From cards to code: ChatGPT's crash course in the game of "Diamonds".

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1 Introduction

The task assigned to us was quite straightforward: Introduce ChatGPT to the game of "Diamonds" and instruct it to devise strategies for the gameplay and write code for a bot that would engage in gameplay alongside us. Despite its apparent simplicity, this task proved to be very interesting and insightful. As I started with the given task I encountered that introducing ChatGPT to a game it had no idea about was going to be difficult. Explaining each and every aspect of the game multiple times and asking it to strategize resulted in exploring the learning capabilities of AI.

2 Methodology

2.1 Rules of the game

In the game of "Diamonds," players are dealt one suit each from spades, hearts, or clubs, while all diamond cards are placed face down in a pile. Each player's assigned suit holds equal value in the game. The objective of "Diamonds" is to bid the highest among the players. In every round, a random diamond card from the pile is drawn and each player secretly bids any one of their cards which are simultaneously then revealed. Once a card is bid, it cannot be bid again in the subsequent rounds. The highest bidder wins the prize, which is the same card drawn from the pile. If two or more players tie for the highest bid, the prize points are divided equally among them. The player with the highest points at the end of all the rounds is the winner.

2.2 Teaching ChatGPT: The Art of giving Prompts

Teaching ChatGPT the rules of the game proved more challenging than i had anticipated, To improve its learning, i gave ChatGPT examples of every new rule i introduced and asked it to then explain what it had understood, I then asked ChatGPT to play the game of diamonds with me and even though it still made some mistakes i corrected them one by one, thus making it pretty thorough with the game.. Once ChatGPT demonstrated proficiency in gameplay, I tasked it with devising strategies and coding implementations.

2.3 Prompts Given

Here are the examples of some of the prompts I had given ChatGPT.

- For example, 3 players, player1, player2 and player3 are playing this game. All the diamonds have been set aside in a pile, shuffled and are kept facing down. Each player gets a suit. player1 gets spade. player2 gets hearts and player3 gets clubs. A card is drawn ...
- if we play this i want you to draw a random diamond card which will be the prize. Then i want you to bid secretly and so will i...
- The code just keeps on running and the bot isnt able to bid. make a dictionary which stores the point of each cards and ...

To refer to the entire conversation click here.

2.4 Strategy Discussed and its Implementation

When i asked ChatGPT to strategise and give me the ways which will result in the user losing to the bot, ChatGPT came up with interesting theories. In its first theory ChatGPT said it would keep a track of the users bidding pattern and if the user is constantly bidding low cards the bot would bid low cards as well and vice versa.I asked chatGPT to write a code for this and it did but there were a lot of errors in its approach. I then asked it to work on another strategy and hinted it to focus on the diamond card drawn from the pile and bid accordingly. ChatGPT was then able to understand the game fully and code the implementation which had a couple of errors but worked once those mistakes were pointed out.

2.5 Reflections

What i learnt was that ChatGPT had immense potential and great learning capacity when prompted the right way. From the initial code ChatGpt gave to its final rendition, it made a lot of progress and continuously improved the code and its quality when its mistakes were pointed out. I also observed that ChatGpt also introduces the problem of "forgetfulness" and has to be told the same thing multiple times for it to understand it completely. I was finally able to get the final code which worked and the bot used a good strategy in it. For the link of the colab notebook, click here.