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Research and Problem Identification for AI Agents

1) AI agents are developed software programs that act by themselves to complete tasks given by analyzing the environment, using logical reasoning, and taking action using the given tools and data. A reflex agent is the standard type of AI agent, they operate based on a condition-action rule, which means they take action directly based on the current input without considering past or future experiences. An example of this would be a motion sensor light or an automatic door. A model-based reflex agent uses their current perception and past events to maintain an internal model of the world and as the AI receives new data it will record it and update their internal world model. An example would be self driving cars or a smart home security system. A goal based agent will perform actions to achieve a defined objective. They evaluate their possible actions to find one that helps them efficiently complete their goal. An example would be a GPS system giving you the fastest route. An utility-based agent selects the order of actions that reach a goal and also prioritizes utility or reward. An example would be a GPS system giving you a route based on traffic, tolls and gas. Learning agents improve their performance over time by experiencing and learning from tasks over time. An example would be a chess bot that learns and get better at chess by playing games over time.

2) After researching the tools used to build AI I I came to the conclusion that Langchain the python library would be very useful for building our project. LangChain is an open-source framework for developing applications powered by large language models. For our fitness tracker game app we would need to give something to make it stand out and seem interesting. So langchian would be useful because it provides tools and components to connect LLMs with external data sources which means we would be able to build complex, multi-step applications within our program like an intelligent time management bot or automated analysis tools.

3) A problem I feel our app will come across will be motivation and use of the app. A lot of people don't have the motivation or drive to keep a consistent exercise schedule. If we were to include something like a utility-based AI agent we could have the AI help manage the schedule and questions of the user. For example the user can set a fitness goal and the AI would be able to give the workout schedule needed to achieve the goal. Or if the user has questions the AI could tell them things such as what exercises to do to train certain body parts or proper form and speed when doing the exercises.

4) The goal for our AI agent would be for it to provide a welcoming and fun environment for people to keep using the app and sticking to a consistent exercise schedule. The AI must have good knowledge on fitness and the human body. It should know the average time for a certain amount to lose weight and also consider that different people's bodies will have different reactions to the exercises. We will measure its effectiveness by testing all its knowledge and expertise in fitness until it reaches a satisfactory point.

5) Originally I didn't know if we should include AI into our program. But after going through the research I've learned about the different types of AI agents and how to build them into a program. So now I do believe we would be able to incorporate AI to improve our application.