CSE3000 Research Project
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Game Design for Tacit Knowledge Elicitation

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How can we collect common-sense knowledge about scenes and rooms for machine learning models by using a collaborative, multiplayer game?

1. Background:

- Machine learning models require large amounts to data
- Tacit knowledge: Intuitive, common-sense knowledge
- Explicit knowledge: Information available online/ databases
- Collecting tacit data is expensive and time consuming

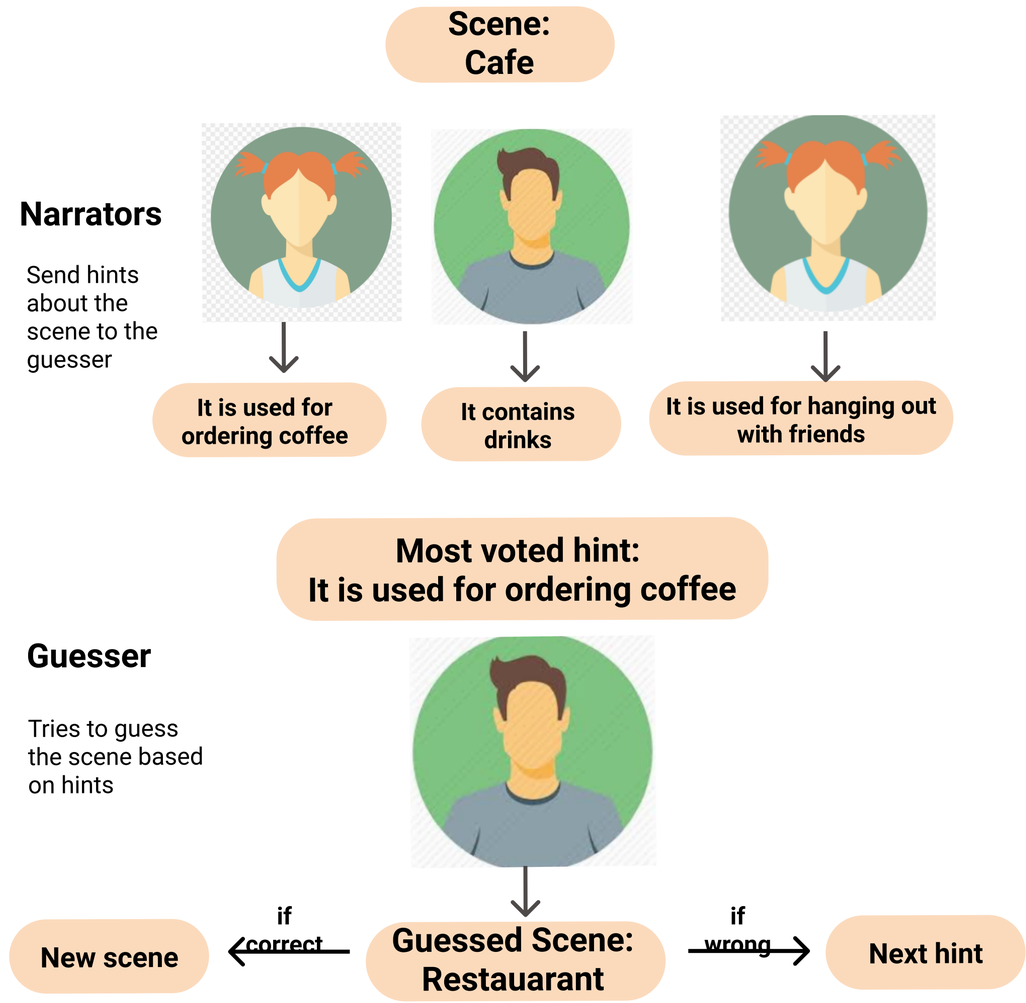
2. Method

- Collect information about how tacit knowledge has been collected in the past
- Design a game capable of collecting diverse, reliable data
- Benchmark the quality of collected data to evaluate the performance of the game

3. Game Design:

- Guessing game where 3 narrators work together to help a guesser guess the name of scene based by suggesting hints
- Each narrator suggests a hint
- The narrators vote for the hint they think is the most relevant which is sent to the guesser
- The guesser makes a guess based on this most relevant hint

4.Game Session Example



5. Data Collection:

- Each hint gets points based on the number of votes
- Aggregating votes over a set of games for the same scene results in a collection of ranked hints that can be used to classify the scene
- Use of premade hint templates helps us control the context of hints

6. Results:

- 247 facts collected about 12 scenes in 3 games.
- 98% facts were true
- Relevance based ranking of hints obtained
- High game engagement

7: Conclusion

- Data collected was accurate and reliable
- Data lacked diversity, and game favored explicit knowledge over tacit, can be fixed by introducing taboo words in the future