Flexso Cluedo

SAP Challenge – Hack the Future 2021

1. Introduction

Around 6:30 a.m., a member of the cleaning crew discovered the lifeless body of Jill Bridges. Emergency services were immediately called to the scene, but upon arrival were only able to determine the death of the victim. Sources close to the investigation have confirmed to our editors that the circumstances of the death are being described as 'highly suspicious' and that a natural death is considered 'extremely unlikely'.

At first, all suspicion fell on her husband, Bill Bridges, but he was able to present an ironclad alibi and, as a result, will not be questioned further for the time being. So, the crucial questions still beg for an answer: where was Jill Bridges murdered, how did it happen and what is the true identity of the killer?

1.1. Prerequisites

To provide yourself:

- Supported browser (Chrome, Edge Chromium, Firefox)
- Node.js (https://nodejs.org/en/download/).
- Git CLI or git desktop needs to be installed. (https://git-scm.com/downloads)
- VS Code ready to use (https://code.visualstudio.com/download).
- In Visual Studio, install “SAP Fiori tools - Extensions Pack” (https://marketplace.visualstudio.com/items?itemName=SAPSE.sap-ux-fiori-tools-extension-pack)
- If you want, you can already start the setup, explained in 3.1 Setup. We will go over this together at the start of the hackathon, but being prepared has never hurt anyone :)
- Nice to have:
  - UI5 inspector addon for Chrome (https://chrome.google.com/webstore/detail/ui5-inspector/bebecogbafbighhaildooiibipcnbngo)
  - Todo Tree extension (VS Code extension)

Provided by Flexso

- Nodejs Backend to provide game data
- Nodejs APIs to retrieve game data
- UI5 Cluedo gameboard (frontend)

2. The big picture

Today, we are playing the **Flexso Cluedo** edition, consisting of alternative rules varying from the original classic detective game. For this we need your help!

We would like you to finish our Cluedo game and give it your own unique creative touch.

We provide a template of the game with some basic functionalities. It's up to you to use and/or improve this to create your own game.

How to play the game, step by step

1. User clicks on "start" to start a new game
2. The game creates a murder scene (room, weapon and person) that the player must figure out
3. User selects a room he wants to visit
4. User selects a weapon
5. User selects a murderer
6. User clicks on "validate"
7. If bot addon is active, 1 or more bots will join and choose a room to visit
8. If the Assassin addon is active, he will choose a room to visit and kill anyone in that room
9. Validate method will provide feedback if room, weapon or murderer is correct
10. Repeat from step 3 until you find the solution
11. Possible Endgames:
    1. User finds the correct room, weapon and murderer (**Success!)**
    2. A bot wins the game (**Game over!)**
    3. The user is killed by the assassin (**Game over!)**

2.1. Rules

The game must abide to following rules:

- You can play the game together with 0 - 4 bots and 0 - 1 assassin.
- A player can choose which (empty) room he visits, guesses who the murderer is and with what weapon he/she killed the victim, Jill Bridges. Feedback will be shown if (part/all) of the guess is correct.
- A guess always includes 1 room, 1 weapon and 1 person
- Only 1 player or bot can be in a certain room at the same time. The player always chooses the room he will visit first. Bots are placed next. If the assassin is active, he chooses last.
- Bots make a random guess each round like the player. If the bot is more advanced, he will keep records on what he already guessed
- There is an assassin bot, he will also choose a random room and eliminate any player or bot in that specific room
- The assassin bot is the only bot that can be in the same room as the player or another bot
- The assassin is not active the first 5 rounds

3. Technical information

3.1. Setup

- Clone following 2 GitHub repositories:
  - Front-end: https://github.com/HTF2021/FlexsoCluedo-frontend
  - Middleware: https://github.com/HTF2021/FlexsoCluedo-middleware
- Run following commands on both projects:
  - Let npm install all dependencies via `npm install`
  - Run the app via `npm run start`
  - Best to run the middleware in debug mode via `F5` (or "Run and Debug" tab)
  - To debug the frontend use the developer tools, in Chrome via settings – more tools – developer tools (F12 or Ctrl+Shift+I)

3.2. Coding progression

The application has been splitted into 3 difficulty levels.

- #Required -> basic functionalities
- #Bonus -> advanced functionalities
- #Bonus V2 -> expert level functionalities

Hint: Start your hacking experience by completing the basic functionalities first, then progress to the advanced and lastly expert level functionalities.

3.3. NodeJS Backend

We will deliver a fully working NodeJS Backend at https://htf-2021.herokuapp.com/.

Structure: (all lowercase)

- testdata.json
- daders/
- kamers/
- wapens/
- grondplannen/
- others/

The list of persons, weapons and rooms can be found via:
https://htf-2021.herokuapp.com/testdata.json

The images of the different persons, weapons, rooms, gameboards etc. can also be found here.
Ex: https://htf-2021.herokuapp.com/daders/Bill_Bridges.jpg

3.4. NodeJS Middleware

Following APIs are available in the middleware:

- Get /data: Fetches data from backend (testdata.json) and sends it to the frontend
- Post /new_solution: Creates a solution (random set of items based on testdata.json) when starting a new game
- Post /check_answer: Checks player answer

Hint: Investigate the /data call answer!
Hint: To add a bot(s) and/or assassin, you need to reuse API check_answer

3.5. UI5 Frontend

A game board will be provided with the different rooms on it and buttons to choose a weapon and murderer

- onInit: Initialize the data for the game (call /data API from middleware)
- onStartPress: Starts a new game. A new solution needs to be created (call /new_solution from middleware)
- onValidatePress: Validate answers given by player (call /check_answer from middleware)

Hint: To add an assassin or bot(s), you need to enhance the onValidatePress function.

3.6. Bot functionality

A simple bot will be provided for you. If you want, you can enhance this feature by making the bot more advanced (for example: no wild, but calculated guesses from the bot(s)).

3.7. Assassin functionality

The assassin will choose a random room each round. If any other bot or player is in that specific room, that player or bot will be assassinated.

4. Scoring

The scoring of your challenge will be done on different criteria. Not only will we look at your coding skills but also creativity, innovation and presentation skills as they are equally as important.
Try and be unique.

For coding, there are 3 difficulty levels.

- #Required: these pieces of code are required for the basic application to run.
- #BONUS: Pieces of code of advanced difficulty, to be added on top of the basic application.
- #BONUS V2: Hard difficulty for the brightest minds, challenge yourself to build difficult extras on top of the basic application!

You will also be rewarded for creative interactions!

For presenting, we are looking at:

- Creativity
- Motivation: Motivate why you added certain things to your app and why your app is the best!
- Presentation skills

If you really don't want to present your game, you don't need to. But keep in mind: if you don't present, you will not be able to win any prizes either. Fair enough since presenting is one of a consultant's most important skills!