Peer-graded Assignment: Designing a Data Model for 'Catch the Pink Flamingo'

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Instructions

My submission

Catch the Pink Flamingo

Submitted on July 2, 2025

PROMPT

We will need a table to keep track of **user clicks**. Below is a rough structure of the table, but it is incomplete in the following ways:

- 1. There are no primary keys,
- 2. More columns may need to be added,
- 3. The data types are not all specified. Copy the table below, paste it into your response,

and complete the missing parts of the schema according to the list above. You may provide a brief explanation as needed.



timestamp: dateTime clickedPoint: coordinate missionID: int(FK) isHit: ENUM/string Score: (int)

userID: long(PK) sessionID: long(PK)

- 100 4356 10/12/2015::14:15:09 (4,8) 13 10 yes
- 3241 10/23/2015::14:15:19 (20,5) 18 101 no 0
- 4537 11/4/2015::14:15:20 (17,43) 21 102 no 0
- There are another foreign key, missionID that point on the mission table.

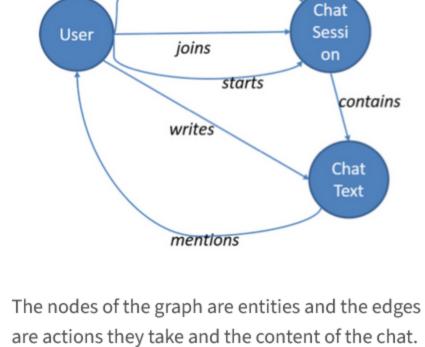
• Primary keys are userID and sessionID.

- Maybe Score (int) column should be added.
- sessionID is long, because it grows very fast. MissionID int should be enough because there are limited missions. For isHit there are two options: ENUM with yes or no allowed input or simply string.

Next, we will look at the **chat data**. We know users

PROMPT

can chat when they discuss their team's strategy or when they decide if a new player should join a team. This can be modeled as a graph, as shown below. leaves



When this graph is populated, we need to include a number of properties to the nodes and edges (recall the lecture covering the property graph model). For example, each action edge should have a timestamp attribute to indicate when the action occurred. Using this graph, we should be able to analyze different types of questions. List all node and edge properties for a graph.

Briefly explain how you would use the graph to answer the following five questions?

1. Which teams are having more

- conversations? 2. Do users chat more (or less) before they
- 3. What are the dominant terms (words) used in a chat session within a specific time

leave a team?

period?

- 4. Which users are most active in a specific chat session?

5. How many chat sessions is a user

participating in at the same time?

1 User 2 Session

ID Property(Node)

srcID descID Property(Edge)

3 Text

1 2 Leaves

1 2 Starts

1 2 Joins

- Contains 1 3 Writes

3 1 Mention

2. Group text messages based on users and two groups: based on edge type "leaves" and "join"+"starts"

3. create a document vector model and

1. find communities of users (teams) and

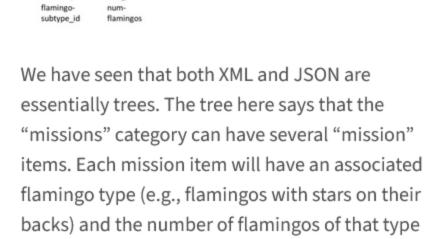
count the number of sessions.

- compute TF-IDF foreach text message sended within a specific time period. 4. Group nodes with edge type "write" by
- userID and sessionID and count them. 5. Group nodes with edge types "joins" or "starts" by userID and count them.
- PROMPT

We will need to design the structure of the game

itself. We will use the following partially specified

semistructured data object.



each subtype will have a list of properties. Explain how you might extend the tree with at least five specific flamingo properties. For example, beak-color whose values might be "bright-red" or "pink". Your objective is to make sure the tree has

enough properties to launch the game and

used so far.

connect with the three data structures we have

flamingos of different types and subtypes, where

released to the users to catch. We also have

I should extend the flamingo properties because the game grows over time. New flamingos will be released in the future for free or paid and it should

be enough difference and properties between each flamingo. This is useful for user engagement over time and user ranking.

- Flamingo Properties: flamingoName (string) ex. "Real Flaming" • beakColor (string) ex. pink, red, black...
- plumeColor (string) ex. pink, red, black... • legsColor (string) ex. pink, yellow, white
- dim (tuples of int, one for X and one for Y) catchingFoods (list of string) • life (int, the number of hits for catch)
- scoreHit (int) ex. from 1 to 10 or 20.

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