

SNU x Upstage LLM 프로젝트 단기강의

# **Murder on the Train: An AI-Powered Interactive Mystery Game**

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# Contents



게임 개요

세부사항

코드

# Game



LLM



NPC

# Overview

## Game Implementation

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Pyxel – python based retro pixel game library

## LLM

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Solar (Upstage)

## Game Overview

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Theme: Murder Mystery Tonicity: Suspenseful & Intriguing

Setting: A train with a diverse cast of characters

Goal: Deduce the murderer through conversations and evidence

# Player vs NPC



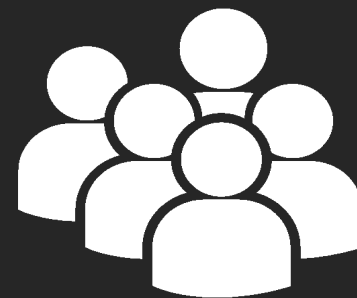
User

탐정



범인

직업 랜덤, 살인범  
탐정에게 거짓말 가능



NPC

승무원 포함 4명  
탐정에게 무죄 피력

# Characters

- Detective (protagonist, player character in first-person perspective)
- Train Attendant
- 4 randomly selected NPCs from a predefined list
  - Doctor, Engineer, Train Driver, Businessman, University Professor, Author, Politician, Journalist
  - Each character has a unique background that ties into the murder scenario

# Game Progression

- Game Start:
  - Characters introduced with name, occupation, and brief background
  - Victim and murderer randomly selected
  - Murder motive and cause of death generated
- Game Progress:
  - Player interrogates suspects and checks clues freely
  - Clues obtained through interrogation are saved
  - Player decides next action after each interaction
- Game End:
  - Player identifies the murderer
  - Reveal the killer and their motive, then end the game

# Conversations and Evidence

- One-on-one conversations between the Detective and NPCs
- Detective is presented with dialogue options based on NPC responses
- Evidence is generated with names and descriptions
- Sufficient evidence is provided for the player to deduce the murderer



# Constraints

- No additional NPCs can die or leave the train
- The Train Attendant provides information about each passenger
- The Doctor, if present, provides details about characters' health conditions
- NPCs provide information relevant to their occupation and background
- The murderer can lie, but their guilt must be deducible through evidence and interrogation

# JSON Output Format

```
{
  "characters": [
    {
      "name": "Character 1 Name",
      "occupation": "Character 1 Occupation",
      "background": "Character 1 Background"
    },
    ...
  ],
  "victim": {
    "name": "Victim Name",
    "occupation": "Victim Occupation"
  },
  "murderer": {
    "name": "Murderer Name",
    "occupation": "Murderer Occupation"
  },
  "conversations": [
    {
      "npc": "NPC Name",
      "dialogueOptions": [
        "Option A",
        "Option B"
      ],
      "dialogue": [
        {
          "speaker": "Speaker Name",
          "content": "Dialogue content"
        },
        ...
      ]
    },
    ...
  ],
  "evidence": [
    {
      "name": "Evidence 1 Name",
      "description": "Evidence 1 Description"
    },
    ...
  ],
  "sceneDescription": "Description of the current scene or scenario"
}
```

# Game Demo

C: &gt; Users &gt; yujin &gt; Desktop &gt; demo.json &gt; ...

```
1  {
2    "characters": [
3      {
4        "name": "Detective",
5        "occupation": "Detective",
6        "background": "The Detective is a seasoned investigator with a reputation for solving even the most complex cases. They have been called to investigate a murder that occurred on a train."
7      },
8      {
9        "name": "Train Attendant",
10       "occupation": "Train Attendant",
11       "background": "The Train Attendant is responsible for the safety and comfort of the passengers on the train. They have been working on this route for several years and knows the passengers well."
12     },
13     {
14       "name": "Doctor",
15       "occupation": "Doctor",
16       "background": "The Doctor is a renowned expert in his field. He is traveling on the train to attend a medical conference. He has a mysterious past that he keeps hidden from others."
17     },
18     {
19       "name": "Engineer",
20       "occupation": "Engineer",
21       "background": "The Engineer is a brilliant mind in the field of engineering. He is traveling on the train to visit a friend who works on a nearby project. He has a secret that he is desperate to keep hidden."
22     },
23     {
24       "name": "Businessman",
25       "occupation": "Businessman",
26       "background": "The Businessman is a successful entrepreneur who has made a fortune in the tech industry. He is traveling on the train to meet with potential investors. He has a dark past that he is trying to escape."
27     }
28   ],
29   "victim": {
30     "name": "University Professor",
31     "occupation": "University Professor"
32   },
33   "murderer": {
34     "name": "Politician",
35     "occupation": "Politician"
36   },
37   "conversations": [
38     {
39       "npc": "Train Attendant",
40       "dialogueOptions": [
41         "What can you tell me about the passengers?",
42         "Have there been any unusual occurrences on the train?"
43       ],
44       "dialogue": [
45         {
46           "speaker": "Train Attendant",
47           "content": "I can tell you that the passengers are all respectable people. The Doctor is a renowned expert in his field, the Engineer is a brilliant mind, and the Businessman is a successful entrepreneur. The University Professor is a well-respected academic, and the Politician is a well-known figure in the community."
48         },
49         {
50           "speaker": "Detective",
51           "content": "Have there been any unusual occurrences on the train?"
52         }
53       ]
54     }
55   ]
56 }
```

C: &gt; Users &gt; yujin &gt; Desktop &gt; demo.json &gt; ...

```
37 "conversations": [  
38   {  
44     "dialogue": [  
53       {  
54         "speaker": "Train Attendant",  
55         "content": "Not that I'm aware of. Everything has been running smoothly. However, I did notice that the Politician seemed to be in a hurry to leave the train when it stopped at the last station."  
56       }  
57     ],  
58   },  
59   {  
60     "npc": "Doctor",  
61     "dialogueOptions": [  
62       "What can you tell me about the victim?",  
63       "Do you know anything about the cause of death?"  
64     ],  
65     "dialogue": [  
66       {  
67         "speaker": "Detective",  
68         "content": "What can you tell me about the victim?"  
69       },  
70       {  
71         "speaker": "Doctor",  
72         "content": "The victim was a well-respected University Professor. He was a brilliant mind in his field and was well-liked by his colleagues and students. I'm sorry, but I don't have any information about the cause of death. I wasn't able to examine the body before it was moved."  
73       },  
74       {  
75         "speaker": "Detective",  
76         "content": "Do you know anything about the cause of death?"  
77       },  
78       {  
79         "speaker": "Doctor",  
80         "content": "I'm sorry, but I don't have any information about the cause of death. I wasn't able to examine the body before it was moved."  
81       }  
82     ],  
83   },  
84   {  
85     "npc": "Engineer",  
86     "dialogueOptions": [  
87       "What can you tell me about the victim?",  
88       "Do you know anything about the cause of death?"  
89     ],  
90     "dialogue": [  
91       {  
92         "speaker": "Detective",  
93         "content": "What can you tell me about the victim?"  
94       },  
95       {  
96         "speaker": "Engineer",  
97         "content": "I didn't know the victim very well. He was a University Professor and seemed like a nice guy. I'm sorry, but I don't have any information about the cause of death. I wasn't able to examine the body before it was moved."  
98       },  
99       {  
100        "speaker": "Detective",  
101        "content": "Do you know anything about the cause of death?"
```

C: &gt; Users &gt; yujin &gt; Desktop &gt; demo.json &gt; [ ] conversations &gt; {} 2

```
37   "conversations": [
84     {
90       "dialogue": [
99         {
100           "speaker": "Detective",
101           "content": "Do you know anything about the cause of death?"
102         },
103         {
104           "speaker": "Engineer",
105           "content": "I'm sorry, but I don't have any information about the cause of death. I wasn't able to examine the body before it was moved."
106         }
107       ]
108     },
109     {
110       "npc": "Businessman",
111       "dialogueOptions": [
112         "What can you tell me about the victim?",
113         "Do you know anything about the cause of death?"
114       ],
115       "dialogue": [
116         {
117           "speaker": "Detective",
118           "content": "What can you tell me about the victim?"
119         },
120         {
121           "speaker": "Businessman",
122           "content": "I didn't know the victim very well. He was a University Professor and seemed like a nice guy. I'm sorry, but I don't have any information about the cause of death. I wasn't able to examine the body before it was moved."
123         },
124         {
125           "speaker": "Detective",
126           "content": "Do you know anything about the cause of death?"
127         },
128         {
129           "speaker": "Businessman",
130           "content": "I'm sorry, but I don't have any information about the cause of death. I wasn't able to examine the body before it was moved."
131         }
132       ]
133     },
134     {
135       "npc": "Politician",
136       "dialogueOptions": [
137         "What can you tell me about the victim?",
138         "Do you know anything about the cause of death?"
139       ],
140       "dialogue": [
141         {
142           "speaker": "Detective",
143           "content": "What can you tell me about the victim?"
144         },
145         {
146           "speaker": "Politician",
147           "content": "I didn't know the victim very well. He was a University Professor and seemed like a nice guy. I'm sorry, but I don't have any information about the cause of death. I wasn't able to examine the body before it was moved."
```

C: > Users > yujin > Desktop > demo.json > [ ] conversations > { } 4 > [ ] dialogueOptions

```
37  "conversations": [
134  {
140    "dialogue": [
145      {
146        "speaker": "Politician",
147        "content": "I didn't know the victim very well. He was a University Professor and seemed like a nice guy. I'm sorry, but I don't have any information about the cause of death. I wasn't able to examine the body before it was
148        moved."
149      },
150      {
151        "speaker": "Detective",
152        "content": "Do you know anything about the cause of death?"
153      },
154      {
155        "speaker": "Politician",
156        "content": "I'm sorry, but I don't have any information about the cause of death. I wasn't able to examine the body before it was moved."
157      }
158    ]
159  },
160  "evidence": [
161    {
162      "name": "Poison container",
163      "description": "An empty poison container found near the victim's seat."
164    },
165    {
166      "name": "Discolored clothes",
167      "description": "The murderer's clothes are discolored and punctured, possibly due to poison spill."
168    },
169    {
170      "name": "Strangulation marks",
171      "description": "Injuries on the murderer's body caused by the victim's resistance."
172    },
173    {
174      "name": "Sleeping pill container",
175      "description": "The victim's sleeping pill container found near the crime scene."
176    },
177    {
178      "name": "Gun",
179      "description": "A gun found near the crime scene."
180    },
181    {
182      "name": "Cutter knife",
183      "description": "A cutter knife found near the crime scene."
184    },
185    {
186      "name": "Bloodstain",
187      "description": "A bloodstain found near the crime scene."
188    },
189    {
190      "name": "Broken plate",
191      "description": "A broken plate found near the crime scene."
192    },
193    {
194      "name": "Broken glass bottle"
```







옥찬호 박지연 최서호 옥찬호 김유진