Intuitive Surgical Inc.

Digital Customer Solutions

Data/Software Engineering Take-Home Exam

1. Design a Database System based on Wingspan Birds Board Game, for 4 players. (<https://boardgamegeek.com/boardgame/266192/wingspan>). Please use Postgres Database for storing meta data information for every bird. Mongo DB or Cloud Bigtable is optional for storing complex Json-like dataset.
2. Examples of using Postgres:
   1. Imagine each bird card is scanned and saved as an image. Upload all images to a Google Cloud Storage and store image’s full path/location to card\_assets table, in filename column. Other columns in card\_assets could be file\_size, encrypt\_code, length, width, and etc.
   2. Over 170 birds are stored in bird table, with auto incrementing index. Other columns in bird table are basic bird info like bird\_name, wingspan, main\_food etc.
   3. All food types are stored in food table.
   4. All habitat types are stored in habitat table.
   5. All players are saved in user table. Each player has points that are accumulated during the game. Design a view/table that stores auto-sum of all points for each player.
3. Design queries based on the following:
   1. Find the top3 fastest-speed bird associated with Wingspan, food-token and habitat(s).
   2. Find duplicate birds if possible.
   3. At the end of the game, calculate all credits for each player.
4. Please design a software scheduler using Python/Groovy/Bash Script to backup all Databases every night, and restore them in new databases with selected tables with your choice.
5. (Optional) Design a RestAPI that can be used for searching a bird, and find its power, habitat, wingspan etc. that may help a user to collect more points/credits.