PRA Coursework Report

Extension 1:

Searching for racers using bib numbers

Context

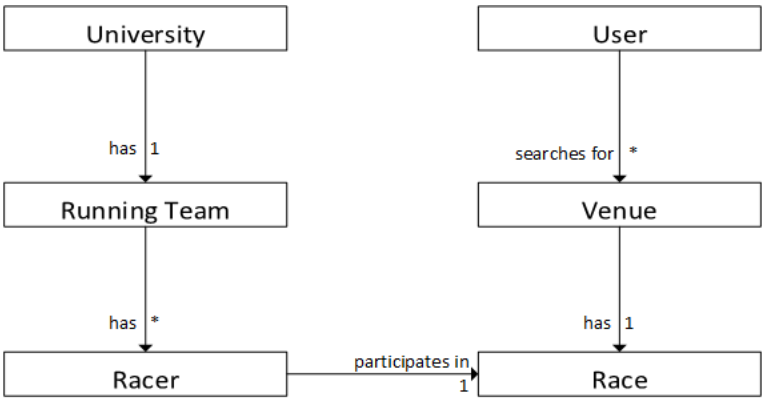
John Applestuff, head of sports at SUSU (Some University Student Union):
"At our university, we attempt to recognize and to award racers in our SU Running Team who participate in races at local or national venues/cities. For example, if our Running Team (RT) members participate in a race, we award them in 'hit points' depending on their positions in the race. For example, if Dave is the 20th in a race, then he receives 20 points. The racers with the least number of points at the end of the year get awarded.

Every time the runners participate in a race, I have to go through the whole list of racers to look for their bib numbers, which are given to me by the president of the RT after the race. It would be really helpful if the software was able to search for bib numbers instead of me having to browse the list of sometimes a hundred or more racers. We aren't the only university that has a running club either, and most of them have this problem too."

Domain

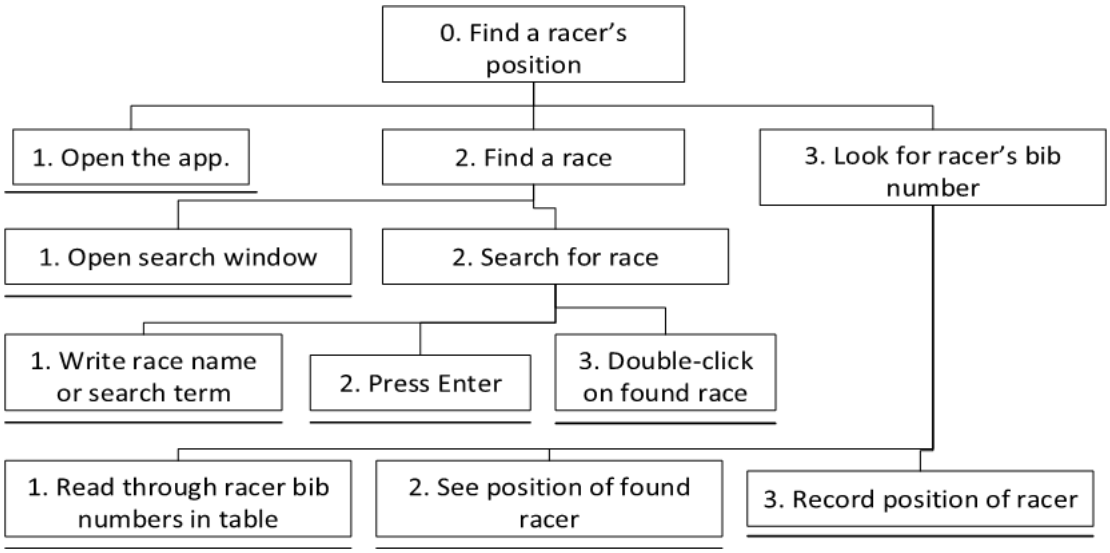
Nouns: *"At our **university**", "award **racers**", "our SU **Running Team**", "participate in **races** at local or national **venues/cities**".*

- Each university has one running team.
- Each running team can have one or more racers.
- Each racer participates in one race.
- A user can search in a large number of venues.
- Each venue has only one race.



Hierarchical Task Analysis

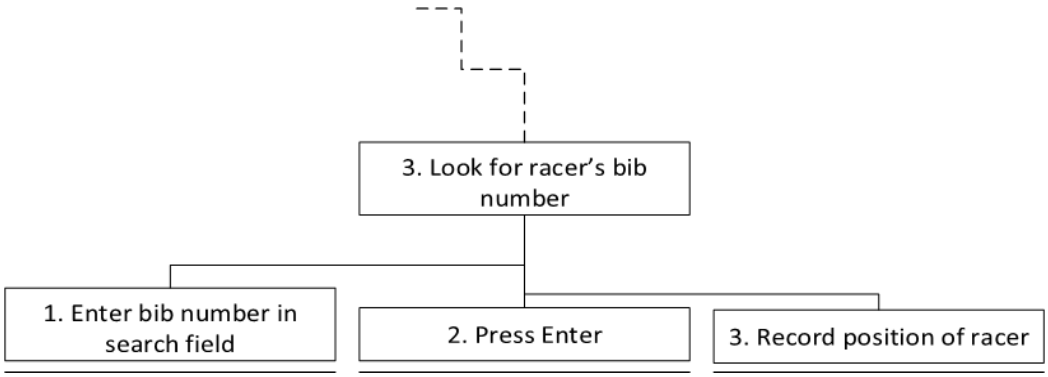
Before implementing the search extension:



Plan 1: Do 1, then 2, then repeat 3 as many times as needed.
Plan 2: Do 1, then repeat 2 as many times as needed, then repeat 3 as many times as needed.
Plan 2: Repeat 3.1 as many times as needed.

Step 3.1 can take a very long time, and it depends on many factors including the number of racers, the reading speed of the user and the racer's position.

Potentially, after implementing the search extension:



Plan 1: Do 1, then 2, then repeat 3 as many times as needed.
Plan 2: Do 1, then repeat 2 as many times as needed, then repeat 3 as many times as needed.

I gave five users of non-technical backgrounds a sheet of paper containing two bib numbers and asked them not to look at it. I asked them that, once they are instructed to look at it, to pick one immediately then type it into a text box and press Enter (step 3.1 and 3.2 combined). On average, it took 4.74 seconds to complete, which would make finding racers using bib numbers much more efficient that it is before the implementation of the extension.

First Year Computer Science Programming Applications

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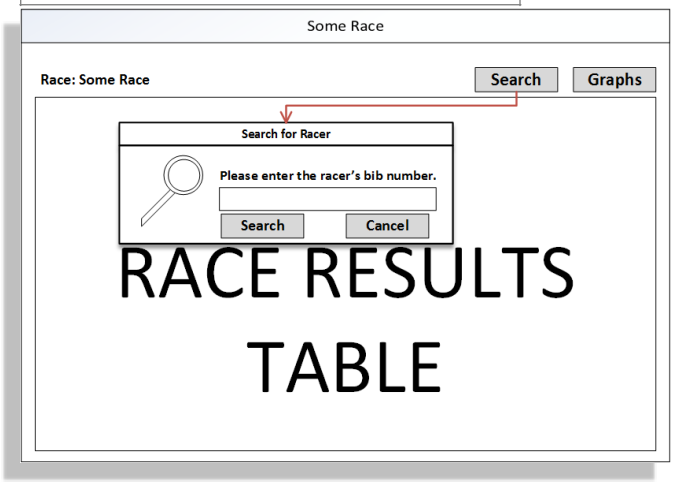
Design

There are two possible ways to implement the extension.

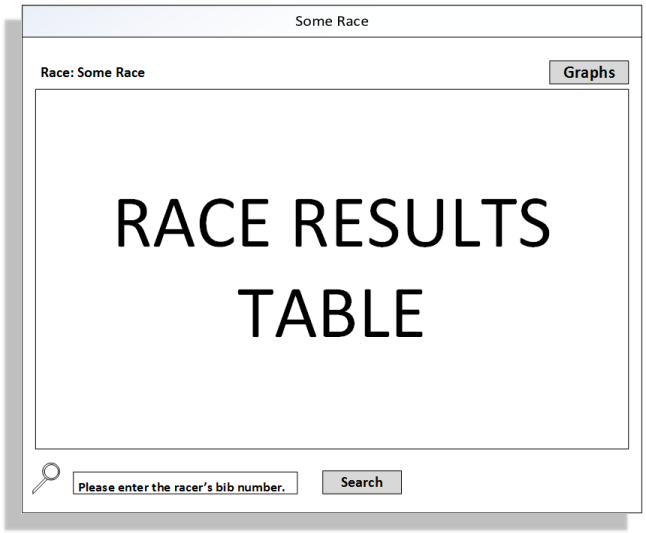
1 - Bib Number Search Pop-up Window

Actions Required to Search
1. Move mouse to Search button 2. Click on Search button 3. Move mouse to text field 4. Click on text field 5. Enter bib number 6. Move mouse to Search button 7. Click on Search button 8. Repeat from 1.



2 - Bib Number Search Text Field

Actions Required to Search
1. Move mouse to text field 2. Click on text field 3. Enter bib number 4. Click Search button/press Enter 5. Repeat from 2.



Assuming that the user enters correct bib numbers, to consecutively search for two racers, the first design would require 14 actions (1-7 then 1-7), while the second design would require only 7 (1-4 then 2-4, as we would skip 1 assuming the user has not moved the cursor to a different spot). Therefore, I believe that the second design choice is more suitable, due to the fact that it requires fewer actions and therefore is less time consuming. It is also easier for a user to focus on one area of the window to search, rather than click a button that would open a second window at a different spot from where he clicked it.

Alternative Methods

An alternative method is to be able to add Friends to the list using only their bib numbers, and then clicking “Find Friends”, which would return a two-column table that contains the bib number in one column, and the race that they participated in in the other column. However, the user’s participants only attend one race at a time together, so it would be easier to search from the race table itself.

Extension 2:

Searching for races on a map

Context

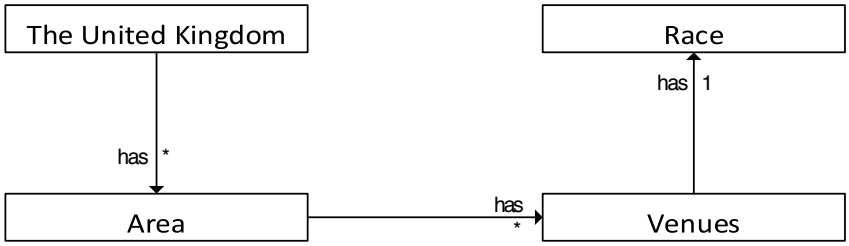
Mark Davidson, analyst at the British Sports Statistics Association:
"Many cities and areas in the UK have similar names, and we are trying to see trends and gender/age distributions in certain areas of the country. For example, we look for races around the London area such as Richmond Park. However, many times, my colleagues misspell venues and their handwriting isn't very clear. Once, a colleague told me to see Telford but I was supposed to see Thetford. To make sure I have the correct details, I have to go on an online map to check the location myself.

If the software had a way to help me make sure that I'm looking for the correct city, it'd make things so much easier for me."

Domain

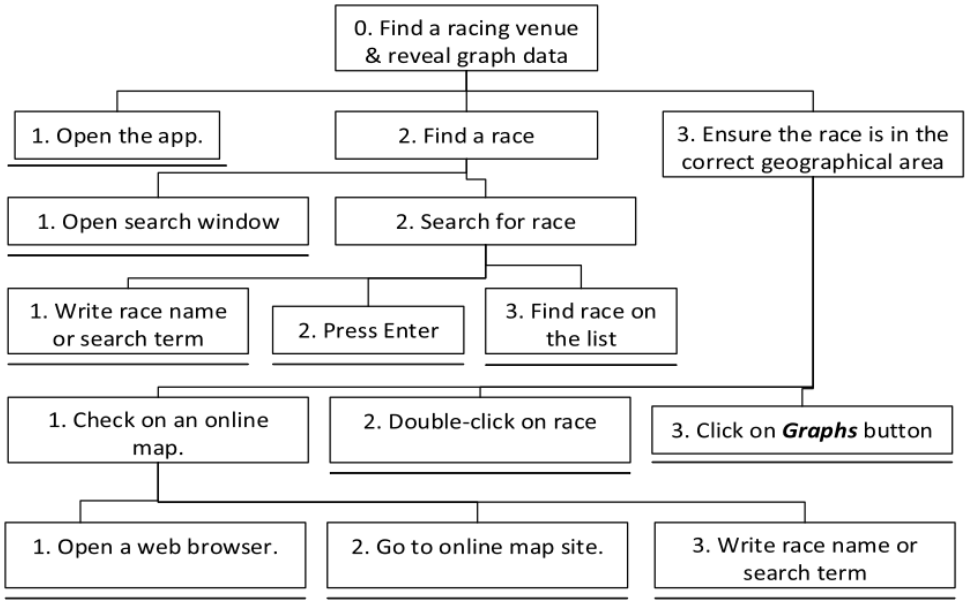
Nouns: *"my colleagues misspell **venues**", "certain **areas**", "the **country**", "we look for **races**"*

- The country is geographically divided into areas.
- Each area has several venues.
- Each venue has only one race.



Hierarchical Task Analysis

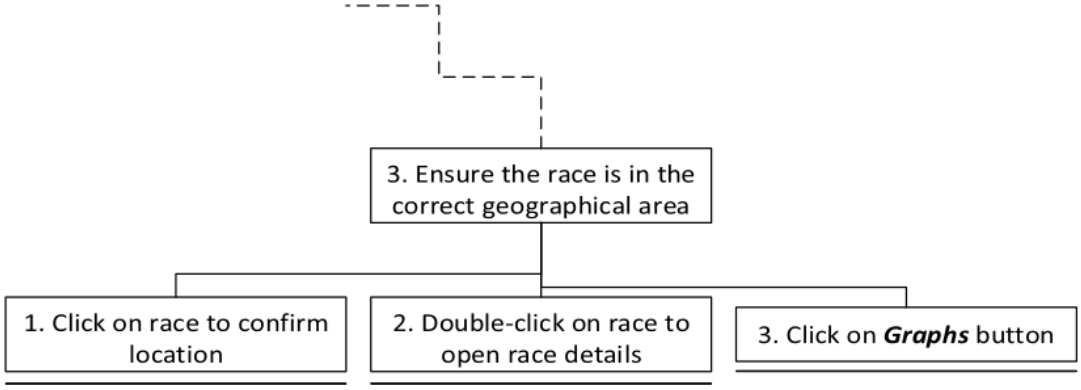
Before implementing the map extension:



Plan 1: Do 1, then repeat 2 and 3 as many times as needed.

Plan 2: Do 1, then repeat 2 as many times as needed, then repeat 3 as many times as needed.

Step 3.1 can take a very long time, and it depends on many factors including the speed of the computer (how fast it can open the web browser), the speed of the internet and the user's typing speed. Potentially, after implementing the map extension:



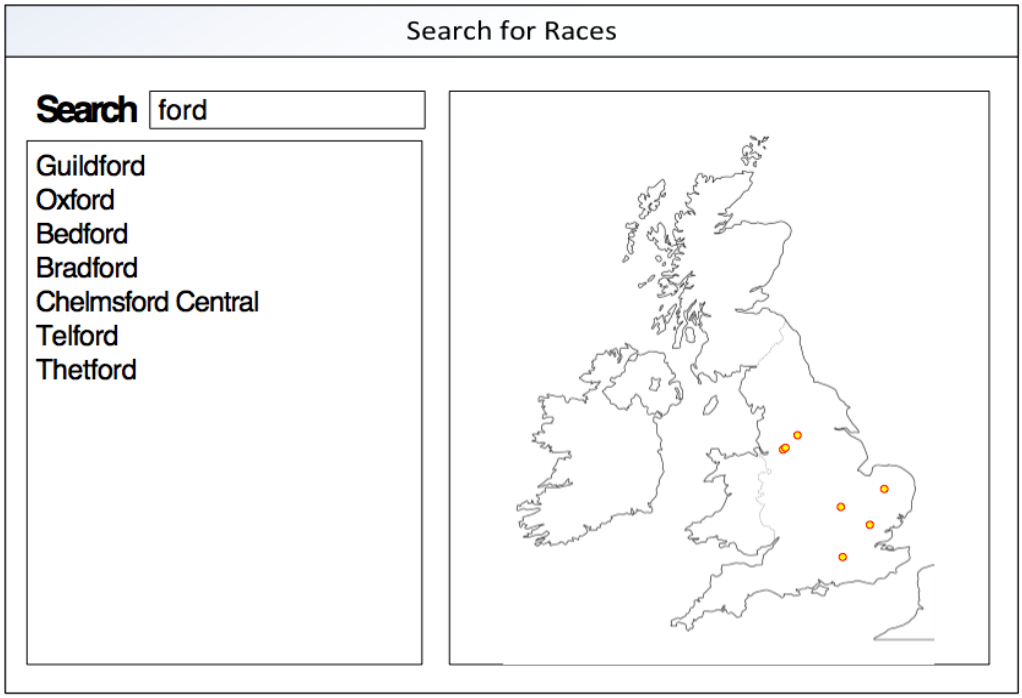
Plan 1: Do 1, then repeat 2 and 3 as many times as needed.

The map reduces the need to open any other software such as a web browser, which would use more memory on the machine and also take more time. The user would only need to look at the map that's right next to where he was initially looking, which reduces the number of actions the user has to take to increase the task and therefore increases the user's efficiency in completing that task.

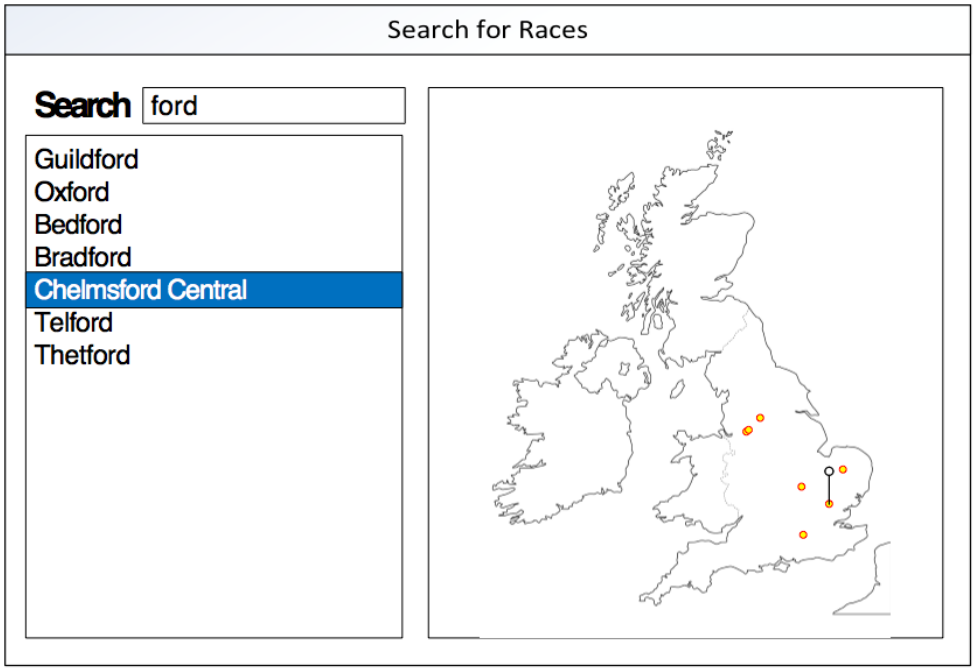
Design

In the Search Window, I believe it would be useful to have a map, next to the search text field and results list. This would make it easier for the user to quickly see if the city he's looking for is actually in that area. If he was looking for a city/venue in Scotland and sees no results in Scotland, he can be sure he misspelled the city/venue name, or that it doesn't exist.

When a term/venue is searched, points show on the map to show where the venues on the list of search results appear.



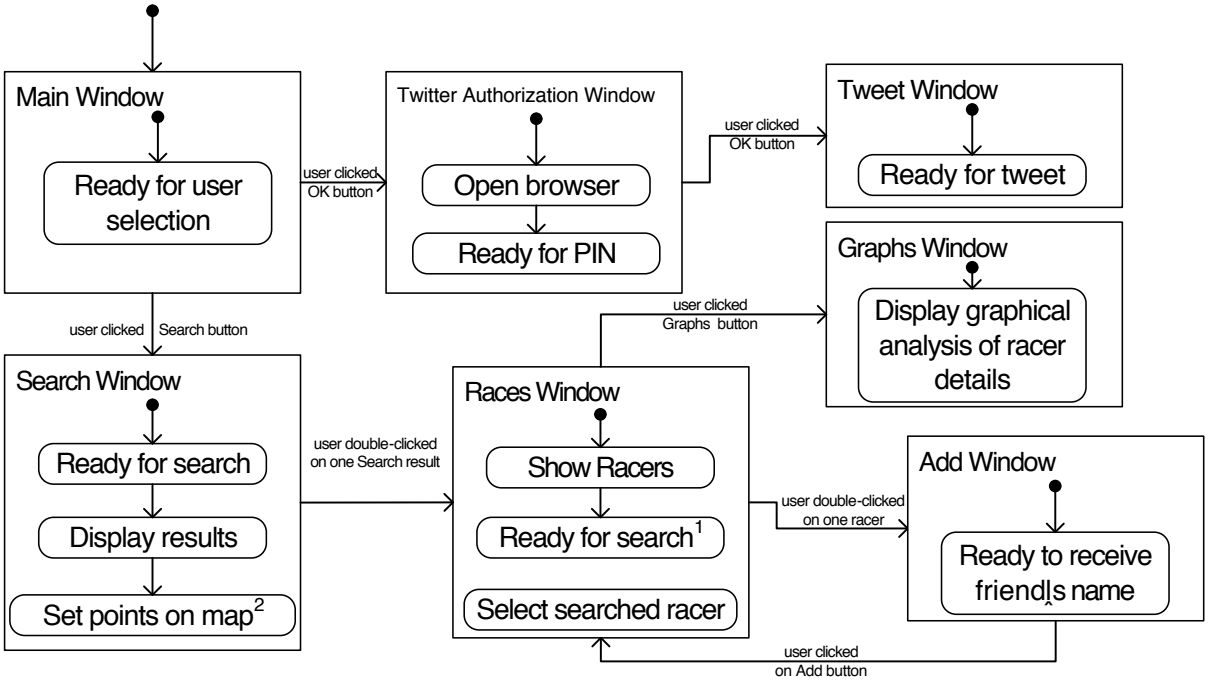
When a city is clicked once (and when it's highlighted/selected on the list), a pin would appear on top of the selected city to confirm the location of the venue.



Alternative Methods

An alternative method could be to include a "See [city name] on Map" button, whenever a race is clicked once, appear below the list of races, which would open up a link to the user's preferred online map website.

Global Navigation Structure after Extensions



[1] Extension 1
[2] Extension 2