GAME DESIGN: TACIT KNOWLEDGE ELICITATION FROM CROWDS

SINGLE PLAYER GAME FOR VALIDATING COMMON-SENSE KNOWLEDGE

1 INTRODUCTION AND OBJECTIVE

Machine learning can still make harmful mistakes. A solution would be tacit knowledge.

Tacit Knowledge: intuitive, common-sense knowledge, only humans can generate

Problem: machine learning needs knowledge to be improved. But how good is the knowledge?

Objective: How can we elicit and validate tacit knowledge using a game with the following settings: single player, textual concepts, goal - associate words with their concepts?

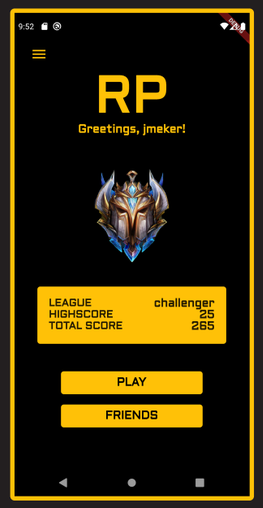

Figure 1: Home Screen

2 METHODOLOGY

Show the user a **hint** about a **concept** and they have to guess the concept as **fast** as possible in the **least number of tries** as possible.

Gamification: the game experience severely affects the quality of the results

Data quality: filter outliers and spam by popularity ranking

Figure 2: Game Screen

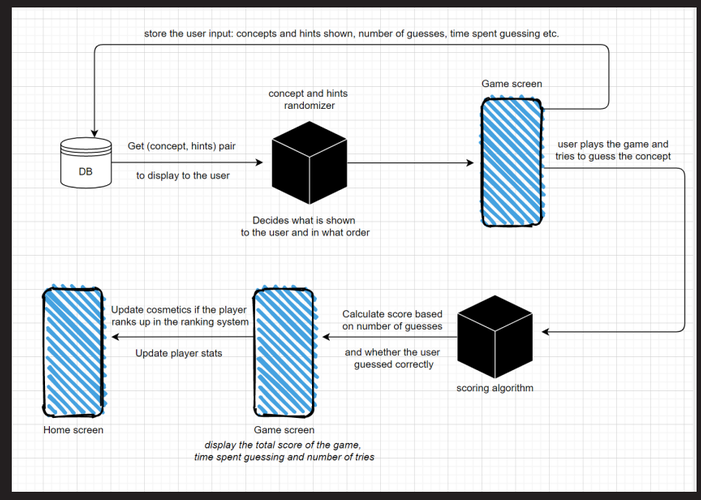

Figure 3: Game workflow

RP

CAN YOU GUESS THE WORD?

3 RESULTS

After checking one list (Fig. 5) against the other (Fig. 6), we concluded the initial data set was of poor quality.

Initially, the most popular words were associated with bedroom, dining room, or kitchen, which are not even in the top results of the output.

- 20 users
  - 618 games played
    - 5.37 s/round average
      - 2200 answers collected

4 CONCLUSION

Our approach of validation had satisfactory results, the design is quite problematic and still needs to be perfected.
The game engagement is good, the players felt entertained, and the proposed design has proven to be capable of validating knowledge (the more games played, the better).

	concept	last_hint	users
1	classroom	people	5
2	kindergarden classroom	puppy	5
3	dining room	curtains	3
4	conference room	chair	3

Figure 6: Words associated with the concepts (results), ranked on popularity

	concept_name	obj	popularity ▼ 1
1	bedroom	bed	18
2	bedroom	window	18
3	bedroom	pillow	14
4	dining room	chair	9
5	kitchen	cabinet	9

Figure 5: Words associated with the concepts (initial), ranked on popularity

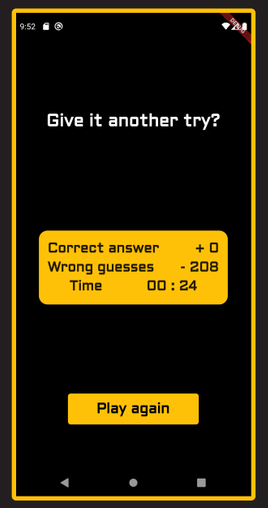

Figure 4: End Game Screen

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