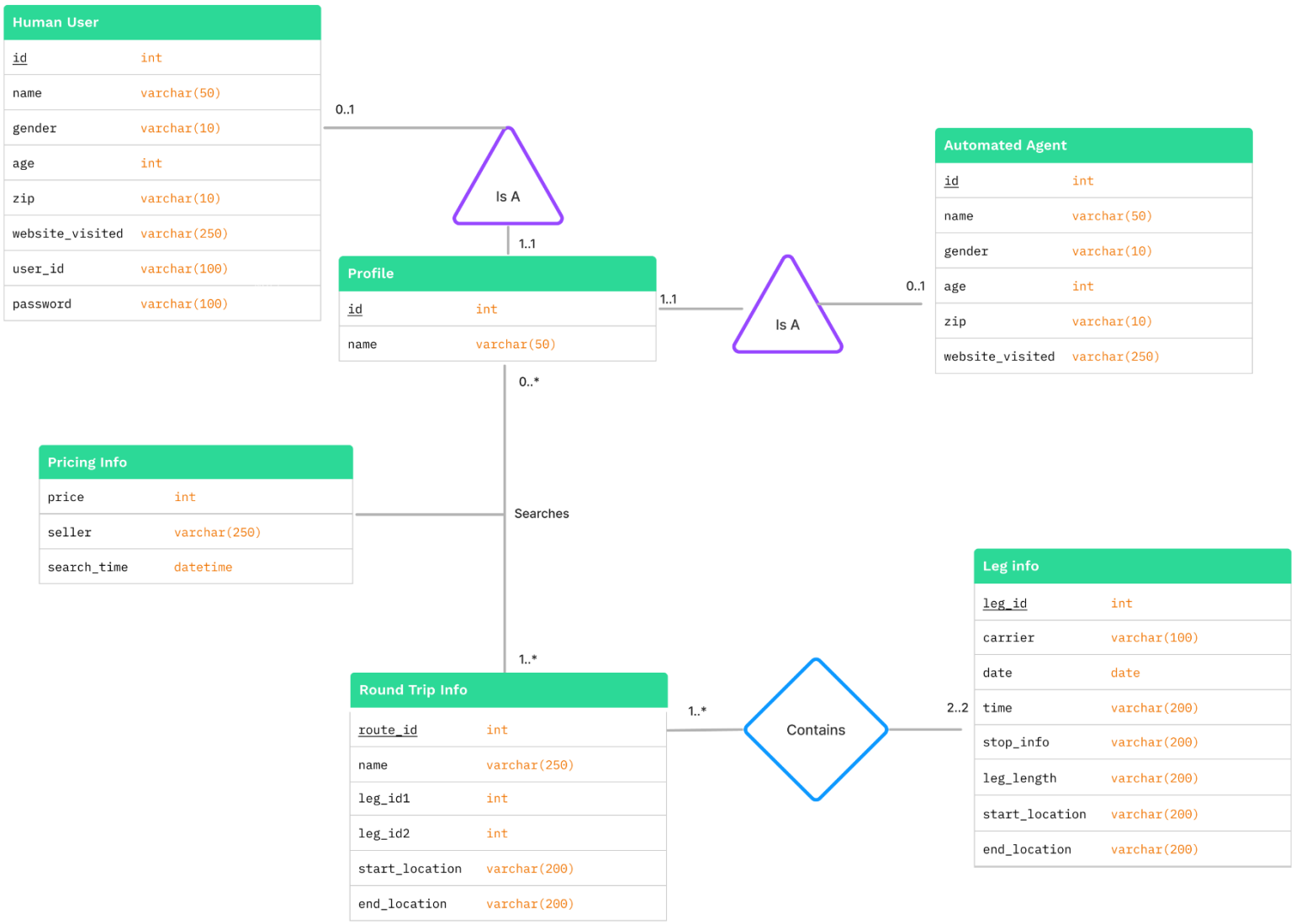
UML Diagram


Human User
id int
name varchar(50)
gender varchar(10)
age int
zip varchar(10)
website_visited varchar(250)
user_id varchar(100)
password varchar(100)
0..1
Is A
1..1
Profile
id int
name varchar(50)
1..1
Is A
0..1
Automated Agent
id int
name varchar(50)
gender varchar(10)
age int
zip varchar(10)
website_visited varchar(250)
0..*
Pricing Info
price int
seller varchar(250)
search_time datetime
Searches
1..*
Round Trip Info
route_id int
name varchar(250)
leg_id1 int
leg_id2 int
start_location varchar(200)
end_location varchar(200)
1..*
Contains
2..2
Leg info
leg_id int
carrier varchar(100)
date date
time varchar(200)
stop_info varchar(200)
leg_length varchar(200)
start_location varchar(200)
end_location varchar(200)

Assumptions

We make the following assumptions for our UML diagram:

- Each profile must search for at least one route to exist on the profiles table.
- Each route has exactly two corresponding legs; one for the departing `leg_id` and one for the returning `leg_id`.
- Each leg is part of at least one Round Trip, and may be part of multiple Round Trips.
- There is a subclass structure between Profile and Human User / Automated User; each `id` in the profiles table is found in only one of the subclass tables: Human User or Automated User. Every `id` on the Human User or Automated User tables is found on the Profiles table.

Entity Descriptions

Human User - stores login and attribute information about actual users on the website.
Automated Agent - stores attribute information of pre-defined “sock puppet” users that scraped the initial dataset.
Profile - parent of the Human User and Automated Agent subclasses, links both into a unified entity for searching.
Round Trip Info - Combines the criteria entered by the users in search with the legs resulting from the search into a “trip plan”.
Pricing Info - Transactional table that returns the pricing associated with the selected legs given to the user in their “trip plan” returned in Round Trip Info.
Leg Info - The flight details for each “leg” (individual flight) of the “trip plan” given to the user by Round Trip Info.

Relationship Descriptions

Human User and Automated Agent are both subclasses of Profile; each profile is *either* a Human User *or* an Automated Agent.
Using their Profile, a user (Human or Automated) *searches* for criteria in Round Trip Info, which is matched with Pricing Info based on the results selected by the database.
Each Round Trip Info corresponds to two Leg Info entries: one for the departure leg of the trip and one for the return leg of the trip.

Relational Schema

```
AutomatedAgent(
      id : INT [PK] [FK to Profile.id],
      name : VARCHAR(50),
      gender : VARCHAR(10),
      age : INT,
      zip : VARCHAR(10),
      website_visited : VARCHAR(250)
)

HumanUser(
      id : INT [PK] [FK to Profile.id],
      name : VARCHAR(50),
      gender : VARCHAR(10),
      age : INT,
      zip : VARCHAR(10),
      website_visited : VARCHAR(250),
      user_id : VARCHAR(100),
      password : VARCHAR(100)
)

Profile(
      id : INT [PK],
      name : VARCHAR(50)
)

PricingInfo(
      price : INT,
      seller : VARCHAR(250),
      search_time : DATETIME
)

RoundTripInfo(
      route_id : INT [PK],
      name : VARCHAR(250),
      leg_id1 : INT [FK references LegInfo.leg_id],
      leg_id2 : INT [FK references LegInfo.leg_id],
      start_location : VARCHAR(200),
      end_location : VARCHAR(200)
)
```

```
LegInfo(
      leg_id : INT [PK],
      carrier : VARCHAR(100),
      date : DATE,
      time : VARCHAR(100),
      stop_info : VARCHAR(200),
      leg_length : VARCHAR(200),
      start_location : VARCHAR(200),
      end_location : VARCHAR(200)
)
```