Vocational English IV (Mesleki Yabancı Dil IV) Week 2

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Engineering Faculty
Computeer Engineering

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INTRODUCTION

WHY ENGLISH?

- Common language in tech
- Unlock global opportunities
  - Job **opportunities** worldwide
  - International **collaboration**
- Access **cutting-edge** knowledge
  - Learn from the best
- Share your ideas worldwide
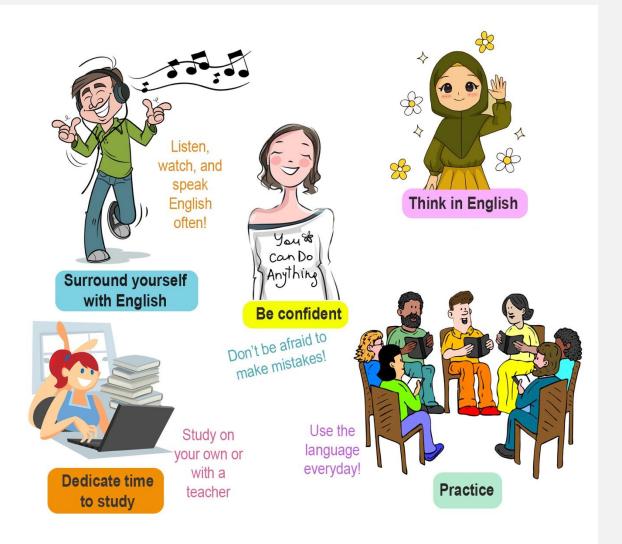- What else?

RESEARCH QUESTION!

What does `lingua franca` mean?

IMPORTANCE OF COMMUNICATION IN CE

- Communication is **essential** for collaboration and teamwork in computer engineering projects.
- Effective communication can help to **prevent** misunderstandings and errors.
- Clear and concise communication can improve **efficiency** and **productivity**.
- Poor communication can **lead** to negative **consequences** (e.g., project delays, **conflict**s, lost opportunities).

5 ways to learn English faster

Listen, watch, and speak English often!

Surround yourself with English

You Can Do Anything

Be confident

Don't be afraid to make mistakes!

Think in English

Study on your own or with a teacher

Dedicate time to study

Use the language everyday!

Practice

NEWS RESOURCES

ACADEMIC RESOURCES

GRADING DISTRIBUTION

Grading Distribution:
1 Midterm Exam(%30),
1 Presentation(%20),
1 Final Exam(%40),
Attendance(%10-Extra),
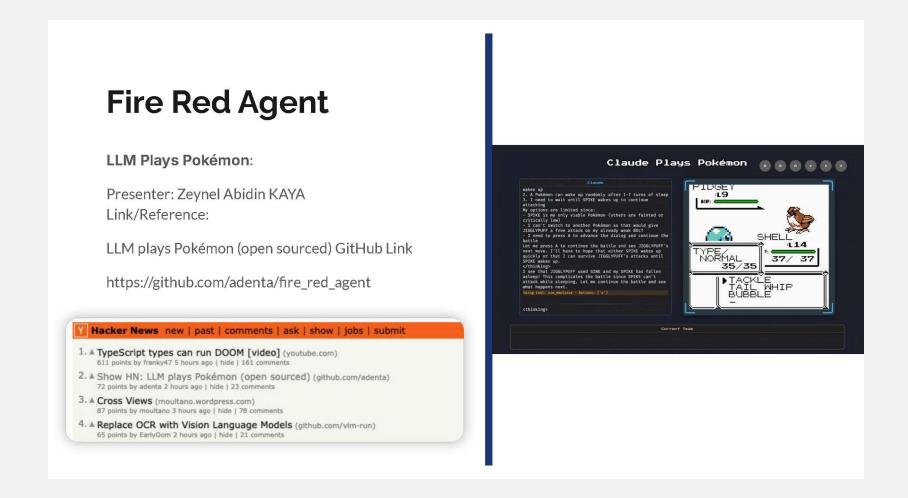Quizzes(%10)

STRUCTURE OF THE CLASS

https://news.ycombinator.com/

- QUIZES
- WEEKLY ARTICLE
- PRESENTATIONS BY YOU
- LISTENING

PRESENTATIONS

- 88 Students

- 8 Students per week

- **Find an article that is on top 20 of HackerNews, read it and present it in 5 minutes.**

- https://news.ycombinator.com/

- Check out course website for your place.

This is worth %20 percent of the total grade!

The Link to article: https://github.com/adenta/fire_red_agent

EXAMPLE PRESENTATION-2

The Link to article: https://github.com/adenta/fire_red_agent

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AI and LLM Integration

Game Text Parsing

To effectively interact with the game, we capture screenshots and process them using Optical Character Recognition (OCR) to interpret in-game text. This allows the AI to understand the game state and make informed decisions.

LLM Decision Making

The integration with OpenAI's GPT-4o enables the AI to utilize structured game data, including current location, available actions, and memory. By employing frequency and presence penalties, we encourage the model to exhibit varied behavior, making the gameplay more dynamic and engaging.

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Technical Architecture

Emulator Integration

The system runs Pokémon FireRed via RetroArch, utilizing OSA Script (AppleScript) for keyboard events. This approach addresses challenges with RetroArch's UDP input, ensuring seamless interaction with the game.

Memory & Data Handling

The game state is stored in a database, functioning as a "diary" of the AI's experiences. The most recent 250 entries are utilized to guide the AI's decision-making process, allowing it to learn from past actions.

Navigation & Pathfinding

To navigate the game world effectively, the AI extracts map data from game memory and employs a pathfinding algorithm to determine walkable paths, ensuring efficient movement throughout the game.

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Handling In-Game Challenges

Battle Handling

In battles, the AI implements a simple strategy that primarily involves pressing the "A" button. If battles stall, it introduces random inputs to maintain engagement and progress.

NPC Interactions

The AI uses OCR to detect dialogue progression with non-playable characters (NPCs). It decides whether to continue conversations or move on based on the flow of in-game text, enhancing the interactive experience.

Key Technical Hurdle

A significant technical hurdle encountered was the reliance on keyboard-based input via OSA Script, which required the emulator to be in focus. This limitation restricted multitasking capabilities during gameplay.

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Reflections & Future Directions

Project Impact

The development process has been a blend of fun and frustration, providing valuable insights into the integration of AI with gaming.

Future Improvements

Looking ahead, potential enhancements include optimizing input control and exploring alternative automation methods to improve gameplay efficiency and responsiveness.

Invitation

We invite contributions and further experimentation to push the boundaries of AI in gaming, encouraging collaboration and innovation within the community.

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THANK YOU FOR LISTENING MY AMAZING PRESENTATION
Z.A.K.

Harran University Computer Engineering Department

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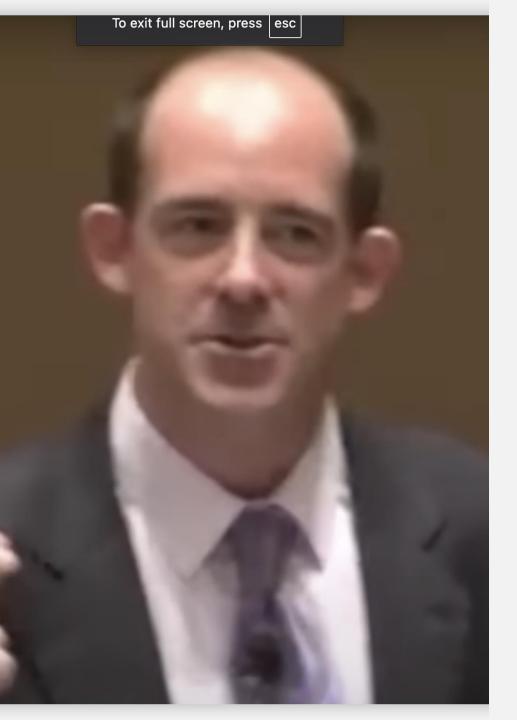https://www.linkedin.com/feed/update/urn:li:activity:7300593201092919296/

CAUTION!

- PLEASE REMEMBER THIS IS JUST AN **EXAMPLE** SLIDE SHOW. YOU CAN PICK ANY EFFECTIVE PRESENTATION METHOD TO CONVEY YOUR MESSAGE.
- IF YOU THINK YOU CAN <u>PRESENT WITHOUT A PRESENTATION</u>, THAT COUNTS AS WELL BUT <u>WE WILL ASK YOUR AUDIENCE IF THEY GOT THE IDEA!</u>

TED TALKS

- **The 3 Magic Ingredients of Amazing Presentations | Phil WAKNELL | TEDxSaclay**

- https://www.youtube.com/watch?v=yoD8RMq2OkU&ab_channel=TEDxTalks

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CONOR NEILL

- **How to Start a Speech- Conor Neill**

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- https://www.youtube.com/watch?v=w82a1FT5o88

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WORDS OF THE WEEK

- Autonomously
- Integration
- Rudimentary
- Programmatic
- Emulator
- Memory Management
- Navigation
- Pathfinding
- Algorithm
- Extraction

- Structured
- OCR
- Observability
- Automation
- Experimentation
- Paradigm
- Methodologies
- Implementation
- Technical
- Capabilities

EOF*

REFERENCES/CREDITS

1- Hacker News: https://github.com/adenta/fire_red_agent