

## **Mission Name**

The Hide

## **Historical Context**

Ethan and Claire are on a quest to locate the elusive Librarian. Their journey leads them to encounter a library bot, an automated guardian of knowledge, capable of responding to their inquiries.

## **Technical Overview**

This library bot is powered by an ancient database, filled with a myriad of questions and their corresponding answers. To unravel the mystery of the Librarian's whereabouts, Ethan and Claire must engage with the bot. The right questions may reveal hidden answers that are crucial to their quest.

## **Mission Brief**

Embedded within the library bot lies a repository of ancient knowledge, containing questions and answers. Engage with this digital oracle to uncover any hints that may lead you to the Librarian's location. Your wisdom and wit are your best allies. Good fortune on your quest!

## **Detailed Assignment**

In their relentless pursuit of the Librarian, Ethan and Claire stumble upon a library bot during their exploration. This bot is their key to unlocking answers that lie within its databank, potentially guiding them to their sought-after individual.

## **Operational Venue**

LONDON | BRITISH LIBRARY

## Tools

- `nc -nv IP 9999`

## Questions

What is the name of the original file answer/questions?

- `NQ-open.dev.jsonl`

What is the question number that hide the game?

- `1468`

What is the the missing piece in the game?

- `und3rgr0nd`

## Hints

1. Ask the bot for a question several times
2. Compare answer and questions with original file and discover the hide
3. Try the question 1468

## Categories

Programming

Puzzle

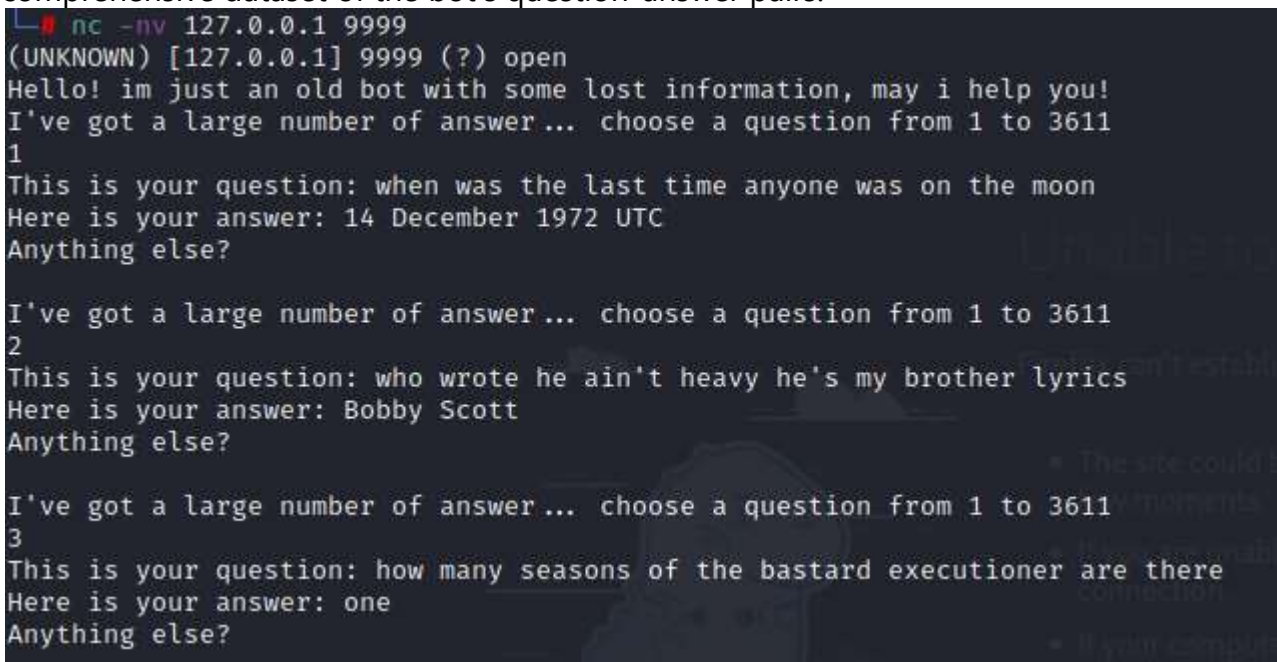
Game

## Write Up

Interacting with a bot that offers a dynamic response mechanism, where repeated inquiries yield different answers, presents a unique challenge. This scenario requires a systematic approach to capture and analyze the bot's responses for hidden patterns or anomalies. Here's a step-by-step strategy for tackling this challenge:

### Step 1: Scripting for Data Extraction

To address the bot's varying responses to the same question, write a script (e.g., `write_up.py`) that automates the process of sending questions to the bot and logging its answers. The script should be capable of iterating through a set range of question numbers, capturing all possible answers for each question. This will help in compiling a comprehensive dataset of the bot's question-answer pairs.



```
nc -nv 127.0.0.1 9999
(UNKNOWN) [127.0.0.1] 9999 (?) open
Hello! im just an old bot with some lost information, may i help you!
I've got a large number of answer... choose a question from 1 to 3611
1
This is your question: when was the last time anyone was on the moon
Here is your answer: 14 December 1972 UTC
Anything else?

I've got a large number of answer... choose a question from 1 to 3611
2
This is your question: who wrote he ain't heavy he's my brother lyrics
Here is your answer: Bobby Scott
Anything else?

I've got a large number of answer... choose a question from 1 to 3611
3
This is your question: how many seasons of the bastard executioner are there
Here is your answer: one
Anything else?
```

Figure 1

### Step 2: Comparison with Original Dataset

The bot's answers should be compared against a known dataset, such as the one available at:

- [https://raw.githubusercontent.com/google-research-datasets/natural-questions/master/nq\\_open/NQ-open.dev.jsonl](https://raw.githubusercontent.com/google-research-datasets/natural-questions/master/nq_open/NQ-open.dev.jsonl)

```
I've got a large number of answer... choose a question from 1 to 3610
1
This is your question: when was the last time anyone was on the moon
Here is your answer: December 1972
Anything else?

I've got a large number of answer... choose a question from 1 to 3610
1
This is your question: when was the last time anyone was on the moon
Here is your answer: 14 December 1972 UTC
Anything else?
```

Figure 2

This comparison will help identify any deviations or "backdoors" embedded within the bot's responses. Specifically, attention should be paid to question 1468, which is indicated to contain a hidden backdoor.

### Step 3: Navigating the Grid Game

Upon discovering the backdoor in question 1468, players are introduced to a grid-based game. The objective is to navigate this grid to collect five pieces of a flag. Movement within the grid alters the player's location ('U' to represent the player, '+' to '\*', marking visited locations).

[illegible]

Figure 3

#### Step 4: Avoiding the Bomb

A bomb is hidden within the grid, and encountering it results in immediate expulsion from the game. Fortunately, the game provides proximity warnings to the bomb, allowing players to steer clear and adjust their strategy accordingly.

```
Move in the grid with Left (l) / Right (r) or Up (u) / Down (d) to recover the flag pieces
You are now in location (1,2)
* + + + + + + + +
U + + + + + + + +
+ + + + + + + +
+ + + + + + + +
+ + + + + + + +
+ + + + + + + +
+ + + + + + + +
+ + + + + + + +
+ + + + + + + +
+ + + + + + + +

What do you want to do?r

Move in the grid with Left (l) / Right (r) or Up (u) / Down (d) to recover the flag pieces
You are now in location (2,2)
* + + + + + + + +
* U + + + + + + + +
+ + + + + + + +
+ + + + + + + +
+ + + + + + + +
+ + + + + + + +
+ + + + + + + +
+ + + + + + + +
+ + + + + + + +
+ + + + + + + +

You found the {W3lcome_
You have 4 more pieces to find!
What do you want to do?█
```

Figure 4

#### Step 5: Collecting Flag Pieces

The goal is to meticulously move across the grid, leveraging the bot's hints to avoid the bomb while collecting all five flag pieces. Strategic planning and careful movement are crucial to successfully navigate the grid and achieve the objective.

```

Move in the grid with Left (l) / Right (r) or Up (u) / Down (d) to recover the flag pieces
You are now in location (1,2)
* + + + + + + + +
U + + + + + + + +
+ + + + + + + +
+ + + + + + + +
+ + + + + + + +
+ + + + + + + +
+ + + + + + + +
+ + + + + + + +
+ + + + + + + +
+ + + + + + + +

Take care, a bomb is close!
What do you want to do?d

Move in the grid with Left (l) / Right (r) or Up (u) / Down (d) to recover the flag pieces
You are now in location (1,3)
* + + + + + + + +
* + + + + + + + +
U + + + + + + + +
+ + + + + + + +
+ + + + + + + +
+ + + + + + + +
+ + + + + + + +
+ + + + + + + +
+ + + + + + + +
+ + + + + + + +

You are not from underground moving!!
Get out!!I've got a large number of answer... choose a question from 1 to 3610

```

Figure 5

## Conclusion

This challenge blends elements of programming, data analysis, and game strategy. Successfully completing it not only demonstrates technical proficiency but also critical thinking and problem-solving skills. The key to success lies in the effective analysis of the bot's responses, strategic navigation of the game's grid, and the careful avoidance of hazards to collect all components of the flag.

## Flag Information

flag{W3lcome\_t0\_th3\_r34l\_und3rgr0nd\_l0c4t10n}