

Problem 4: Ghostbusters Database

"Who're you gonna call? Ghostbusters!"

Your database will store information for a ghost hunting company, about different supernatural events the company has been called to handle. The primary object type in your database will be an **event**. For each **event**, you should store the following properties:

- Date and Time of Event: format "yyyy-mm-dd hh:mm", Western year. You should not allow the user to modify this value once it has been entered and validated (because the event code depends on this property). Must not be in the future, but you can enter dates in the past, within the past **ten years**.
- Event code: format "yyyy-nnnn", where 'yyyy' is the year the event occurred and 'n' is a digit. For example, "2017-0198" Your program should **generate** this code when you first create the record. The first event reported as occurring in 2017 should have the code "2017-0001".
- Types of event: V (Vampire), W (Werewolf), G (Ghost), Z (Zombie), or O (Other). A single event can have more than one type, separated by commas, e.g. "V,W,Z" for a combination of a vampire, a werewolf and a zombie. If there is more than one event type, they can be in any order, e.g. "W,V,Z" or "Z,W,V".
- Date and Time of Investigation: format "yyyy-mm-dd hh:mm", Western year. Must be later than the date and time of the event. (This means it could be the same date, as long as the time is later.)
- Person investigating the event: first and/or last name (you must keep the space if both are entered). Allow a period ("."), dash ("-") or an apostrophe ("'") but no other punctuation. Examples: "Joe", "Henry O'Neill", "Louis Van Arple III", "Jimmy Jones Jr.", "Martha Farthington-Smith".
- Person reporting event: same format as person investigating event.
- Phone number of person reporting the event, format "0aa-nnnnnn", where "0aa" is the two or three digit city or mobile code starting with zero, and "nnnnnn" is six to eight digits of phone number. For example: "085-1235612", "053-230110", "02-4709088". (Note this assumes the phone number is in Thailand.) You do not have to check that the city code is valid for Thailand.
- Latitude of event location in the form nn.nnnn. Latitude values for Thailand are (approximately) between 8.0000 and 22.0000. Reject any latitude value that is not in this range.
- Longitude of event location in the form nn.nnnn or nnn.nnnn. Longitude values for Thailand must be between 98.0000 and 102.0000.
- Result: one of "Success", "Failure" or "Unknown"

Remember that you must check the format of each of these values when the user enters them. The key property for this database is **Event code**. You must also allow the user to search by **Event type**, **Event year**, **Result**, or a combination. In each of these cases, you should display all records that match the search string. For event type, you should allow a partial match. That is, if the user searches for events of type "V", this should match a "V,W" or "W,V,Z" event as well. Each event code must be unique and you must not allow the user to change the event code. Also the user may not modify date and time of an event after the record has been created.