Running Application Extensions

The application built from the provided API serves its purpose, but a number of extensions and modifications could significantly expand its functionality and usefulness. Below, two of these potential extensions have been explained and explored: the capability to assign multiples races to one friend, and the ability to search for a race by location.

Extension 1: Multiple Races per Friend with Analysis

Context

A runner uses the application to keep track of race times for both themselves and their friends. When new race results are available through the API, they are able to assign multiple races to a friend (or to themselves). Combined with information attached to each race of when it took place and the distance it covered, the information collected for each friend is aggregated into a temporal analysis of their speed/pace, showing them an increase/decrease trend over time. This monitor of their progress is used to improve and evaluate their training, allowing users to set aims for themselves (e.g. "by December, I want to average 12km/h over a 5k race").
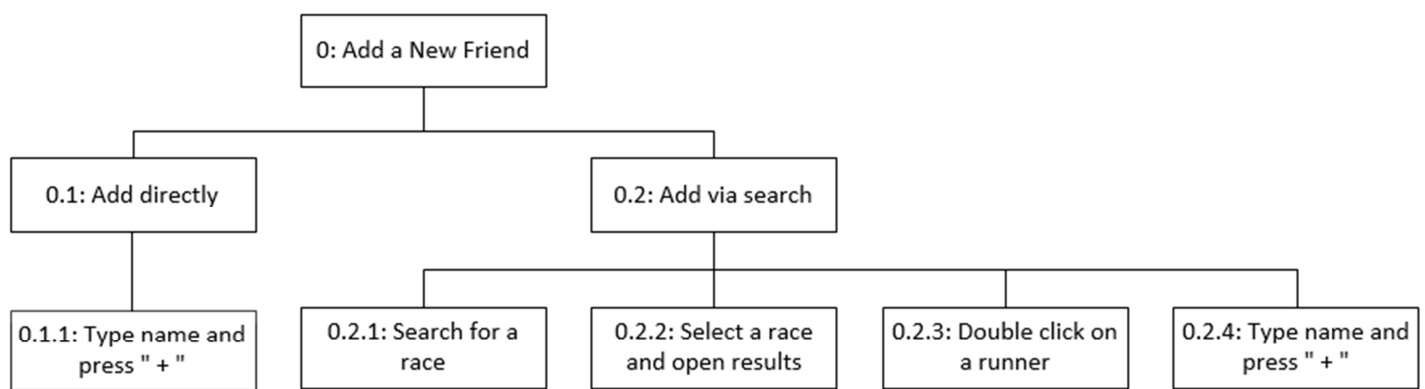
Domain

The domain of the running application would need to be extended slightly to accommodate multiple race results being attributed to one friend, as illustrated below:
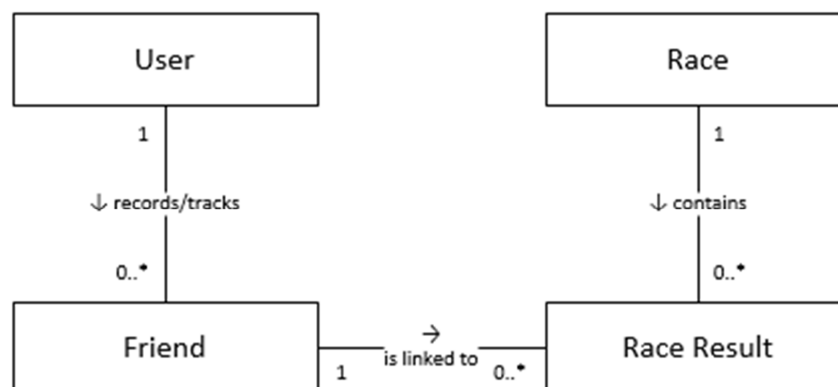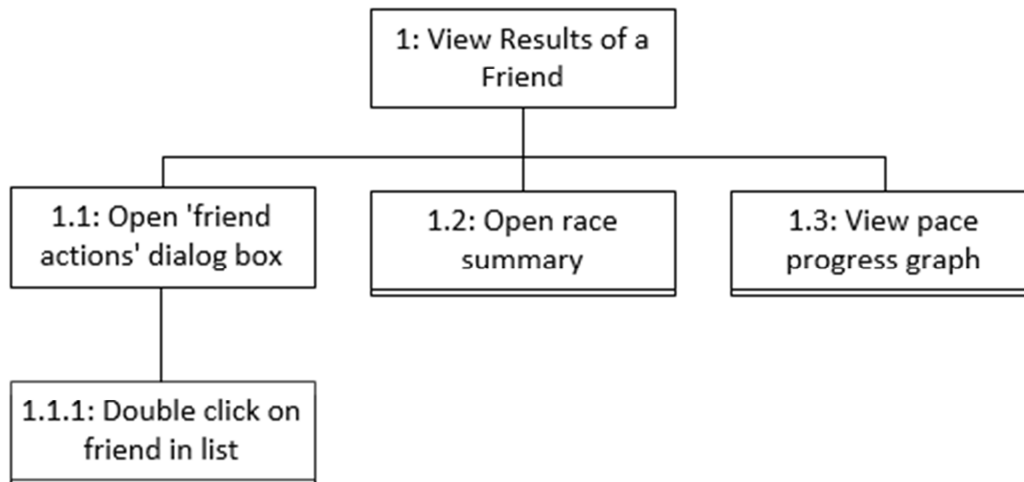

Hierarchal Task Analysis

The two main tasks that change with this extension is the adding of friends and the displaying of results. Both have been constructed in HTA below:

Plan 1: Do 0.1 or 0.2.
Plan 2: Do 0.1.1 as many times as necessary.
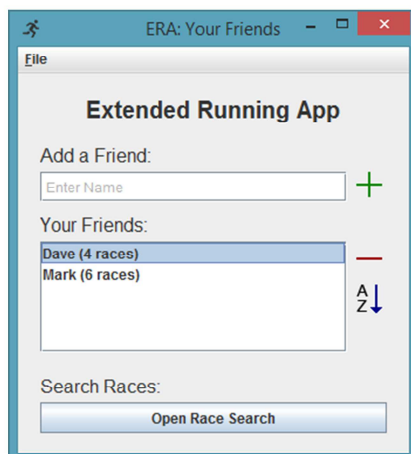**Plan 3:** Do 0.2.1 and 0.2.2 as many times as necessary to find a friend, then do 0.2.3 and do 0.2.4.

Plan: Do 1.1, then 1.2 or 1.3.

Window Models

The main window would change to show a more appropriate friend list. Two additional windows would be created: a race summary and a pace progress graph for each runner. These three windows are modelled below.

To the left, the more appropriate friend list is visible. Double clicking on a friend will bring up a simple action-choice dialog box, allowing the user to choose between either the race summary window or the progress graph window. **To the right**, the race summary for a runner is shown. This window shows the race history for a runner. Double clicking on any row of the table would open that race in the results window, with the user's friend(s) highlighted. **Below**, the pace progress chart for a runner is shown. This window will plot the pace achieved in each race by a runner over time, using the dates of the races to show an accurate progression.
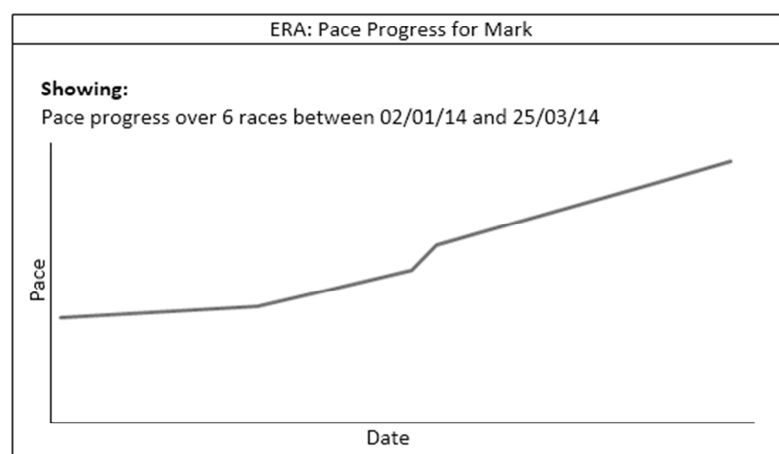
Extension 2: Location- and Time-Based Race Search

Context

A user of the application knows that their friend ran a race in London, but they can't remember the actual name of the location. Alternatively, a user is curious to see results and/or research races in a certain area. In both of these cases, the user uses a location-based race search to find all races that took place within a certain radius of a specified location (e.g. all races that took place within 10 miles of the centre of London). Optionally, the user will also specify a time constraint, for example to find all races in London that happened during the last month.

Domain

The domain of the running application would need to be extended slightly to allow date, time and more precise location data to be stored with each race, as shown below. Non-detailed objects would remain the same as they do in the current implementation.
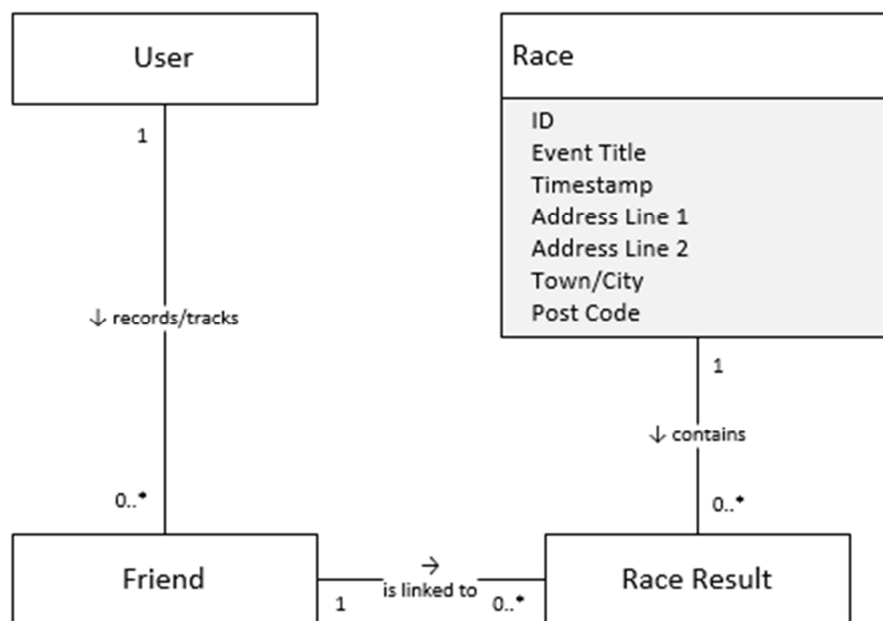
Hierarchal Task Analysis

The new task inserted in this extension – searching for a race – is constructed in as an HTA diagram below:
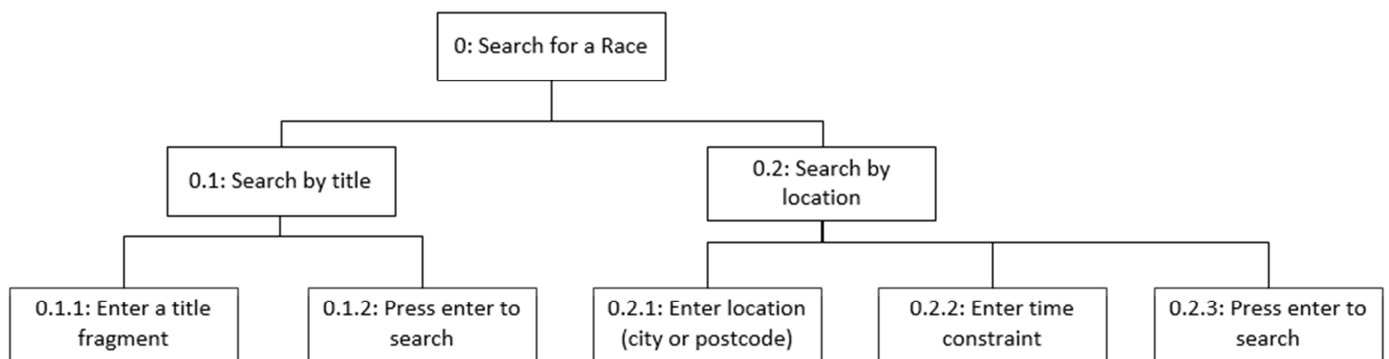
Plan 1: Do 0.1 or 0.2.
Plan 2: Do 0.1.1, then do 0.1.2.
Plan 3: Do 0.2.1, then optionally do 0.2.2, then do 0.2.3.

Window Models

The existing windows in the application would not change. Rather, two new windows would be added: search by location, and the results for that search. These two windows are modelled below.

In the search window (below), users can enter a location they wish to search for, with restraints on distance from that location and the date that the race took place. The distance field would allow the user to select a range of options (e.g. Within 1 mile, 3 miles, 5 miles, 10 miles, 20 miles, any distance), and both date fields would create calendar dialogues to make entering a date as easy and accurate as possible.

```
ERA: Search for a Race

Location:
Within [ 5 miles ▽ ] of [ WC2R 2LS                ]

Date:
Between [   01/03/2014   ] and [   31/03/14   ]

[        Search        ]
```

The results window (below) shows how the results from the above search would be displayed to the user. They are sorted in ascending order of distance from the search term, to provide the most user-friendly experience by conforming to existing conventions, with which users will likely be familiar. As is standard, row headers would be clickable to allow the user to customise their sorting preferences.

```
ERA: Search Results

Races within 5 miles of WC2R 2LS, between 01/03/14 and 31/03/14:

Date          Event                          Distance
03/03/2014    Annual Strand Sprint           <1 mile
31/03/2014    Deadline Day Dash              <1 mile
24/03/2014    Trafalgar Traffic Tournament   1.4 miles
12/03/2014    Haymarket Hash                 2.3 miles
14/03/2014    Regent's Park Run              4.5 miles
```

Alternative Approach

This extension could also be implemented with a map-based search, showing all races on a map of the UK (or other appropriate locale for different versions of the API) and allowing users to find races by navigating and zooming on the map until they find races they are interested in, and then clicking the map "pins" to open details of that race.

Assumptions & Limitations

Both of the extensions above make the assumption that the API provides access to continually updated race data from a fixed point in time onwards, with the ability to return both current and previously run races. If this is not the

case then both modifications would be severely impacted: the first would become almost entirely a moot point; the second would be implemented as a location-only search with no time constraints.

The first extension also assumes that information about the length of the race is included in the API data. Without this the pace-progress feature could not be implemented, removing the second half of the first extension and much of the capabilities for runners to track their progress (the only other measure of performance would be their finishing position).

Global Navigation Structure

Friend Adding/ Viewing

Listing friends

↓

Waiting for friend to be added/selected

Click button for race search →

Race Search by Title

Waiting for user input

Click on 'search' →

Search Results

Displaying results

↓

Waiting for user selection

Click button for location race search →

Race Search by Location

Waiting for user input

Click on 'search' →

Double click on friend

↓

Friend Action Choice

Waiting for user selection

Click button to open progress graph ↓

Click button to open race summary ↓

Double click on race

Individual Race Results

Displaying results

↓

Waiting for user selection

Double click on result →

Add Individual Friend

Waiting for user input

Click on 'save friend' ←

Friend's Pace Progress Graph

Displaying graph

↓

Waiting for display option change

Friend's Race Summary

Displaying summary

↓

Waiting for display option change or race selection

Double click on race