player will lead to different possibilities. Players only need to obey the basic rules, which means they are free to create their own story line. They can either be an kind traveler or a fierce ruffian, depending on what they did and what they said.

2. Business Scenario

The main focus of game industry in a quite long period is to improve the player's sense of reality. For successful open world games today like Red Dead Redemption 2, each NPC have more than 20 sentences for dialogue, which is a significant cost for a large open word. However, if NPCs have enough knowledge about themselves and also able to talk, then the cost will reduce, and the degree of authenticity and freedom will be significantly increased. This change can be revolutionary to game industry.

Furthermore, the idea can even bring a new game genre to game industry. Though we already have many word adventure games, they are all restricted by a fixed story line. Players can only change their fate by selecting from two or three options, which is a huge restriction to the degree of freedom. However, given the new generative AI, we only need to input a general world setting and a rough story. The AI will handle everything to make the story reasonable, even if the player's behavior didn't follow the expectation. It will definitely generate a new game genre, in which "good background story" and "good setting" will be the selling points.

3. Tools and Run instruction

Required tools:

1. Python 3.9
2. Openai 0.27.4

After installed openai package and replaced the enviroment variable **openai.api_key**, run the **DarkMist.py** file directly, and play the game using standard input/output in the console.

4. Testcases

Here's the basic user interface showing the main game mechanism:

```
System -> Welcome to Dark Mist, a text adventure game made by Lechen Zhang. Type "/start" to start the game or "/quit" to leave!  
System -> You can type "/help" for a complete list of available commands!  
  
User -> /help  
System -> "/start": Restart the game wherever you are.  
System -> "/regret": Go back to your last decision.  
System -> "/quit": Exit the game.  
  
User -> /start  
System -> As you wake up in the dark mist, you realize that you have no memory of who you are or how you got here. You see nothing  
around you except the mist, but you can hear a faint sound of water flowing nearby. What do you want to do next?  
  
User -> Go find the source of sound  
System -> You follow the sound of water, and after a few minutes of walking through the mist, you come across a small, crystal-clear  
stream. As you bend down to take a sip, you notice that there is something shining at the bottom of the stream. It appears to be  
a small, glittering stone. What do you want to do next?
```

Players can ask NPCs for help during the game.

```
System -> You approach the villagers and greet them. They seem friendly and intrigued by your arrival.  
  
One of the villagers says, "Greetings traveler, what brings you to our humble village?"  
  
Do you want to ask them any questions or share any information about yourself?  
  
User -> I lost my memory. Have you heard anything recently?  
System -> The villagers look at you with sympathy and one of them says, "I am sorry to hear that. We haven't seen any other travel  
ers or strangers around here for a while. However, there is a witch who lives in the forest nearby. She is always aware of the hap  
penings around these parts. She might be able to help you."  
  
Do you want to ask them any more questions or head towards the witch's home?
```

Players can also be killed if they made wrong decisions.

```
User -> Go to the deep forest  
System -> Are you sure you want to venture deeper into the forest? It can be quite dangerous and you don't have any weapons or sup  
plies yet. You might want to consider exploring the village first to find some allies and equipment.  
  
User -> Yes  
System -> As you travel deeper into the forest, the mist gets thicker and the trees become denser, making it hard to navigate. Sud  
denly, you hear rustling in the bushes ahead of you. You see a pack of wolves, and they quickly surround you. What do you want to  
do?  
  
User -> Fight them  
System -> Since you don't have any weapons, it might be tough to fight off the wolves. You manage to fight off a few of them, but  
you quickly realize that there are too many to handle. The wolves overpower you and, unfortunately, you didn't make it out alive.  
  
Game Over.  
  
Restart?
```