Design Report

Improving the "diet feedback"
of www.dieetinzicht.nl

Course

IN4179 Intelligent User Experience Engineering (IUXE)

Version

Final (march 2008)

Group 1

Steven Bos	1319671
Hannes Smit	1228897
Galateia Iatraki	1398741
Thomas Kararides	1366475
Sacha Panic	1367803
Iulia Chiriacescu	1300695

Introduction

The website Dieetinzicht.nl focuses on giving the user – as the Dutch name suggest – insight in his/her nutrition. According to their mission statement they do not advise the user, only inform. The website is developed by an internist, several dietitians and webdevelopers. It appears that not much research is done on the field of User Experience, indicated by the old fashioned site navigation, rudimentary search functions, lack of helpful error messages and more. For the Master-course "Intelligent User Experience Engineering", TU Delft gives students a hands-on experience to improve the User Experience of this website by using an arsenal of proven methods and techniques. Of course the entire process of User Experience Engineering is guided by several experts.

This process has various phases and three milestones in the form of a *prototype application* finished in Period 4 and two reports; a *design report*, finished in Period 3 and a *test report*, finished in Period 4.

The goal of this *design report* is to analyze a current situation problem area and present improvements for a stereotype user ("Linda" in this report) by using scenario based design principles. These improvements must be of a kind that can be evaluated in a later stage.

In the first chapter we analyze the current situation of our selected problem area "Diet Feedback" by using the Hierarchical Task Analysis (HTA) method of Annett. The second chapter discusses the improvements by introducing our stereotype user and scenarios. The third chapter will present amongst other the improved HTA Model and screenshots of our prototype. The fourth chapter discusses our evaluation approach. Included are the type of evaluation, the proposed test, the procedure and more. The fifth and final chapter will draw a summative conclusion from the previous chapters and double functions as a summary.

We tried to make this report accessible for selective (speed) readers by including chapter introductions and a summary in chapter 5. In general we tried to keep the amount of text compact and created visualizations where possible.

Enjoy reading,

Group 1

Table of Contents

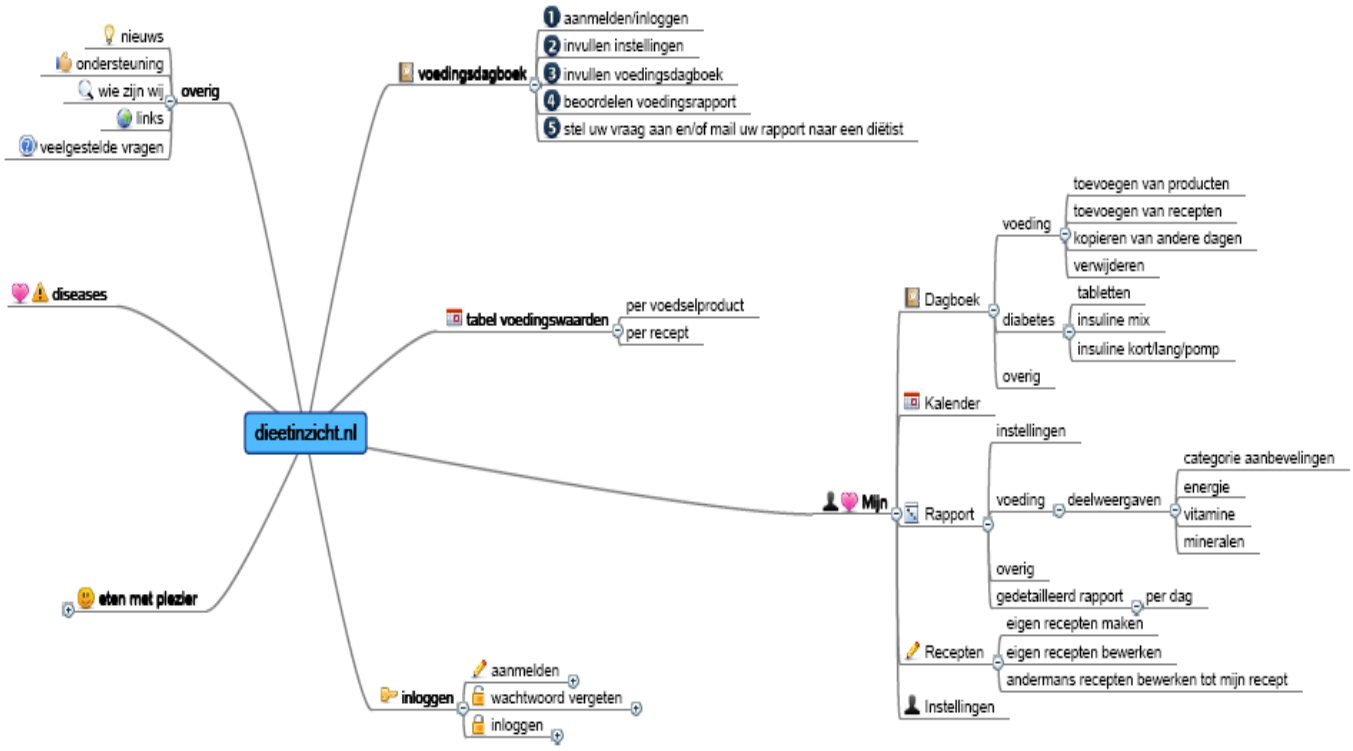
1. The current application

In this chapter we analyze the current situation. The first paragraph will highlight the main functions of the website. The second paragraph focuses in detail on one problem area which we intent to improve.

§1.1 Website overview

When first visiting the site, the user is presented the homepage with a menu on the left and in the main area several links to health conditions a user can have(like overweight or COPD, etc). These links promote the site by convincing the user how this website can be of service when having one or more conditions.

In the following map the flow of possible actions of the website are visualized.



The website distinguishes two use modes; *not logged in* and *logged in*, the latter gives the user full functionality of the website, see tables on the next page.

Use Mode: *"Not logged in"*

Website option	Explanation
Eten met plezier	Welcome text which explains the importance of appropriate nutrition and how the website can be useful to the user
Nieuws	This link is meant to give a broad selection of news associated with diet and feeding, but hasn't been updated since 2006
Wie zijn wij	Information about the initiators and developers of the website as well as their missions statement and contact information
Ondersteuning	An overview of all organizations involved
Links	Useful weblinks to websites concerning diet
Inloggen	User's login
Veelgestelde vragen	Frequently Asked Questions
Diet/feeding	General information about the health situation and the (daily) steps that the user should take to use this website
Tabel Voedingswaarden	In the "table feedingvalues" a user can find the nutritive values of a large number of products and recipes. The nutritive values of the products are reflected by 100 grammes or by standard quantity.

Use Mode: *"logged in" (functions in addition to the functions above)*

Website option	Explanation
Mijn kalender	Overview of data filled in for specific days. Clicking on the date redirects the user to the associated diary report
Mijn dagboek	Form to fill the diary with information for each day (recipes, measurements, medication).
Mijn rapport *(= diet feedback)*	The user can select a period and have a summary or detailed feeding report of the nutrition the user consumed
Recept samenstellen	The user can add a new recipe by filling in the steps of production and the ingredients (which can be found by using the website's search function)
Mijn instellingen	Form to change the personal information
Nieuw product doorgeven	Form to add new products which after being checked by the administrator will be added to the website's recipe database

§1.2 The "diet feedback" problem area

After one brainstorm session and three meetings we chose, out of six unrelated problem areas, the "diet feedback" problem area. Though the other five have just as much potential to seriously improve the website, we found that, within the given time and resource constraints , the chosen problem area is the most challenging and fitting for the course IUXE.

To analyze the problem area we use the method Hierarchical Task Analysis (HTA) [**1**], presented in paragraph 1.2.1 and the related User Action Notations (UANs) presented in paragraph 1.2.2.

§1.2.1 HTA "diet feedback"

Figure 1.1 shows the HTA that accompanies the current website. Our project will focus on the task 'Show diet feedback', where the user is interested in obtaining general or detailed insights and advice about the progress of her diet.

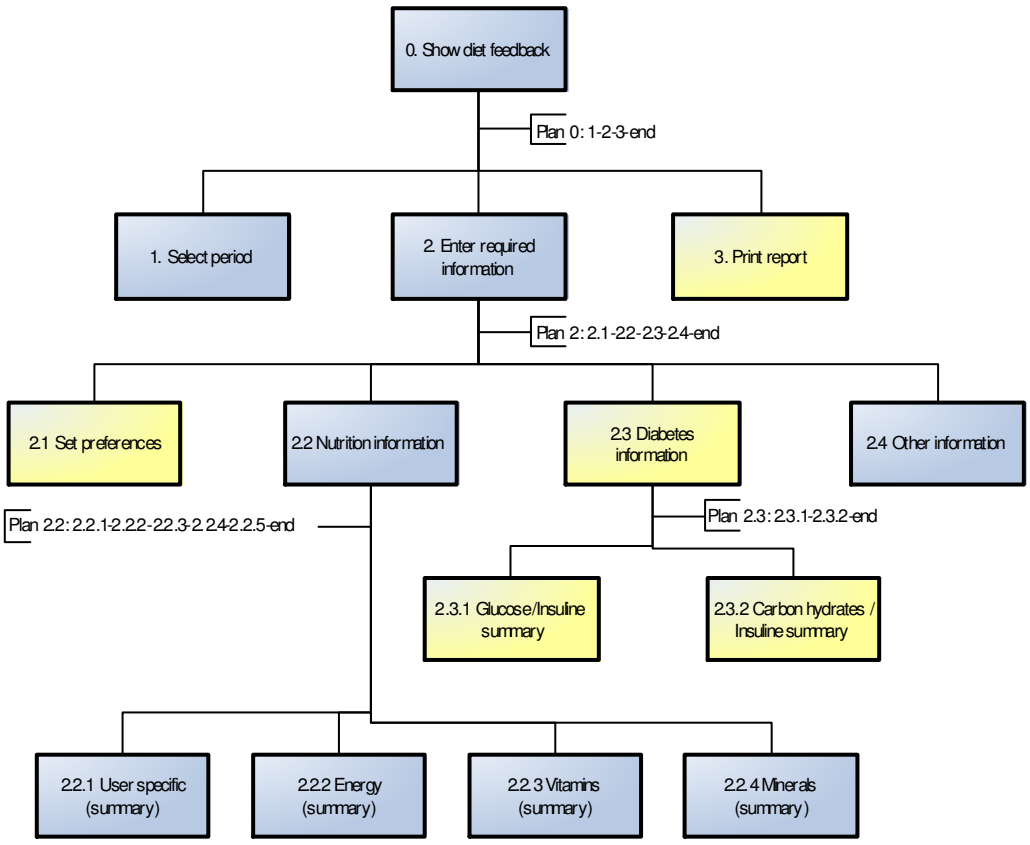


Figure 1.1 *HTA "diet feedback" current situation*

There are a number of ways in which a user can reach the goal for the set task of showing the diet feedback:

1 The user selects a period, and enters the required information in order to obtain a per-week summary of information regarding nutritive values. The accompanying plan is: 0-1-2-2.1-2.2-2.2.*-2.4-end

2 The user selects a period, and enters the required information and subsequently prints the diet report. The accompanying plan is: 0-1-2-3-end

Appendix A contains screenshots of how this is implemented in the current dieetinzicht website.

The diagram immediately shows some interesting properties of the current diet feedback without considering the end-user profiles. For example the "2.3 Diet Information tab" (marked in sand-yellow) gives diabetes related information to the end-user, while no diabetes is filled in as a disease condition of the user. Also to get to the desired information the user has to navigate a path through three tabs which involves at least four mouse clicks, when not printing out the information. The set preferences box is also marked because it has static information which belong to a user profile menu instead of a diet report.

Another interesting property shown in the graph is that the goal is reached by mouse clicks and therefore all tasks are on the action level, as we see now in paragraph 1.2.2.

§1.2.2 UAN's "diet feedback"

Task 1: Select period	
User action	*Interface feedback*
	• Shows interface "select period element" • Shows interface "required information element" • Shows interface "nutrition information element" • Shows summary table of selected tab • Shows detailed table of selected tab • Shows vertical scrollbar • Shows print button
Click on *calender*	• Shows calendar to select start/end period • Updates required information table • Updates nutrition information table
Click on *periode* entry bar	• Shows calendar to select start/end period • Updates required information table • Updates nutrition information table
Click on scrollbar	• Scroll up/down entire page

Task 2 and 2.2 and 2.3	
User action	*Interface feedback*
	• Shows interface "select period element" • Shows interface "required information element" • Shows interface "nutrition information element" • Shows summary table of selected tab

	• Shows detailed table of selected tab • Shows vertical scrollbar • Shows print button
Mouse Click on tab	• Changes color of tab and makes previous selected tab grey • Shows related child tab element (nutrition information)
Click on scrollbar	• Scroll up/down entire page

Task 2.1: Set preferences	
User action	*Interface feedback*
	• Shows table with static profile settings

Task 2.2.1 – 2.2.4	
User action	*Interface feedback*
	• Shows interface "select period" element • Shows interface "required information" element • Shows interface "nutrition information" element • Shows summary table of selected tab • Shows detailed table of selected tab • Shows vertical scrollbar • Shows print button
Mouse Click on *day*	• Shows the *my Diary* page of that day
Click on scrollbar	• Scroll up/down entire page

Task 2.3.1-2.3.2	
User action	*Interface feedback*
	• Shows interface "select period element" • Shows interface "required information element" • Shows interface "nutrition information element" • Shows summary only table of selected tab • Shows vertical scrollbar • Shows print button
Mouse Click on *day*	• Shows the my Diary page of that day
Click on scrollbar	• Scroll up/down entire page

Task 2.4: Other information	
User action	*Interface feedback*
	• Show table with static profile settings

Task 3: Print information	
User action	*Interface feedback*
	• Shows interface "select period element" • Shows interface "required information element" • Shows interface "nutrition information element" • Shows print button
Mouse Click on link	• Show print report screen

2. Improvements

In this chapter we present ideas to improve the current "diet feedback". The first paragraph describes the new requirements we came about. The second paragraph presents scenarios involving an actor (the stereotype user "Linda") who uses the website with the new improvements [**2**]. The last paragraph specifies the goals also known as "claims" we want to achieve with our improvements.

§2.1 New requirements

Our target user (persona) is Linda, a Dutch middle-aged woman, slightly overweight, with medium computer skills. She is not in the possession of a printer nor does she ever want to print any report. Linda wants to lose weight and she is attracted to the idea of using a website to monitor her diet. The site will be modified according to the requirements of this specific persona. What we have seen so far is that the diet feedback part of www.dieetinzicht.nl provides a field for improvements that would make the site more useful for Linda. In order to make this clearer we will define in what way we plan to change it.

First of all the amount of data that the site gives to the user has to be organized in a different way. Right now the user has to click a lot of times to get the desired results. This way he gets bored really quick and can even miss information or lose time by miss-clicking. But this is not the only boring factor in this part of the site. The data are presented with a series of tables. This is a nice way for a doctor to read through the progress of his patient but for a middle aged woman these tables can become really disturbing after a while. Additionally, while using the site the user collects information that is not actually needed. For instance, a middle aged woman with some extra weight that she wants to get rid off, does not care about her glucose levels. All the above are summed in a QOC (Questions, Options and Criteria) diagram illustrated in Figure 2.1.

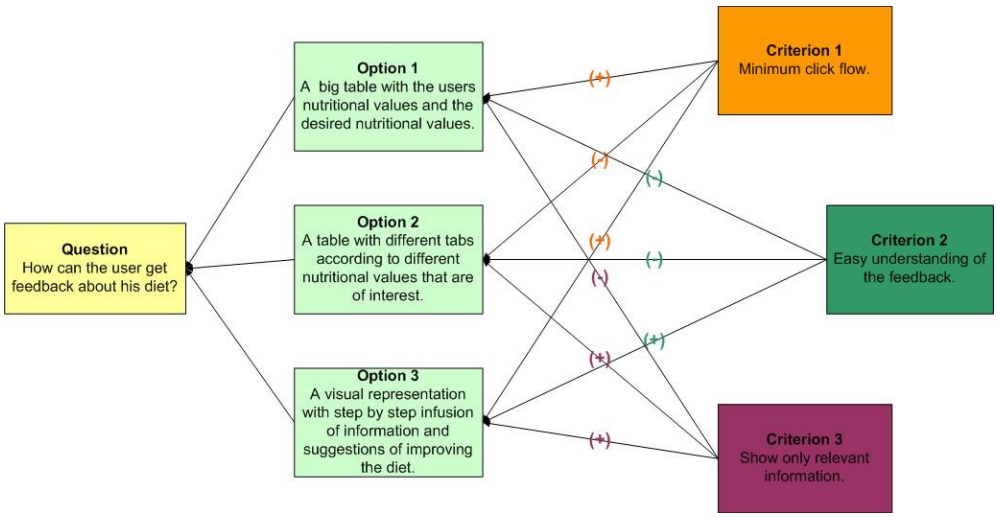


Figure 2.1 *The QOC diagram for the feedback part of www.dieetinzicht.nl*

We plan to focus more on the non-functional requirements of the website that will make the information more accessible and the experience more pleasant for our target user. This is why, the requirements for the new website could be summon up to:

- A minimum click flow
- Easy understanding of the feedback
- Display only relevant information.

We plan to improve the visibility of the relevant information as well, so that our user will have a clear idea about the kept diet simply from seeing the diagram. Checking the normal limits for certain nutritional values would be very unpleasant and time consuming. Color is an important part for our design, because it invokes emotions and creates situation awareness[**3**][**4**]

As we can see from the QOC diagram, a visual representation for the nutritional criteria would be ideal. The representation could look like the one shown in Figure 2.2. The user can have a quick overview of his progress over the last weeks in the upper part of his view. The bars show the overall nutritive values compared to the users daily recommended values for a specific week. The small heart gives the bar as sort of health-bar look. By clicking on a week a detailed report about each nutritive value is shown bellow. The grey bar must be fully filled. So, if they the user consumed enough of a nutrition the entire bar will get a green colour, if the user consumed to less the bar will show more grey area and the bar will turn to red. Over-cosumation is sometimes unwanted and is indicated by an extension of the normal grey bar. The bottom part of the new feedback model could indicate to the user some alternatives for the products that produced undesired results for the nutritive values.

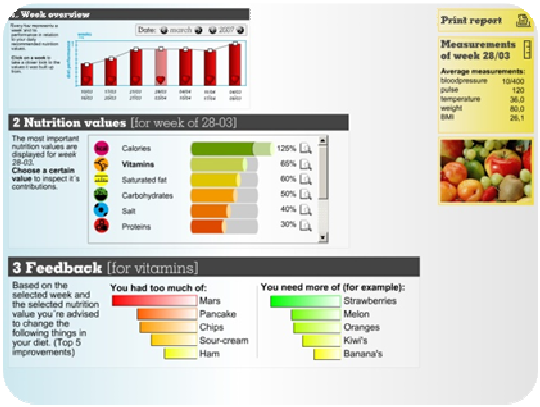


Figure 2.2 *Possible diet feedback model.*

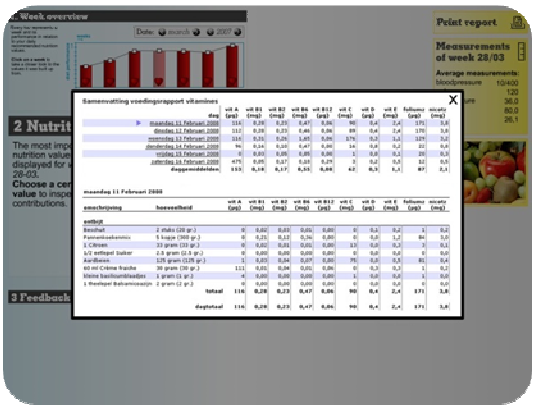


Figure 2.3 *Possible detailed view*

So far, the user has already an idea of the effect his diet over the last weeks had on her. She knows if it was healthy or not, if it helps her to loose weight, and she even has some suggestions for products that do no good. If she wants a detailed report though, she can have it by clicking on the specific nutritive value. So, by clicking on vitamins a floating window will appear, like for example the one in Figure 2.3, showing the values for different vitamins per day and she can even choose a day and see how each product she ate contributed to the overall vitamin values.

§2.2 "The Linda scenario"

We can now look at the case of the middle aged woman, Linda, which is already mentioned above. After a long day she sits at the computer. After updating her account in www.dieetinzicht.nl she wants feedback. She selects the period of feedback and her report is there. She notices that the health bar is smaller for the last week compared to that on previous weeks. She knows that something went wrong last week. She should be expecting that since she was so busy last week that she wasn't able to cook proper food. She clicks on the week's bar and the horizontal bars appear. Red and empty for vitamins she sees and it reminds her that she forget to buy fruit last week. The bottom part suggests that cake should be changed to Evergreen or apple. Good idea, she realizes that she hadn't think of Evergreen before. She makes a short grossery list and goes to work.

Several weeks later she wants to know how she did last week compared to five weeks before. After login in she goes to the feedback page and track those two weeks. It is obvious that she has improved since last weeks bar is taller than that of five weeks before. And what about my BMI levels she thinks, and she only needs two clicks to see that as well.

§2.3 Claims

It is made obvious that our changes will definitely result into an overall improvement of the system. The visual representation of the user's week diet gives him/her the opportunity to find easily what he/she ate in a certain period. In that way the user can track his/her diet quickly. The health indicator helps for a quick overview of how his/her diet is going. The necessary details for a total and clear perspective are illustrated on a float window only if asked, so one can draw conclusions only if he/she wants to. The unhealthy ingredients are not only tracked down but the site gives alternatives to them as well. Another, new parameter introduced by the visual representation is that the user can have a clear health scale, where he/she can compare previous results and see his/her progress. Finally, all these improvements give important data that the user can evaluate and in the end modify her diet.

To summon up, we claim the following:

1. The user can find what he/she consumed over a certain period
2. The user can identify unhealthy ingredients
3. The user can find alternatives of certain ingredients
4. The user is provided with some sort of health-scale
5. The user can tell more about several ingredient details (fat amount, calories...)

We are aware that we have to quantify our claims, but in this case we are without experience, so we can't really predict it.

3. The new design

This chapter discusses various aspects of the new "diet feedback" design starting in paragraph 3.1 with the Mental Model of the stereotype user Linda. In paragraph 3.2 the improved HTA is presented as well as the attached UANs. Paragraph 3.3 shows the states by means of a State Transition Network diagram. The development environment is discusses in paragraph 3.4 and the chapter ends with the screenshots of the new "diet feedback" application in 3.5

§3.1 Mental Model of Linda

A mental model [**5**][**6**] is an explanation of someone's thought process for how something works in the real world. In this section we will describe the mental model of Linda, our target user. The mental model has an increased importance for the quality of the design. This is because the quality of design depends a lot on the mapping between the mental model of the user and the designer's mental model (see figure 3.1).

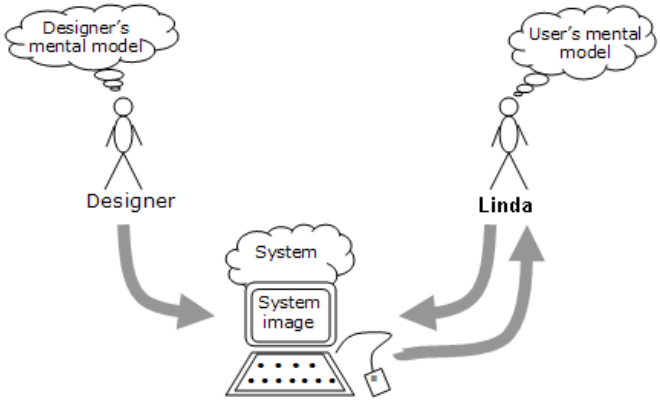


Figure 3.1 *Mapping of user's and designer's mental model*

Our target user, Linda, is a novice user of computers. Anyway, she has experience communicating through e-mail and surfing the Internet using a standard browser. We have to consider her mental model in detail, because she might expect different things from the interaction with the system and we plan to match her expectations. We will base our analysis on the fact that Linda uses an e-mail account. By this we assume that she has formed some reflexes and she has certain expectation concerning the outcomes of her actions (click). For example, when she opens her Inbox she knows that by clicking on a header of a specific e-mail from the list, the content of that e-mail will appear in the lower part of the page. If she clicked on the wrong e-mail header, she can easily go to the e-mail she wanted to read, only by clicking on its header. There is a strong similarity between our design and her well known e-mail environment. This is why we expect that Linda will have an intuitive experience with the website.

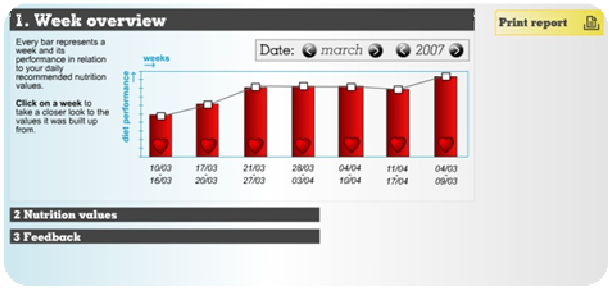
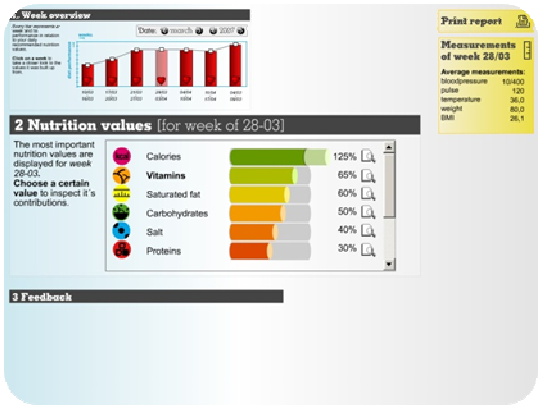


Figure 3.2 *Initial view*

In our design the first view will be like figure 3.2. Linda will expect that by clicking on a specific week she will receive more information about her diet during that week. After clicking on a week, the view will be updated as in figure 3.3. If Linda clicks on the wrong week by mistake, she can easily switch to the right one by just one click (selecting the week she wants to see details about).



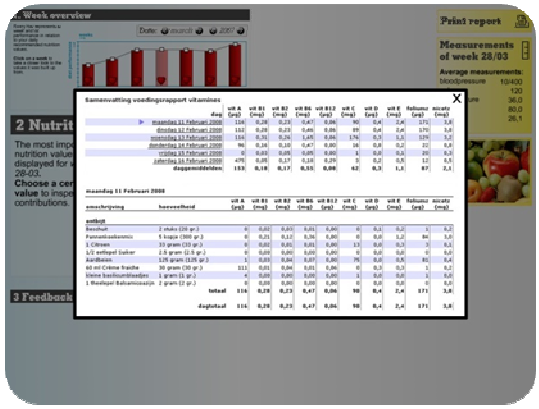


Figure 3.3 *Updated view*

Figure 3.4 *Detailed view in a pop-up window*

Besides using the e-mail, Linda also has some experience with visiting web pages. She knows that by clicking on a link or a clickable part of the page she can expect another window to pop up. Usually this window contains more information about the subject in the link. In our design, when Linda clicks on the *magnify glass* button, a nicer pop up window (a float window) appears. From her previous experience with websites, she also knows how to close it and she knows that she will return to the page containing the link. Unfortunately she doesn't have a printer so she never needs the print button. She finds it easy to find though, because she is used to find the print button in the top right screen.

§3.2 The "diet feedback" problem area (revisited)

This paragraph uses the paragraph 1.2 (the diet feedback HTA and UANS) as a basis for the improvements mentioned in chapter 2. Paragraph 3.2.1 revisits the HTA model while 3.2.2 revisits the UANs. The reader will notice the simplicity of the newer HTA and the increased user interactivity in the UANs compared to the old ones.

§3.2.1 The new HTA of "diet feedback"

The diagram shows the HTA for the reporting part of the dieetinzicht website. Compared to the original situation, this HTA has been simplified significantly.

This has been accomplished by removing the "2.3 Diabetes information" elements from the original HTA which represents functionality which is not required for our persona. Also the element "2.1 Preferences", which holds the current user's site account settings that are not specific for the report but for the whole site, has been moved to another (more central) part of the website. The print part is also removed, because our user has no printer and thus not need it.

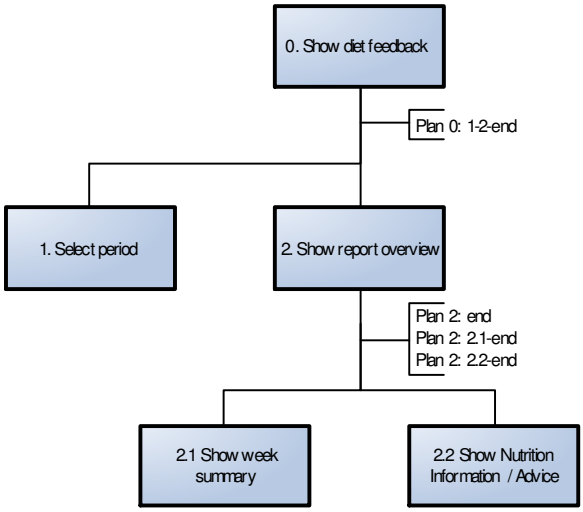


Figure 3.1 *The new HTA "diet feedback"*

There are 2 paths that a user can follow to reach the goal for the task 'Show diet feedback':

1 A user selects a period of interest, and uses our new interactive diet overview page to get a short summary to check the progress of the diet, and obtain advice on how to proceed. The accompanying plans are: 0-1-2-end, 0-1-2-2.2-end

2 A user selects a period of interest, and uses our new interactive diet overview page to get to the detailed week and/or day nutritive value summaries. The accompanying plan is: 0-1-2-2.1-end

§3.2.2 UAN's "diet feedback"

Task 1: Select period	
User action	*Interface feedback*
	• Show initial *select report* screen with three elements: clickable bars representing weeks, select month, select year • The bars indicate the users nutrition status through time, compared to the user set DNR (daily nutrition requirements) • Show colored square around step 1, telling the user what to do in this step
Mouse Click on *month* forward / backward	• Change month forward/backward
Mouse Click on *year* forward / backward	• Change year forward/backward
Mouse over bar	• Highlight bars • Increases bars in size • Plays very short sound
Mouse over *select period* element	• Get focus (increase size to focus size),decrease previous focus element
Click on *bar*	• *Select period* element decreases in size • User is always able to select a new week directly with same mouse over and mouse click properties as above • Plays sound indicating now in step 2 • Changes colored square to step 2 • If show diet feedback element was active, close it

Task 2: Select nutritive value	
User action	*Interface feedback*
	• Show *select report* screen in decreased size (but still clickable for direct navigation of selecting another week) • Show 6 nutritive value bars and a scroll bar to the right so the user can scroll to more nutritive value bars. • The bars present a certain length together with a color from green (full bar) to red (almost empty bar) indicating the amount in percentages of the DNR the user consumed of the nutrient. • Show colored square around step 2, telling the user what to do in this step • Show icon next to the bar which makes the bar more easy to recognize in a split second
Mouse Click on scrollbar up/down	• Change nutrients list one up/down
Mouse Click on *show details* Icon	• Show float over screen
Mouse over bar	• Highlight bars • Increases bars in size

	• Plays very short sound
Mouse over *select nutrient element*	• Get focus (increase size to focus size), decrease previous focus element
Click on bar	• *Select nutrient value* element decreases in size • User is always able to select a new nutritive value directly with same mouse over and mouse click properties as above • Plays sound indicating now in step 3 • Changes colored square to step 3

Task 2.1: Show week summary	
User action	*Interface feedback*
	• Show summary table and details table from Monday floating over the "main" screen, with recognizable main screen greyed visible in the background • The interface has a large Cross with text "close" indicating the close button • The summary table has 7 marked regions around the days indicating that they can be selected
Mouse Click on scrollbar up/down	• Change detailed table content one up/down
Mouse Click on *day* in summary	• Change detailed table to the one of the selected day • Plays sound indicating detailed windows is refreshed with a new day

Task 2.2: Show diet feedback	
User action	*Interface feedback*
	• Show *select report* screen in decreased size (but still clickable for direct navigation of selecting another week) • Show *select nutrient* in decreased size (but still clickable for direct navigation of selecting another nutrient) • Show diet feedback presenting 5 bars of the selected nutrition value on the left indicating the top 5 bad and on the right a top 5 of suggestions for alternatives • Give focus (increase focus size) • Show colored square around step 2, telling the user what to do in this step
Mouse over *show diet feedback element*	• Get focus (increase size to focus size),decrease previous focus element

§3.3 State Transition Network

The diagram represents the state transition network for the improved diet reporting functionality of the dieetinzicht.nl website. The dotted states and arrows represent *transient states*, meaning that the application will only pass through but not stay in these states.

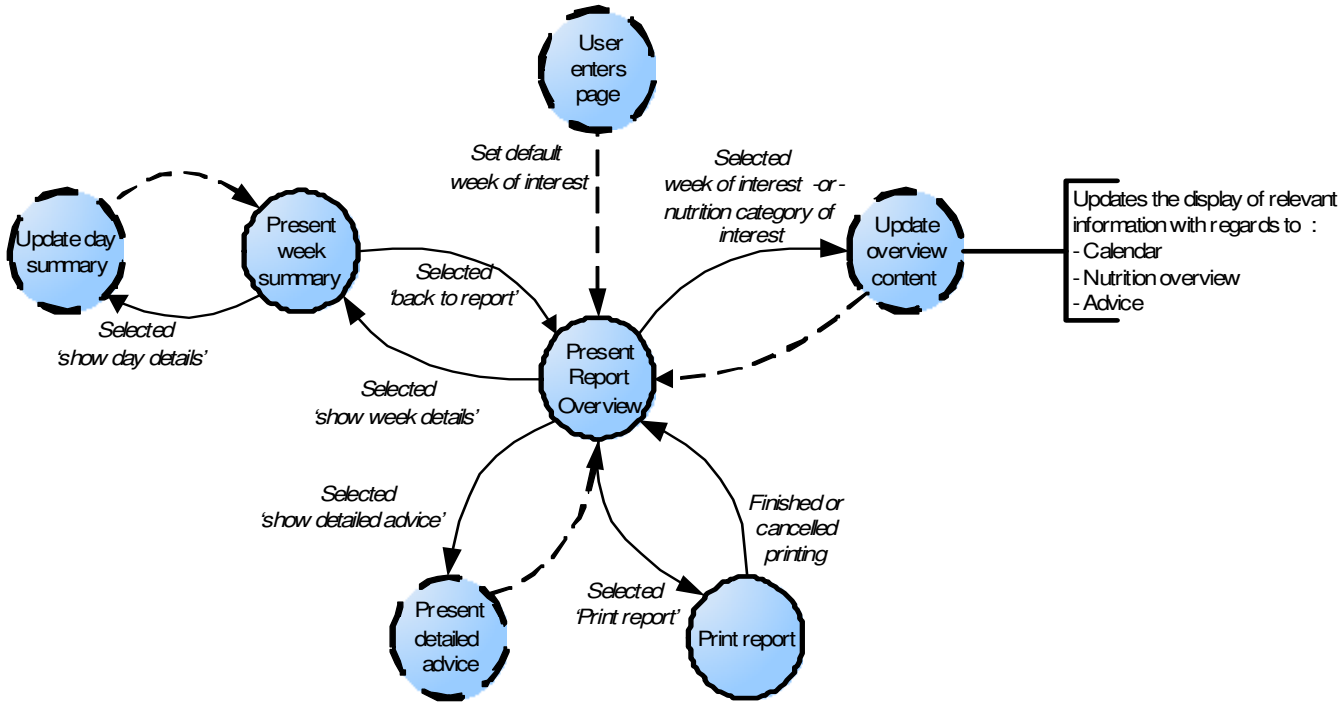


Figure 3.5 *State Transition Network diagram of new "diet feedback" application*

§3.4 Programming environment

For developing the new application we chose to use Adobe / Macromedia Flash. This environment is quite easy for building prototypes. Besides that, this environment will probably be used for the end-product as well. Our reasoning in favour of Flash:

- *In reach for the public*

Maybe one of the major requirements is that this application has to be available for everyone who has an internet connection. Almost all of today's browsers are supplied with the Flash plug-in, and if not, installing the plug-in is easy. Flash files can be embedded within the website. For future improvements the possibility of developing for mobile content is supported by Flash as well.

- *Represent data visually*

Our proposed system uses several ways to represent data in a visual and attractive way. In Flash data can be easily transformed into visual objects. With Actionscript data can be analysed, normalised and transformed into charts / histograms or even icons.

- *Open for external data sources*

To get data into our system, Flash gives a handful of options. You can think of XML for the connection between Flash and the database. In our prototype we will use only data stored in the Flash application itself.

- *Object oriented programming*

Actionscript allows us to write our code in an object-oriented way. This means that the code is easy to maintain and to reuse.

§3.5 Screenshots of the new application

After clicking on the my report button in the main of Dieetinzicht.nl, this screen comes up (figure 3.6). It shows the user an overview of a few weeks. Every week is represented as an bar, indicating how healthy the diet was the user followed in that particular week. The maximum value is the top of the plot. Values range between: not healthy at all to fully healthy. This health measures are closely related to the users profile (disease, goals, body information, ..). The health measure we implemented, which is also present in the current website is a comparison of the consumed nutritive values to an user set daily recommended value table.

By clicking on a week the process goes on to step 2.

Figure 3.6 *Initial screen*

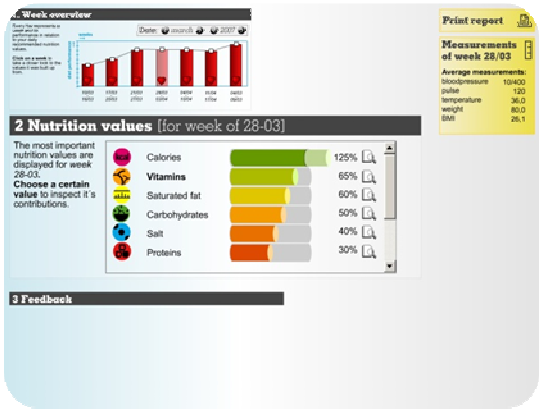


Figure 3.7 *second screen*

The second box shows up (figure 3.7) while the first box minimizes. When the seconds box is fully visible an extra view of body measurements shows up at the right side (yellow block). These measurements contain average values over this selected week.

The box with the colored bars indicates the nutrition values for the selected week. In this example the user had too much calories, while he/she missed vitamins.
More values are available by scrolling down the list. The order of values is defined by the users profile, and thus by his/her goals/disease.

When the user want more information about what did and what did not contribute to this nutrition value (for example vitamins) the user can click on the particular bar. This brings us to step 3.

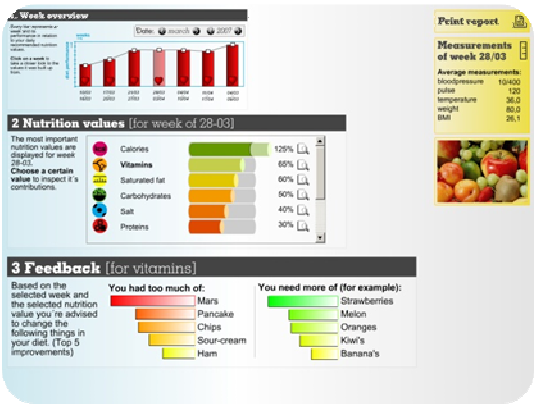


Figure 3.8 *Third screen*

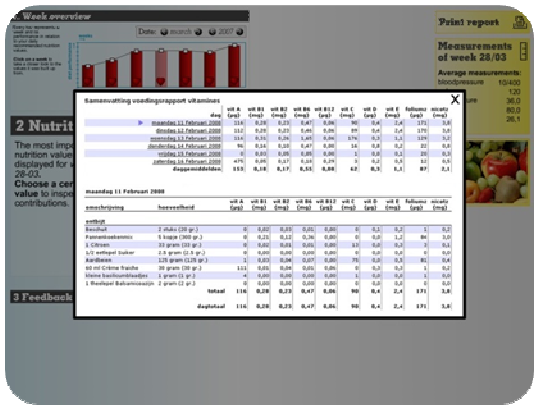


Figure 3.9 *detailed view screen*

Step 3 (figure 3.8) shows which consumed ingrediënts did and did not contribute to the health-performance for the selected nutrition value. Because in this example the user ate too many Mars bars and pancakes, while he/she forgot to eat some fruit. Only the top 5 is shown. The selection on ingrediënts is based on ingredients the user consumed before or the user marked as 'favorite' or 'in-house'.

Besides this described 3-step interaction there are two other possible paths. One leads to a print-out of the report (top-right box) and the other leads to a detailed view of a certain nutrition value (figure 3.9). In this detailed view the week is listed day-by-day. By selecting a day the user can inspect what he/she consumed that day and how much.

With this 3-step interaction the user gains insight in his/her performance in a very general way. Still the detailed options are available.

4. Testing and evaluation

This chapter describes our approach of evaluating our new user interface and verifying our claims. The first paragraph discusses the objective; here we explain why we chose summative evaluation as our choice of evaluation. The second paragraph presents more in depth the traits of our stereotype end-user "Linda", so that we can focus on selecting a test audience matching those characteristics. The third paragraph is about the different scenarios and task we present our test audience. The last paragraph gives a general overview of the procedure of the evaluation.

§4.1 Objective

The objective of the evaluation [**8**] for us designers is to check through and make sure that everything is correct and complete and examine if the application is effective, easy to learn and is suitable for its purpose.

The type of evaluation we are going to use is "*summative evaluation*" [**7**]. The *summative evaluation* assesses the quality of alternative user interfaces, or in this project asses our own designed user interface.

What makes *summative evaluation* the appropriate type in our case is that the goal of our test is to compare the current diet feedback interface with our design.

§4.2 Participants

This section provides a more detailed description of the participants to our experiment. So far we have mentioned Linda, our personae. By introducing Linda in our concept we have made an abstraction of our end users. We will regard the end users of the website as being characterized by a series of traits. By using these characteristics we can design a system that would be the most suitable for our target user.

The next table presents the traits of Linda that are the most relevant for our design.

Characteristic	Linda
General	Middle aged woman Slightly overweight Dutch speaking.
Physical	Good general health condition Clear vision, good perception of colors Able to use a computer
Psychological	Able to pay attention to solving tasks Able to memorize and recognize steps Able to associate meaning to colors
Computer experience	Average experience Comfortable with e-mail and web browsers Understands the part-whole relationship

	Perceives proximity
Medical knowledge	Basic understanding of nutritive values and BMI values

We have designed a system appropriate for the user described above. This way we address to only a share of the persons that might be interested in using such a website. There is a compromise that needs to be made: gaining a more suitable system for the target group in the detriment of decreasing the size of the target group. Of course other user that do not fit perfectly in the described profile can still use the website and have a pleasant experience, but maybe less suitable for their own expectations.

§4.3 Scenarios & Tasks

This paragraph will discuss our evaluation approach more in-depth.

§4.3.1 Scenario

For testing and evaluation purposes we will make use of one global scenario. In this scenario Linda, the persona that represents our target user (see section 2.1), has been using the dieetinzicht website for more than two weeks. She has kept track of her daily diet by filling in the diary. She has come to the point where she is interested in reviewing the progress of her diet so far, by using the 'my report' feature of the dieetinzicht website.

§4.3.2 Tasks

Recall that section 2.3 summed up 5 improvement claims. We designed a set of test and evaluation tasks which can be used to verify our claims. These tasks are presented to our test and evaluation participants for them to carry out. The user feedback gathered afterwards will enable us to check if our improved design actually realizes the claims for improvement that were made.

The tasks, and the claims which they cover, are listed in the table below:

Number	Task	Claims covered
1	Identify the most unhealthy ingredient in the past 2 weeks	2
2	How much calories does the most unhealthy ingredient in the past 2 weeks have	3
3	Find an alternative ingredient for the most unhealthy ingredient in the past 2 weeks	5
4	Find out what you ate during 3 specific days	1
5	Find the week with the lowest BMI	4
6	Find the week with the healthiest eating habits	4

§4.4 Procedure

This section will describe the procedure used during the actual testing and evaluation. Keep in mind that this procedure describes how one participant will test one version of the website. All participants should therefor repeat this procedure twice, once for the old and once for the new version of the website.

§4.4.1 Preparation

Besides providing the test participants with the (office) space and a desktop computer to perform the test, we will have to ensure that both the old and the updated version of the dieetinzicht website have two test accounts (linda_01 and linda_02). These test accounts will have to be prepared by ourselves, most importantly the preferences and the diary have to be filled with relevant information for a period of at least 2 weeks.

Furthermore, we will need to prepare a script which describes the tasks to the participants. They will use only this script during the execution of the test.

The questionnaire that will be used for obtaining the user feedback will also need to be prepared beforehand. The questionnaire could consist of multiple choice questions, open questions or a mixture of both.

§4.4.2 Practical details

In total there are four participants of the test. Two participants will focus on tasks 1-3, while the two other participants will focus on tasks 4-6. Each participant has to carry out the tasks on both the old as well as the improved version of the website. The location where to do the tests is preferable in a the users own domestic environment.

§4.4.3 Introduction

The participants will be given a brief introduction on the context and goal of the test and evaluation session which they are about to participate in, and that the goal of the session is to compare the user experience of the old version with the new version.

Since the scenario used for testing and evaluation states that our persona has been using the site for a few weeks, the participants would have about 10-15 minutes to briefly familiarize themselves with the (relevant part of the) website which they are about to perform the tasks on.

After the tasks are explained to, and understood by the participants, any other rules for during the task execution will have to be explained. One example of such a rule is that participants can not ask any team member for any form of advice or assistance.

§4.4.4 Test

The execution of the task will be time limited- with a maximum of 10 minutes per task. If a task is not completed within this time limit this will have to be noted on the questionnaire. After all the tasks have been executed, or after the time limit has been exceeded, the test will end.

§4.4.5 Debriefing

The participant is asked to fill in a questionnaire, which will provide data for further analysis. This analysis will hopefully show us if the claims for improvement of the dieetinzicht website have been met by our new design and implementation of the 'My Report' section.

5. Conclusions/Summary

This chapter concludes and summarizes the design report. The most noticable in each chapter is described here.

In the first chapter we analysed the entire website Dieetinzicht.nl and came up with 6 problem areas. The problem area "diet feedback" was the one we chose. When further analysing this part of the website by means of Hiericacl Task Analysis (HTA) interesting properties already showed up like diabetes information that is not relevant for a user with no diabetes or static user profile information that has nothing to do with the diet report.

In the second chapter we started with the new requirements for the problem area:

- A minimum click flow
- Easy understanding of the feedback
- Display only relevant information.

Parallel to that we created a target user Linda and wrote scenarios around her featuring these improvements. We concluded with 5 claims that we will evaluate in Period 4. The most noticable claims were:

- The user can find what he/she consumed over a certain period
- The user can identify unhealthy ingredients
- The user can find alternatives of certain ingredients

In the third chapter we discuss our new design. Most notable here is that the *mental model* for our target user is really simple, because the design is comparable to a lot of famous Windows user interface elements, like a cross for closure in the top right window etc. Other results mentionable is the new HTA model, which is extremely slim compared to the old model and the new UANs which include more interactive elements to support the user.

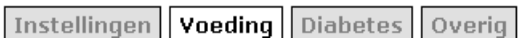
In the last chapter we present our proposed approach to evaluate our prototype and verify our claims. We set up one scenario with 6 tasks the four test users who match the Linda profile have to complete for both the old and new situation. They perform these test preferable at their domestic environment, like they would normally do when using the website. After 6 tasks for one situation, the user has to fill in a questionaire.

Appendix A: Screenshots current version Dieetinzicht.nl

This appendix contains screenshots that accompany the High-level Task Analysis for the current version of the dieetinzicht website.

1. Select Period

2. Enter required information



2.1 Set preferences

Categorie: angina pectoris

Geboortejaar: 1973
Geslacht: Man
Lengte: 175 cm
Gewicht: 75.0 kg
BMI: 24,49
Emailadres: a.s.panic-1@student.tudelft.nl

Database voor producten en recepten:
Beperkt aantal producten waarvan (bijna) alle voedingwaarden bekend zijn.

Postcode: 2611

2.2 Nutrition information

2.2.1 User specific (angina pectoris)

Samenvatting voedingsrapport angina pectoris

dag	energie (kcal)	eiwit (g)	koolh (g)	vet tot (g)	vet vz (g)	choles (mg)	vezels (g)	Se (µg)	water (g)
maandag 11 Februari 2008	1.234	35	241	15	7	35	9,8	19	201
dinsdag 12 Februari 2008	1.234	34	241	15	7	35	9,7	19	198
woensdag 13 Februari 2008	710	6	148	11	6	28	5,6	0	450
zondag 17 Februari 2008	711	37	52	39	14	38	11,6	16	751
daggemiddelden	**972**	**28**	**170**	**20**	**9**	**34**	**9,2**	**13**	**400**

Let op: de berekende daggemiddelden betreffen minimumwaarden, doordat het mogelijk is dat van enkele producten niet alle voedingswaarden bekend zijn. Deze zijn te herkennen aan de "lege" waarden in het gedetailleerde voedingsrapport.

In de periode van dit rapport heeft u aanpassingen gemaakt op de pagina "instellingen" die invloed hebben op de beschikbare producten. Het is daardoor mogelijk dat de totalen op het rapport onvolledig zijn. Kijk in het detailoverzicht om te zien of er gegevens van producten ontbreken.

2.2.2 Energy

Samenvatting voedingsrapport energie

dag	energie (kcal)	eiwit (kcal)	koolh (kcal)	vet tot (kcal)	vet vz (kcal)	vet ov (kcal)	vetz trans (kcal)	linolz (kcal)	alc (kcal)
maandag 11 Februari 2008	1.234	138	964	132	61	71	6	14	0
dinsdag 12 Februari 2008	1.234	138	964	132	61	71	6	14	0
woensdag 13 Februari 2008	710	24	593	95	54	41	6	1	0
zondag 17 Februari 2008	711	147	206	355	130	226	2	39	0
daggemiddelden	**972**	**112**	**682**	**179**	**77**	**102**	**5**	**17**	**0**
Energiepercentage		**11%**	**70%**	**18%**	**8%**	**11%**	**1%**	**2%**	**0%**

Let op: de berekende daggemiddelden betreffen minimumwaarden, doordat het mogelijk is dat van enkele producten niet alle voedingswaarden bekend zijn. Deze zijn te herkennen aan de "lege" waarden in het gedetailleerde voedingsrapport.

In de periode van dit rapport heeft u aanpassingen gemaakt op de pagina "instellingen" die invloed hebben op de beschikbare producten. Het is daardoor mogelijk dat de totalen op het rapport onvolledig zijn. Kijk in het detailoverzicht om te zien of er gegevens van producten ontbreken.

2.2.3 Vitamins

Samenvatting voedingsrapport vitamines

dag	vit A (µg)	vit B1 (mg)	vit B2 (mg)	vit B6 (mg)	vit B12 (µg)	vit C (mg)	vit D (µg)	vit E (mg)	foliumz (µg)	nicotz (mg)
maandag 11 Februari 2008	116	0,28	0,23	0,47	0,06	90	0,4	2,4	171	3,8
dinsdag 12 Februari 2008	112	0,28	0,23	0,46	0,06	89	0,4	2,4	170	3,8
woensdag 13 Februari 2008	116	0,31	0,26	1,65	0,06	176	0,3	1,1	129	3,2
zondag 17 Februari 2008	125	0,65	0,63	0,73	0,77	36	0,0	2,7	92	9,4
daggemiddelden	**118**	**0,38**	**0,34**	**0,83**	**0,24**	**98**	**0,2**	**2,1**	**141**	**5,1**

Let op: de berekende daggemiddelden betreffen minimumwaarden, doordat het mogelijk is dat van enkele producten niet alle voedingswaarden bekend zijn. Deze zijn te herkennen aan de "lege" waarden in het gedetailleerde voedingsrapport.

In de periode van dit rapport heeft u aanpassingen gemaakt op de pagina "instellingen" die invloed hebben op de beschikbare producten. Het is daardoor mogelijk dat de totalen op het rapport onvolledig zijn. Kijk in het detailoverzicht om te zien of er gegevens van producten ontbreken.

2.2.4 Minerals

Samenvatting voedingsrapport mineralen

dag	Na (mg)	Ca (mg)	Fe (mg)	Mg (mg)	Se (µg)	Zn (mg)	K (mg)	P (mg)	n-3 mov (g)
maandag 11 Februari 2008	683	109	3,5	180	19	2,35	841	718	0,0
dinsdag 12 Februari 2008	683	108	3,4	180	19	2,34	834	718	0,0
woensdag 13 Februari 2008	18	78	4,2	164	0	0,85	1.868	208	0,0
zondag 17 Februari 2008	2.258	151	5,5	114	16	2,23	1.998	456	0,0
daggemiddelden	**910**	**111**	**4,1**	**160**	**13**	**1,94**	**1.385**	**525**	**0,0**

Let op: de berekende daggemiddelden betreffen minimumwaarden, doordat het mogelijk is dat van enkele producten niet alle voedingswaarden bekend zijn. Deze zijn te herkennen aan de "lege" waarden in het gedetailleerde voedingsrapport.

In de periode van dit rapport heeft u aanpassingen gemaakt op de pagina "instellingen" die invloed hebben op de beschikbare producten. Het is daardoor mogelijk dat de totalen op het rapport onvolledig zijn. Kijk in het detailoverzicht om te zien of er gegevens van producten ontbreken.

2.3 Diabetes

glucose / insuline | koolhydraten / insuline

2.3.1 Glucose/Insuline summary

dag	datum	glucosewaarden								insuline (mix)					opmerkingen
		VO	NO	VL	NL	VA	NA	VS	N	VO	VL	VA	VS	N	
di	12-febr	3													
wo	13-febr	34	4		4										

2.3.2 Carbon hydrates/Insuline summary

dinsdag 12 Februari 2008

	kool-hydraten	glucose voor	glucose na	actrapid	insuline humuline NPH	humuline 30/70	koolh/ insuline(k)	opmerking
ontbijt	0	3						2asdfaf
tussendoor 's morgens	0							
lunch	0							
tussendoor 's middags	0							
avondeten	0							
tussendoor 's avonds	0							
voor slapen								

woensdag 13 Februari 2008

	kool-hydraten	glucose voor	glucose na	actrapid	insuline humuline NPH	humuline 30/70	koolh/ insuline(k)	opmerking
ontbijt	0	34	4					dasdf
tussendoor 's morgens	0							
lunch	0		4					
tussendoor 's middags	0							
avondeten	0							
tussendoor 's avonds	0							
voor slapen								

2.4 Other information

	di 12 febr
metingen	
bloeddruk ochtend (mmHg)	10/100
bloeddruk middag (mmHg)	10/100
bloeddruk avond (mmHg)	10/1.000
bloeddruk gemidd. (mmHg)	10/400
pols (per min)	120
temperatuur (°C)	36,0
gewicht (kg)	80,0
BMI	26,1

3. Print report

Afdrukweergave

Rapport van 11-02-2008 tot 17-02-2008

Vink de overzichten aan die u wilt printen

Voedingsrapport 11-02-2008 t/m 17-02-2008	☑ samenvatting	☐ gedetailleerd
Voedingsrapport energie	☐ samenvatting	☐ gedetailleerd
Voedingsrapport vitamines	☐ samenvatting	☐ gedetailleerd
Voedingsrapport mineralen	☐ samenvatting	☐ gedetailleerd
Medicatierapport 11-02-2008 t/m 17-02-2008		☐ gedetailleerd
Overige	☐ samenvatting	

Print

Instellingen

Categorie: angina pectoris

Geboortejaar: 1973
Geslacht: Man
Lengte: 175 cm
Gewicht: 75.0 kg
BMI: 24,49
Emailadres: a.s.panic-1@student.tudelft.nl

Database voor producten en recepten:
- Beperkt aantal producten waarvan (bijna) alle voedingwaarden bekend zijn.

Postcode: 2611

Let op: de berekende daggemiddelden betreffen minimumwaarden, doordat het mogelijk is dat van enkele producten niet alle voedingswaarden bekend zijn. Deze zijn te herkennen aan de "lege" waarden in het gedetailleerde overzicht.

Samenvatting voedingsrapport angina pectoris

dag	energie (kcal)	eiwit (g)	koolh (g)	vet tot (g)	vet vz (g)	choles (mg)	vezels (g)	Se (µg)	water (g)
maandag 11 Februari 2008	1.234	35	241	15	7	35	9,8	19	201
dinsdag 12 Februari 2008	1.234	34	241	15	7	35	9,7	19	198
woensdag 13 Februari 2008	710	6	148	11	6	28	5,6	0	450
zondag 17 Februari 2008	711	37	52	39	14	38	11,6	16	751
daggemiddelden	**972**	**28**	**170**	**20**	**9**	**34**	**9,2**	**13**	**400**

In de periode van dit rapport heeft u aanpassingen gemaakt op de pagina "instellingen" die invloed hebben op de beschikbare producten. Het is daardoor mogelijk dat de totalen op het rapport onvolledig zijn. Kijk in het detailoverzicht om te zien of er gegevens van producten ontbreken.

Deze overzichten zijn gegenereerd door Dieetinzicht.nl op basis van de door u ingevulde voedingsproducten.
De gebruikte voedingswaarden zijn gebaseerd op de NEVO Tabel 2006 en de Eetmeter (Voedingscentrum).

Deze gegevens zijn gebaseerd op de NEVO Tabel 2006 en de Eetmeter (Voedingscentrum).

Appendix B: Literature

Books

1) Benyon, D., Turner, P., and Turner, S., (2005). Designing Interactive Systems: People, Activities, Contexts, Technologies. Harlow, England: Addison-Wesley (Pearson Education).

Papers

2) Carroll, J.M., Rosson, M.B., Chin, G., and Koenemann, J. (1998). Requirements development in scenario-based design. IEEE Transactions of software engineering, 24 (12), 1156-1170.

3) Picard, R.W., (2000). Toward computers that recognize and respond to user emotion. IBM systems journal, 39 (3-4), 705-719.

4) Endsley, M.R., (1995). Towards a theory of situation awareness in dynamic-systems. *Human factors*, 37(1), 32-64.

Webreferences

5) http://www.cs.umd.edu/class/fall2002/cmsc838s/tichi/knowledge.html
6) http://www.interaction-design.org/encyclopedia/mental_models.html
7) http://jan.ucc.nau.edu/edtech/etc667/proposal/evaluation/summative_vs._formative.htm
8) http://www.socialresearchmethods.net/kb/intreval.php