# Building a health app for the developing world

Note: This is an entry in the Nokia Asha Wiki Competition 2013H2.

19 Jan 2014

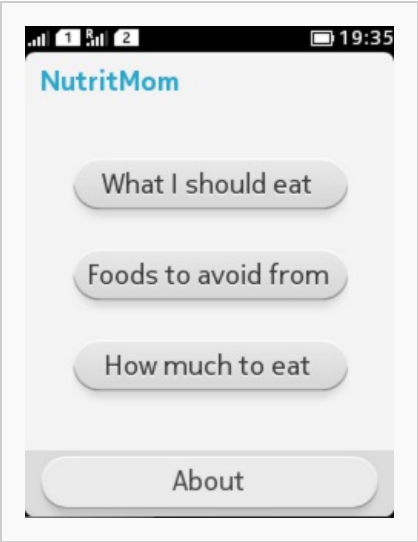
This article will talk and raise some issues when building a Health app for the Asha devices

## Introduction

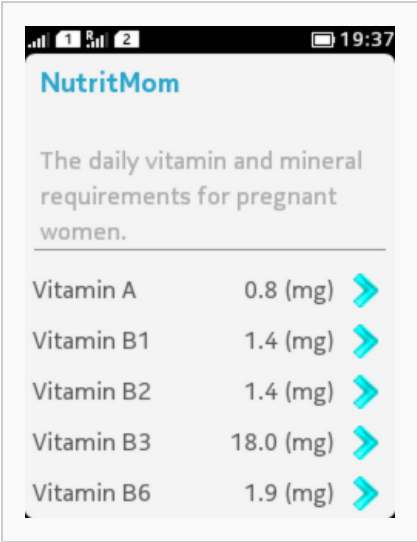
The Dev4Dev cleanweb hackathon challenged Israeli developers to create app solutions for real-world problems in developing nations. The hackathon had a number of pre-defined challenges, including some provided by the community (complete list here.)

My team-mate and I decided to address the challenge of how to better inform pregnant women of their nutrition needs in developing countries (challenge submitted by John Mutisya from Innovation Africa, Tanzania). Our research about Tanzania revealed that nearly 80% of pregnant women only see a doctor once during their pregnancy - **at birth**. They don't have any really good information about nutrition, and we saw an app in this area as something that could really help them, and of course the health of their children.

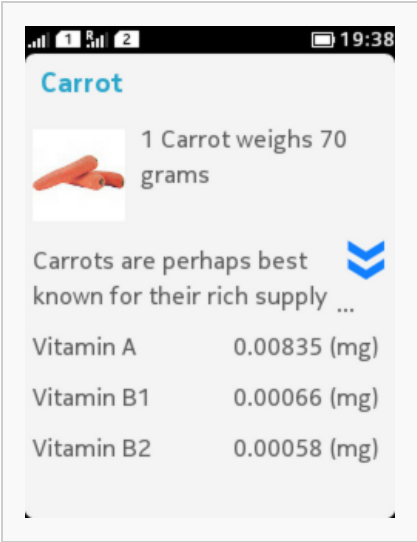
Our solution was the NutriMom app for the Nokia Asha platform. This article provides a brief overview of the app and some of the design decisions which affect health apps in general, and apps for developing nations in particular.




Welcome/choice screen




RDA (Recommended Daily/Dietary Allowance) of nutrients




Nutrients in a carrot

## NutriMom app overview

The app is simple, to ensure it is useful for the greatest number of people. The first screen explains the benefits of good nutrition during the pregnancy.

The app is then divided into 3 section:

- What I should eat
- Foods to avoid
- How much to eat

In the *What I should eat* section we present a list of nutrients (Vitamins and Minerals) and their recommended daily intake for pregnant women. Selecting a specific nutrient from the list provides more information about it, including why it is so important during the pregnancy and a list of fruits and vegetables and their content of that nutrient (so you can calculate how much you need to consume to reach the daily intake).

The other sections are self explanatory.

## Research driven app design

The app design was driven by our research into Tanzania.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While Tanzania itself is relatively rich in resources most people are relatively speaking "poor". The first decision we me made was therefore to choose Asha as the platform (even though the hackathon did not have a platform requirement) because it is a popular and affordable platform in Tanzania (and more broadly in Africa).

Tanzania has two official languages (English and Swahili) and most people are literate. The high literacy rate means that we could use text in the app and not just pictures. As we don't have any Swahili-writing members of the team, our first version uses English.

We then went on to do the research of the nutrition needs of pregnant women in general, and in particular in Tanzania. This kind of information can be found on various websites and organizations such as mHealth.

## Other design considerations

### Does the app needs network connection to work?

In theory it would be great to have all the nutrition data stored on a server so you can update and add new information as needed. However the nutrition information is unlikely to change within the period of a pregnancy (or much longer).

The app should therefore come with nutrition information so that the data is always available for its users, especially for those in areas when data connections are costly or unreliable.

### Does the app need registration/collecting user information?

With more information about a user (for example weight, current term in pregnancy, age, number of children, etc) it is possible to provide better recommendations.

For this app we decided to make the interaction as simple as possible, and chose not to potentially deter users by requesting additional information.

### Keep navigation simple

As you can see we have kept the navigation extremely simple. After describing the benefits of nutrition for pregnant women our main screen has just 3 buttons leading to the different sections of the app. This means that the important choices are made very early, and users can access the relevant information quickly.

Another point is that as you can see we used exandable text in the context of the fruit/vegetable and in the nutrient screen (not seen in the images). This means users don't have to navigate to another screen to read the text and also don't have to scroll a lot to see the nutrients list. This design is important when working on the small screen size of the Asha device.

The code below showns how to achieve this effect using LWUIT library, `b3` is the `Button` with the double down facing chevrons, `t5` is the `TextArea` component containing the long text, `label3` is just a `Label` that shows "..." since TextArea doesnt have an `EndsWith3Dots` method and `Container1` is the container that holds all of them in the `Form` in the GUI.

```
b3.addActionListener(new ActionListener() {
 public void actionPerformed(ActionEvent arg0)
 {
  if (t5.getPreferredH() == 500)
                  {
                    t5.setPreferredSize(null);
   ((Container)builder.findByName("Container1", f3)).growShrink(1);
  }
  else {
   t5.setPreferredH(500);
   ((Container)builder.findByName("Container1", f3)).growShrink(500);
            }
                    b3.setIcon(b3.getIcon().rotate(180));
                 label3.setVisible(!label3.isVisible());
 }
});
```


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# Summary

In conclusion I would like to say your are more than welcome to download the app or its source code for free (keep in mind that the app was developed during a 24 hour hackathon so the code might not look so nice). The app has been submitted to the Nokia store and I will post a link to it once it gets approved.

Think of how you can contribute to the health need of the developing world through apps.


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