**To**: Bruce Kornreich

**From**: Paul Cashman

**Subj**: First thoughts on feline obesity control app

**Date**: April 28, 2015 (Updated based on July 18, 2015 conversion with BK and Dr. Joe Wakshlag)

I’ve been thinking about the feline obesity control app you proposed on Friday, and here is an assortment of my first thoughts about it, in no special order.

**Is there a need for this app? What’s different about it vs. what’s on the market?**

Current algorithms apparently don’t work very well. Some purportedly aimed at 1% weight loss per week and achieved 0%.

**Name, trademark, and URL**

I am not great at naming things, but here I think I have a winner: FitCat. (My first thought was FatCat, but let’s be positive and assume that the app will help cats lose weight.) A search of the trademark database of the US Patent and Trademark Office shows that the trademark FitCat expired in 2004, so we can pick it up easily (this is discussed more below under “Intellectual property”).

One variant of this idea, looking ahead to the future, is that FitCat could be the name for a *line* of feline health apps, of which weight control/obesity management is simply the first. So this particular app would be FitCat: Weight Control, or something like that.

There is no app named FitCat in the Apple App Store, nor, as far as I can tell, for Android devices.

(By the way, I am proposing to make this an iOS app that will run on iPhones and iPads for iOS version 8 [the current version] or later. An Android app is not part of the plan, nor is a web-based version. As of this past January, over one billion iOS devices have been sold, at least half of which run iOS 8. So I don’t think we’re limiting the market to an undue extent.)

The URL [www.fitcat.com](http://www.fitcat.com) is taken, but the URL [www.fitcat.net](http://www.fitcat.net) is not, nor is [www.fitcat.org](http://www.fitcat.org). GoDaddy.com will sell the rights to those two URLs for $18, plus a very small annual maintenance fee after year 1.

Why do we need URLs? History in Motion is a good example. I have the URL [www.historyinmotion.org](http://www.historyinmotion.org) for my main web site where people can learn about the app, see training and example videos, etc. I have the URL [www.historyinmotion.info](http://www.historyinmotion.info) as the app itself: if you point your browser there, the app will ask you to log in (if it doesn’t already recognize you) and you can create and explore scenarios, etc. There is also a URL which users don’t see, namely <https://historyinmotion.herokuapp.com>. This is where the History in Motion server and database live, on the cloud platform managed by Heroku. (Cornell uses Heroku to host some of its applications, such as the [CU Volunteer database](mailto:https://givegab-cornell-alumni.herokuapp.com/signup%3Fid=interests).)

For FitCat, I could see either [www.fitcat.net](http://www.fitcat.net) or [www.fitcat.org](http://www.fitcat.org) being the “informational” web site (probably linked to from the main CFHC web site). We’ll need a server as well, but where that’s hosted need not concern us just now. The informational web site will tell people about the app, give behavioral tips on how to manage their cat’s weight, and provide a forum where people can ask questions, discuss their use of the app, etc.

There are two reasons for having a server, by the way. First, we’ll need a place to host the nutritional database that the FitCat app will access. Second, I envision that users will need/want to back up the daily data about their cats onto cloud storage rather than keeping it all on their devices. (Suppose you lose your iPhone; you don’t want to lose your cat’s weight loss records into the bargain.) Actually, we’ll do the data backup automatically in the background, but you get the point.

**Intellectual property**

I think all IP in this venture should be owned by the Cornell Feline Health Center, or the Cornell Vet School, or Cornell University. I don’t know what the rules are at Cornell about what University unit gets to own what. The IP will principally be (1) the copyrighted code of the app, (2) the trademark of the app, and (3) any algorithms that may be patentable. I am rather dubious about the last item and wouldn’t spend a lot of effort on it. At first glance, if there is something special, unique, and non-obvious about how to map a cat’s physical parameters (e.g., target weight loss amount, age, gender, spayed/neutered vs. not, etc.) into a suggested weight-loss program, that might be patentable. You and Joe, as practitioners learned in the field, can best judge that. I am dubious about software patents generally, but that’s just me.

I think it would be a good idea to get in touch with the Cornell Center for Technology Licensing (<http://www.ctl.cornell.edu/>) at your earliest convenience and set up a three-way call (I’d like to be in on it) so we understand the ground rules before we get too far along. Key questions are:

* Does Cornell even care about apps? What licensing rules apply to them?
* Can FitCat use the CFHC name and logo where appropriate? Bruce definitely thinks so.
* Who owns the trademark, URLs, and copyright on the code? Cornell; which unit can be determined later.
* Should we even get a trademark? The cost can range from $1000 - $1500, and just using the name “FitCat” establishes its precedent for commercial use if someone tries to trademark it later.

**Bar code scanning and the database of products**

We talked about being able to scan the Universal Product Codes (UPCs) off the cat food boxes and cans, and then retrieving the food’s nutritional profile from our database. I have a couple of thoughts here.

First, if we have the nutritional database, the easiest thing to get going in version 1 would be to enable the user to select a food using an autocompletion search. Autocompletion simply means that as you type successive letters, the app produces a scrolling list of all the matches for what you’ve typed, so you can either continue to type the name or, at some point, scroll down the list and choose one of the matching options. When you type into a Google search box, that’s what happens. So if you start by typing “p”, all the names of different varieties of Purina brand foods would come up. If you typed “purina c,” only the Purina Cat Chow names would match, and so on.

Second, most people probably only use a small number of food brands, types, and flavors. So the app should allow them, once they’ve found a food they use, to note it as a favorite. (As it happens, I’ve built a sample app that does this.) So when we get to the Feeding Phase of the app (discussed below), the user can select from his/her list of favorite foods.

Third, if at some point it makes sense to add bar code scanning, that is easily done, but I wouldn’t make that a version 1 feature. There are bar code scanning libraries that can be incorporated into apps, but I note that the more robust ones say they can deal with low-light situations, smudged bar codes, etc. They can be costly – up to a few thousand dollars per month. Also, from an ease-of-use standpoint, I think it might be easier (or just as easy) to start typing the name and allow autocomplete to do most of the work, than to hold the can in one hand and try to focus the iPhone or iPad on the bar code, get it in focus, and center it in the field that will trigger recognition. (If you’ve ever tried scanning a QR code from your iPhone, you’ll know what I mean.)

What this suggests to me is that in version 1, we need not be concerned about a product’s UPC. We can use our own internally generated product code. Adding a UPC at a later time wouldn’t be very hard[[1]](#footnote--1).

**Phases of the weight loss process as reflected in the app**

On Friday we talked about the app having the following phases:

1. **Plan**: Set up the weight-loss plan.
2. **Baseline**: Owner spends the first week feeding cat as normal, but (in a multi-cat household) putting the food down at certain times and then picking it up, so the cats learn not to graze but to eat when it’s feeding time.
3. **Shopping**: Getting nutritional profiles of foods while shopping.
4. **Feeding**: Recording how much and what kinds of foods the cat is fed, whenever the food is doled out.
5. **Tracking**: Looking at the feeding and nutritional history, and getting the app’s projections of where the cat’s weight will be over time.

I’m not so sure now that the baseline phase is necessary or adds anything. Why wouldn’t the owner simply start feeding the cat(s) on the new diet **and**put down the food only at specific times? I’m open to including or not including the baseline phase, depending on what you think best.

**Plan phase**

The key aspects of the plan phase are:

* Get the cat’s[[2]](#footnote-0) name and relevant physical parameters. You suggested the starting weight and target weight. Are there any others that would affect the maximum or minimum rate of weight loss, such as gender, spay/neuter status, age, indoor vs. outdoor, etc.?  
    
  Discussion on 7/18/15 suggested that starting and target weights are the only parameters to be concerned with. Joe felt that regardless of whether the cat is indoor, outdoor, or indoor/outdoor, the basal metabolism requirements are about the same. Age does not seem to matter, either.
* Given the physical parameters, how is that mapped into a suggested weight loss program? Is there an equation? A set of lookup tables? Rules of thumb based on ranges of the parameters?  
    
  The key here is for the owner or vet to determine the cat’s body condition score (BCS). (For a diagram, see <http://www.wsava.org/sites/default/files/Body%20condition%20score%20chart%20cats.pdf>.) BCS is a nine-point scale where 1 is a severely undernourished cat and 9 is the equivalent of morbid obesity in humans. Unlike the body mass index (BMI) numerical measure for humans, BCS is a visual and tactile measure based on, e.g., the appearance of the ribs, how palpable they are under a layer of fat, and other factors.   
    
  There is a standard set of pictures developed by Purina that can be used by owners to gauge their cat’s BCS. However, most people other than vets aren’t very good at this. The app should probably suggest they have their vet determine it. Alternatively, the app could have a “BCS test” mode where the user is given some instruction in how to determine the BCS (maybe some CFHC-produced video in which various cats are examined and their BCS determined, with verbal commentary by the vet). After the instruction, the user would be given some sample cats (maybe being examined by the video vet, with commentary as to what s/he sees and feels), after which the user determines the BCS and learns what the right answer is. This will hardly make the user a BCS expert, but it will perhaps calibrate them a bit before they score their own cat.  
    
  Suppose the cat’s BCS is judged to be 7 and its present weight is 18 lbs. Then the amount of weight loss needed is determined as follows:  
  + The ideal BCS is always 5, so the cat needs to lose 2 BCS “points.”
  + Each BCS point represents a weight 7.5% greater than the next lower point.
  + The cat needs to lose 2 \* .075 \* 18 lb, or about 2.7 lb.
  + A good, safe weight-loss target is 1% of the cat’s starting weight per month (in this example, about 3 oz. per month).
  + The time needed would be ∆BCS \* (.075/.01), or 7.5 months for each required point change in the BCS; in this case, it would be 15 months.
* How should the plan suggestion(s) be expressed? Along these lines, I would like to contact Professor Geri Gay of the CALS Department of Communications. At a Charter Day Weekend lecture, a professor I was talking with about obesity (human, not feline) recommended her as someone who knew how to apply psychology to design suggestions to modify people’s behavior with respect to weight loss. I think a critical part of the app will be how to encourage the cat owner to do the right thing, not just in terms of feeding the cat (although that is clearly important), but also in terms of providing data to the app and acting on any suggestions it makes.

**Shopping phase**

Apart from autocompletion lookup vs. bar code scanning, and use of our own identifiers instead of the UPCs, I think the only thing to say here would be the idea of food comparisons, which we discussed briefly. The user could select a few other foods and see a comparison of them in nutritional terms. The app would not make any recommendations, but would simply provide a side-by-side comparison.

A later extension to the app would be to enable the user to filter out foods which should not be fed to a cat with certain specific conditions (kidney disease, etc.).   
  
As for nutritional information, what is needed is:

* Calories
* Protein
* Crude fiber
* Fat

If there is a later need to get more nutritional details, we’d have to approach the companies.

There is an issue with fat, namely, that pet foods are labeled with a *minimum* percentage of fat, and the actual fat content can be more. There is no real way to know the exact fat content of a product. This can affect the weight loss, but there is not much we can do about it.  
  
At the 7/18/15 discussion, it was suggested that students in the Veterinary Club could be employed to enter the data. I suggest that entering it on a spreadsheet, which can then be exported in comma-separated value (csv) format, would then be easy to load into a MySQL (or other) database.

**Feeding phase**

Here is where I think Prof. Gay might help the app. I doubt that every owner will enter the cat’s data every day. How can we make data entry as easy as possible? How often should we ping the user if data entry for a daily feeding is missed? Can we make assumptions about how much the cat has been fed, if data are missing? Can we show that we’re using assumed instead of actual data, during the tracking phase?

One thing we might want to consider as a Version 2 feature is the ability to add custom cat food. We discussed people who make their own cat food; that would be almost an app in itself. What I was thinking, based on Jane’s behavior, is people who will combine several commercially available dry cat foods to create a mix which they dole out to their cats. If we know the nutritional information about each dry food, and the proportions used of each, we can treat the mix the same as any other dry food.

**Tracking phase**

This is the adjunct of the feeding phase. We will provide the user with ways to see how the cat is doing relative to the program. If you have an iPhone, take a look at the Health app that came out as an automatically installed app in iOS version 8. This is aimed at people, of course, but has a number of structural features we could imitate:

* Health is a so-called “tabbed” app, with each “tab” being an icon along the bottom of the screen. In this case, the tabs are Dashboard, Health Data, Sources, and Medical ID. Ours would be the phases listed above.
* In the Health Data tab, one of the things that can be tracked is nutritional information. This is done on a per-nutrient basis, running from biotin to zinc. Each nutrient has its own view controller (akin to a page on a web site) which includes a graph of the nutrient over time, a function to add a new data point for the nutrient, and a few other functions. You can also adjust the time scale over which the nutrient graph is displayed.
* As I think we discussed, we might want to show the actual values of a given nutrient (or calories, which could be treated like a nutrient for display purposes) and the ideal program values as calculated during the plan phase. I am hopeful that because Apple’s app has this graphing feature, it is something I can use to create our graphs.

**Graphics**

Talking about the Apple Health app reminds me about one other thing: graphics. Cool graphics are an absolute must if we want to be included in the Apple App Store, and frankly, users expect a high level of graphic sophistication in their apps. This is true not just for the app icon itself on the home screen and the load screen that is displayed when the app is starting up, but for all the functions that the app provides. In other words, each phase should have its own icon.

I suspect that once we know what icons and graphics we need, we can probably find some student in the College of Architecture, Art, and Planning who might be willing to do the work. I have a friend who is an excellent designer and he’s done fine work for me for $30 an hour.

**Use of the data**

One thing to think about is that if FitCat takes off, we can have access to a lot of data about how and what people feed their cats when trying to help them lose weight. Anonymizing this data would be trivial. It may have research uses, and it may have commercial uses for the Purinas of the world. Selling them access to the data might be a way to get some revenue. Which leads into consideration of…

**Business model and marketing**

I don’t know what the CFHC feels about making money off an app. The Camuti Consulting Service charges a fee, which is different for CFHC members and non-members in the case of general consultations. Perhaps the app is free to members and a few dollars for non-members.

One way to distribute the app would be to advertise it in cat magazines and/or *CatWatch* and *Feline Health Topics* and include a QR code in the ad. The user could scan the code, which would take them to the web site, and could probably instigate installation of the app as well.

We discussed having different versions for vets who sell food vs. those who don’t. I’m not sure now that’s absolutely necessary. If my vet prescribed Hill’s W/D and sold it to me, I wouldn’t use the shopping feature to see what alternatives might be better that W/D. A cat can’t live on W/D alone, so I’d still need to see what the impact of the food choices I make will have on my cat.

One thought that might mollify vets is to have a “white label” or generic version that can be customized to the vet. This could include some or all of the following features:

* The image that displays when the app starts up could have the vet’s name and address, and perhaps a graphic selected out of a graphics library we could provide (or a snapshot of the vet’s hospital).
* The shopping section of the app could have a sub-section in which the user could see a list of weight-loss foods that vet sells.
* Perhaps the shopping comparison could include by default the weight-loss foods the vet sells in any comparison with other foods the user might want to make.

I’m just thinking out loud here, but to do this sort of thing, the app would have to “phone home,” so to speak, upon being installed, find the name of the vet in a database we’d maintain (the user would provide the name), and download the information needed to customize the app for that vet’s practice. Not hard to do.

**Next steps**

*Bruce:*

* Set up conversation with someone from Cornell Center for Technology Licensing to go over the IP issues.
* How do we handle finances? I’m specifically thinking of buying the URLs. I can do that easily, but would like to know that I can submit this as an expense.

*Paul:*

* Talk to Prof. Geri Gay about how to design the UI to persuade the users to do the right things.
* Buy the FitCat URLs once I get the green light.
* Look into how Apple does the nutrient graphs in the Health app.
* Start mocking up the user interface.

1. There are free, open UPC databases on the Internet. That is, you supply the UPC, and the database will provide the product information. [↑](#footnote-ref--1)
2. I intend to write the code such that the structure of the app, if not the actual nutritional data, could be used for dogs as well. I was telling a friend about this in a public place today and a woman nearby, as she got up, asked if it could be used for dogs, too, as she had an overweight dog. [↑](#footnote-ref-0)