Report Gooey

DA219 **Gooey: Soft and Sticky** (Jun Hu)

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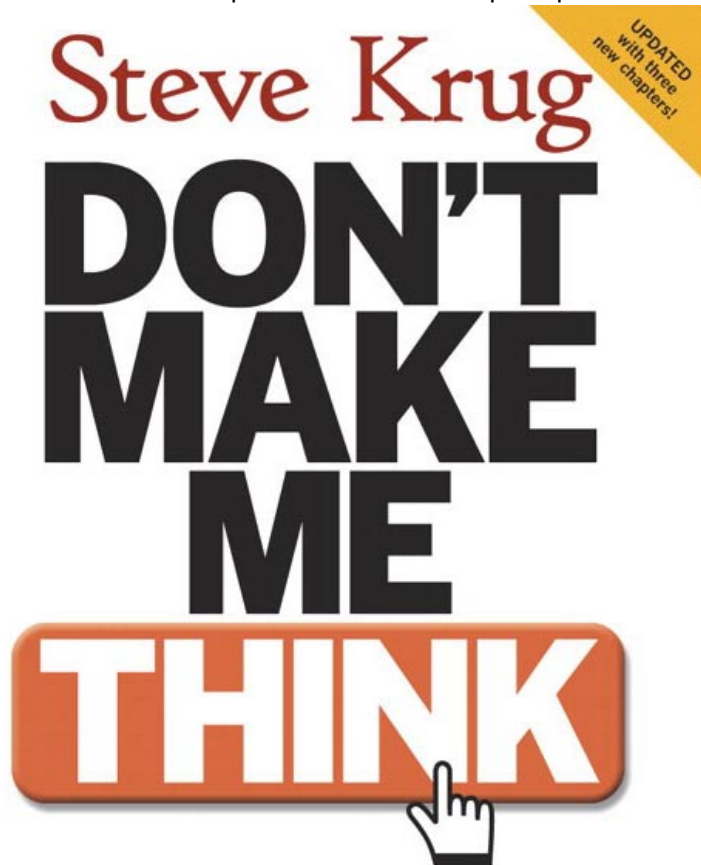
Introduction

In this report we will first describe the main principles we have learned from the book 'Don't Make me Think' from Steve Krug. Afterwards we will discuss the main assignment: creating a new GUI (Graphical User Interface) for a specified target group. We made several (interactive and paper) prototypes and tested them with multiple persons. In the end we will discuss our final prototype and our personal evaluation of the assignment.

Book

At the beginning of the assignment we had to choose a book. In our case we selected the book 'Don't Make me Think' from Steve Krug. This educative and ironic book illustrates a common sense approach to web usability. However the book is mainly focusing on web-sites, the minority of the principles can also applied to GUI's. See the presentations for the principles we retrieved from this book.

User Group

As user group we decided to focus on project members. these people have to work with multiple projects on their PC's, including multiple files/documents and contacts which are linked to specific projects.

Interview and conclusions User group

Interview with Jacques Geraets (49), which runs projects on several locations with multiple directories:

As project manager you are connected with your external assignor on one side, and project members on the other side. As project manager you should ensure that your team fulfills the demands of your external assignor well.

External Assignor ⬌ Project manager ⬌ Project members
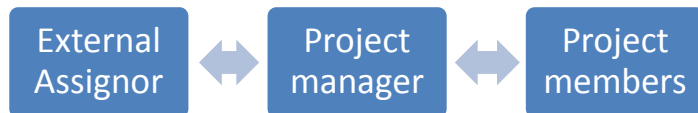
Concerning your external assignor, you as project manager should be able to get overview of the project and progression very quickly. Besides the request of projects is important in this relation; therefore different formats, subsidy-providers and progression-reports are all connected together. Moreover-regular final-evaluations should be discussed.

Focusing on the leader-workers relation, there is a lot exchange and management of documents and other files. Besides the overview of the project should be maintained, this can be financial/staff-costs, planning (timesheets), project-progression and even logistics. Moreover the product-management or portfolio should be maintained. This can be documents/database/protocols.

Moreover the use of backups is very important, as project-manager you simply don't have the time to backup all the files constantly.

Interview with Bart Duisters (48), Graphic Designer at 'Studio Stas' in Eindhoven

After a short introduction concerning the small project I am working on, I showed him a list with characteristics of working with projects. He immediately started to talk about how they work with projects.

They often use the same computer programs during a project. A point which he mentioned which I did not take into account was that they have to calculate and manage their own working-hours; how long do they work on a specific project on one day for example. So they have to keep track of the time they spend.

Back-up was another point mentioned. Basically because all the things they do and make are 'virtual'; computer-files, they need a good back-up system. Questions that did arise: Can this be done automatic? Or at least with as less effort as possible.
He told about that he sometimes also works on personal projects, that these are also stored on the computer at work. Perhaps we should think about how we can create a certain distance between 'work' work and personal work.

During a second meeting which I had with Bart, I asked him a few more question concerning some topics mentioned above, and more concrete about how they handle with different contacts and projects concerning file-management.

Concerning the back-up-system, he makes an everyday-backup to a local hard disk next to his computer. And quite regularly to a 'large' back-up system where all work of the company is stored.
How they handle with contacts en project-file management: Every client has their own 'number' (e.g. 111) and also does every project have its own number. This creates a unique system which makes it possible to find easily all different projects. In these projects there are some different sub-folders (e.g. folders with files from a back-up system, pictures)
They have to manage their own working hours. They should be quite carefull because sometimes you do some other activities which are not implemented in the project-work which you of course should not count with the working-hours for the client.
I also asked if he was using 'Recent Document', for example provided by Adobe Illustrator (after opening the program). But he told me that he most of the time not did that. He usually went to the specific folder and searched for the file he needed.

Conclusions
Here we will mention a few conclusions and aspects which we have extracted from the two interviews above.

- managing multiple projects and files
        (Keeping track of all the different files/folders for different projects)
- maintain overview of projects and files
        (Can we see how far a project is finished? Can I easily find the right documents?
- multiple contacts
        (How do I keep in touch with different members of a team for example?)
- sharing and exchange files
        (How can I easily share files with a whole team?)
- backups
        (How do you manage different back-up systems, or plan different back-up activities?)
- recent documents
        (Recent documents are used, but can we make them more efficient for example?)

Research on existing sharing-possibilities

There are a lot of programs or applications available designed to organize and share files with multiple people. We will discuss a few of them.

Google Docs (source: http://www.google.com/google-d-s/intl/en/tour2.html)
Google Docs is an online web-application/site which is designed in order to create files (documents, presentations etc..) and share them with multiple people, even at the same time. The files are stored on the server of Google, so everybody with an internet connection can access, edit and upload files for everybody who has access to the folder. As file-creator you can choice which people can access your documents by entering their email-addresses. When a file is shared, it is possible to edit and present files in real time. There is even an on-screen chat.
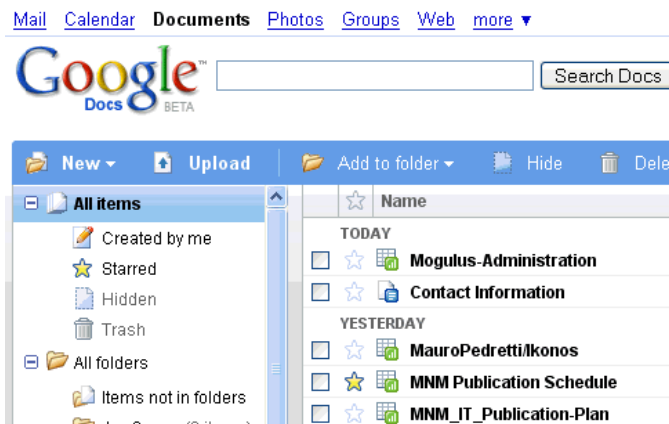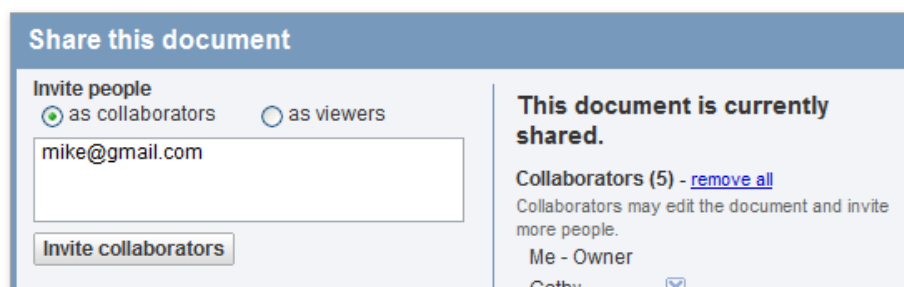
Microsoft project
Microsoft project is an office-application which can be used to manage projects. For a project the tasks, Predecessors, resources, users and time schedule are placed in a sheet. Microsoft project creates a visual overview of the whole project and makes it easier for the manager to manage the whole project. As project manager you can easily maintain overview of the project and analyze the progression.

Apple Timemachine (source http://www.apple.com/nl/macosx/features/timemachine.html)
Apple Timemachine is a backup tool which is used on Apple pc's. It is integrated in the Mac OS operating system. When time machine is enabled, it automatically makes daily backups of the files on your computer. Moreover Timemachine backups the previous version of a folder or file when it is being replaced by a newer file automatically. When you want to restore the previous version of a folder or file, you simply open the Timemachine application. Afterwards you can 'travel trough time' of different file versions. The date is located in the bottom of the screen. When you find the file you want, you can easily restore it by overwriting the current file.

Shared folders, MSN
MSN, the most used Instant Messaging application, has a build-in option to share a folder with another person in your contact-list. When the other person accepts your shared folder-invitation a copy of the folder is created on the PC of the other person. In this way both persons will have the same folder and

files on their PC's. MSN automatically synchronizes the folder when both persons are online. Therefore both persons will also have the newest versions of the files when they are online.
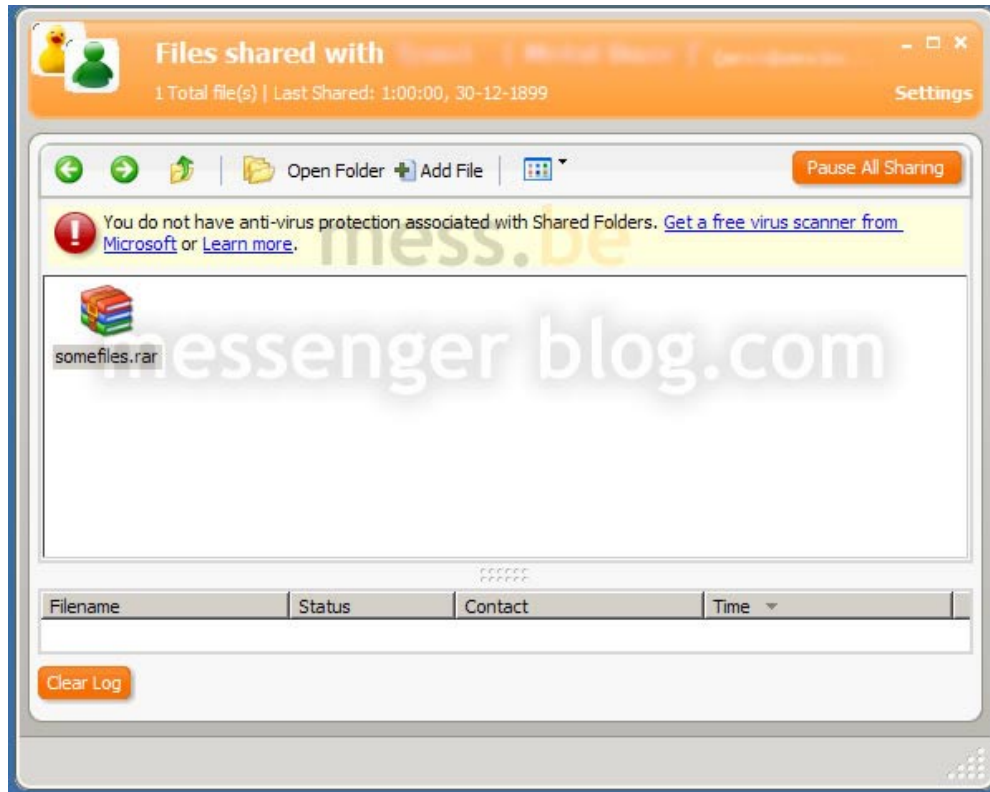
Research on Windows and Ubuntu

In this assignemtn we focus on operating systems, we compared Windows (XP) and Ubuntu (8.04.1.505) as systems. We made an overview of the different aspects which we liked to test.

On the next pages you can read more about the different things we compared.

Maarten

Multiple desktops
(Ubuntu)
Ubuntu has the unique ability to create multiple (virtual) desktops. In the left down corner there is a small indicator of the amount of virtual desktops and which one you are on. The orange colour indicates which one you are working on. In the screenshot below you can see that the left desktop is active. You can easily switch to another desktop on several ways. The first one is to simply click in the left down corner in order to select the desktop you want. Another way is to scroll the mouse when you are on the desktop. In that case you are automatically moved towards the other desktop. When you scroll up, the left desktop moves towards the left and the second desktop appears from the right side. When you continue scrolling or when you scroll down, Ubuntu will take you back towards the first/left desktop. The third way to change desktop is simply dragging the active window towards the other desktop. When changing of desktop, a small indicator appears in order to notify that you are moving from one desktop towards another. The indicator in the left down corner indicates which desktop you are currently working on. When you are on the right desktop, the indicator colors orange. The applications which were active on the left desktop will be still active/running, but they are visible when you are on the right screen. The desktop itself (including the wallpaper and the files located on the desktop are the same on both desktops. This unique feature of Ubuntu enables users to extend their desktop space.
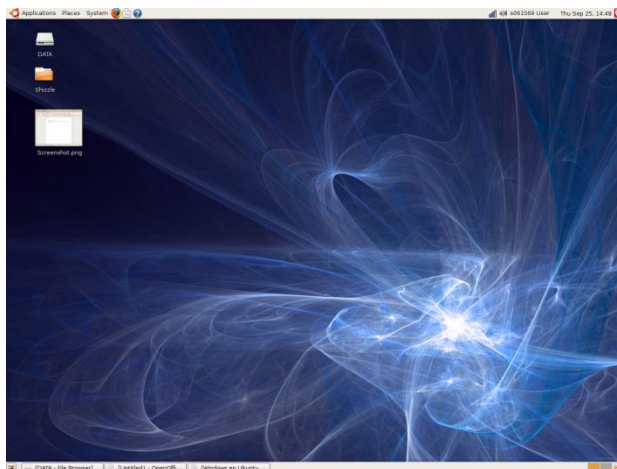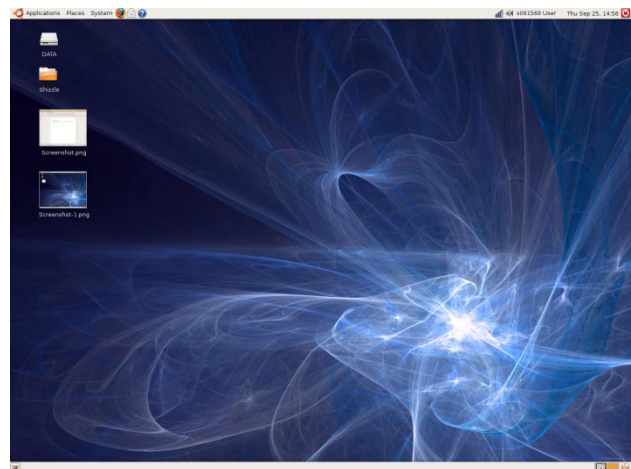
//Left desktop   *//Right desktop*
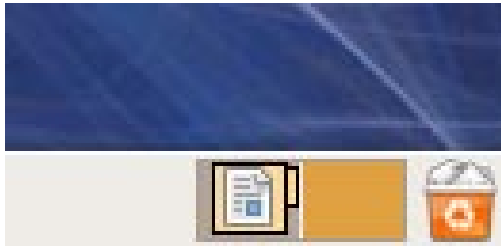
//Desktop-switcher in the right below corner

Test multiple desktop

As project manager you are working with a lot of files and applications simultaneously. For instance, you are working on three Word-documents, two Presentations, two folders and 2 web pages at a time. Windows has the opportunity to ' cluster' active windows into the taskbar. Which is on one hand nice to create an overview, but makes it on the other hand more difficult to switch between the windows, because you have to click the mouse more compared to without 'clustering'.

//Clustering of windows

Ubuntu however, has the unique ability to create multiple virtual desktops. This enables users to shift from desktop and move the active windows towards another desktop. For this test I decided to move the two file-browsers and two Firefox towards the second/right desktop by simply moving them towards the right desktop. As you can see in the screenshots below, you can see that the three documents and 2 presentations are placed on the left desktop. On the right desktop you can see two file-browser windows and two Firefox windows.
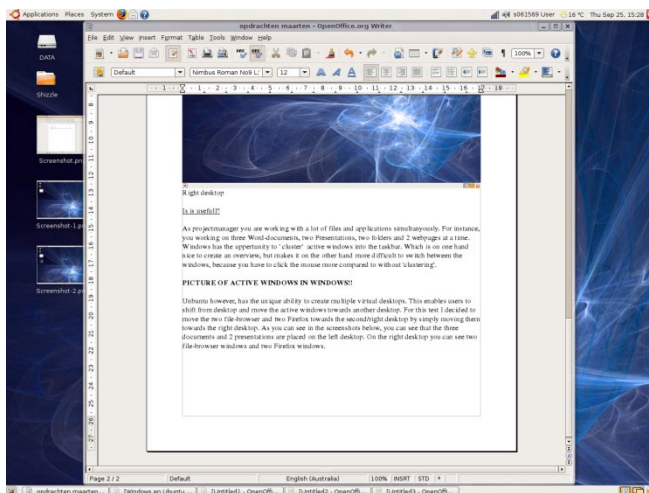
//Left desktop, 3 documents and 2 presentations
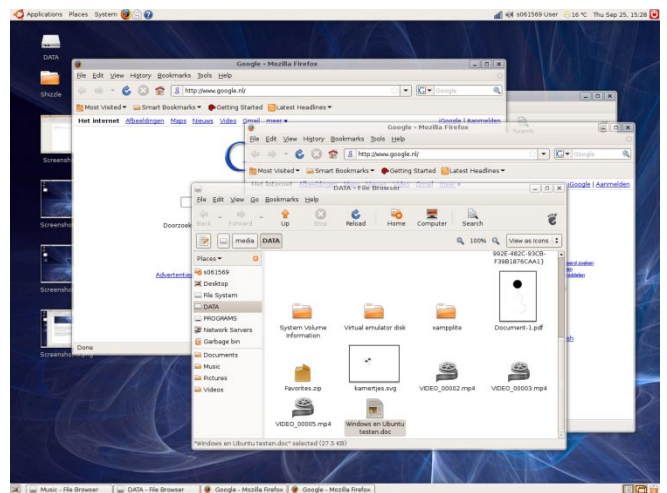
*//Right desktop, 2 file-browsers and 2 Firefox windows.*

Conclusion

In my opinion, this makes it a lot easier to create overview of the files and applications I'm working on. Because not all the active windows are located on one desktop, it is easier to create overview and even switch from window. Because all the office-related applications are located on the left desktop and the files and web browser are on the right desktop, it is easier to switch from application. Every desktop has its own panel with active windows, therefore it easily to switch between active windows on every desktop. On both desktops the wallpaper, files on the desktop and upper menu-panel stay the same. Therefore it is possible to start up applications and open files on both desktops. Even the list of recent documents is the same on both desktops. Therefore it doesn't matter which desktop you are currently using.
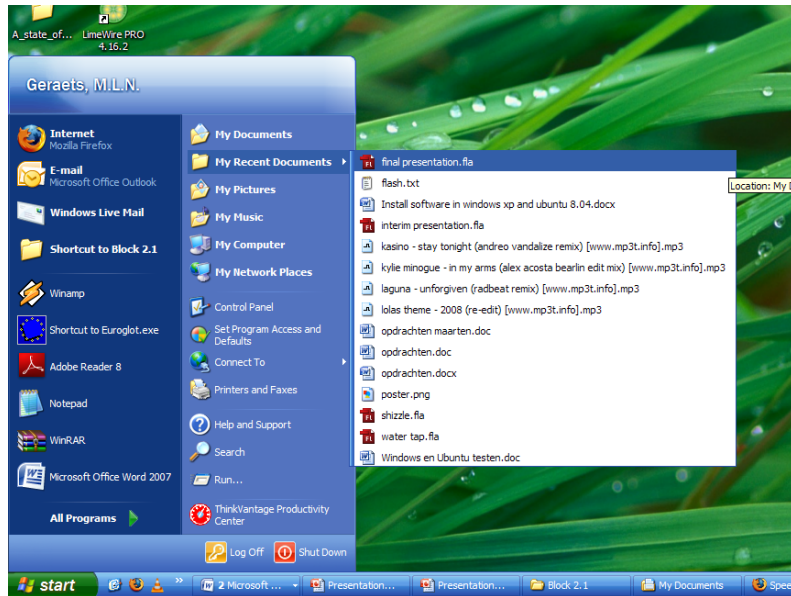
Recent documents

Ubuntu

Ubuntu has the ability to view the most recent documents/files which are opened. This can be easily located by accessing the upper panel, click on places and then move the mouse towards the 'recent documents.
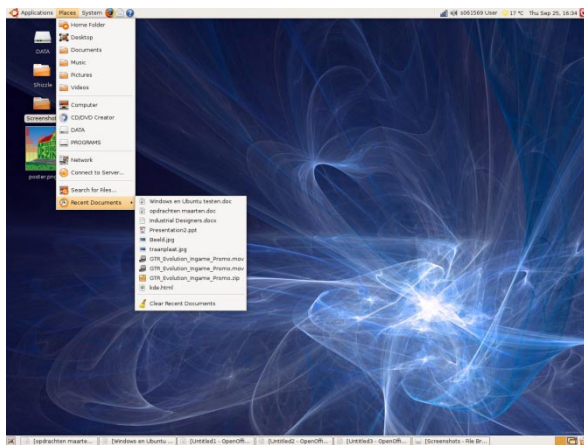
//Recent documents in Ubuntu

Windows

In windows the recent documents-list can be accessed by clicking on start, and moving your mouse towards the 'my recent documents' sign. Afterwards you can access the files you opened recently.

//My recent documents in Windows

Conclusion

This feature is very handy when you just started up your PC and what to continue your work from previous time. This can also be done when you are working in a specific application, however this can be unclear because than you can two lists of 'recent documents'.

Concerning a project manager this can also be very useful to continue the project you worked on last time. However, due to the list of used files. Also while working this could be a helpful feature, because as manager you are working with a lot of files/applications. It would be better to include the 'recent files' tab in the windows of a specific project. So every project-folder has its own list of 'recent documents'. Otherwise all the files, of different projects, are hassled through each other.

Sippe

Folder and file-structure
The following tasks are done on a computer with Windows XP SP3 installed, normal mode and on Ubuntu 8.04 LTS on the same computer to prevent differences in computing power.

> **After installing Windows or Ubuntu, what folder-structure do you find already made for you?**
> (We only look at your 'personal documents'; not how the C:-drive for example is divided concerning folders)

Windows:
Concerning your personal documents, you can find a folder called 'My documents' where already three pre-made folders can be found: 'My Music', 'My Pictures' and 'My Videos'. The music-folder includes a folder 'Sample Music' with already two available songs.
When deleting for example 'My pictures'-folder, it will restore itself again in the 'My Documents' folder after start-up.
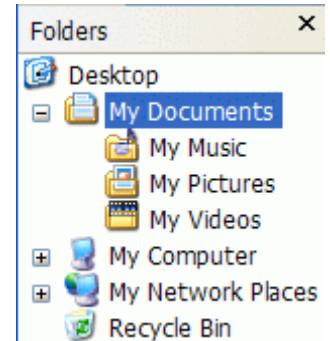
Ubuntu:
Also in Ubuntu you can find fixed folders. You have your 'Home folder, and in that home folder, you can find four other fixed folders: 'Documents', 'Music', 'Pictures' and 'Videos'. Furthermore, there is nothing yet in these folders.
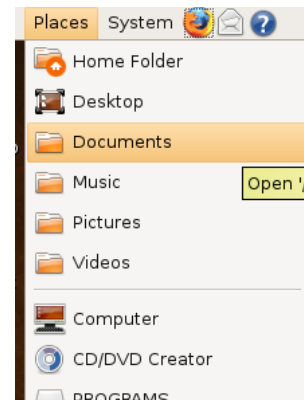
Conclusion:
As a conclusion, focusing on our target group, we can say that pre-defined folders do not have a big advantage because you need personal defined folders. These presets can be useful for example as a 'home'-user who mainly wants to manage their own multimedia and where this folder-structure does give some help to order things correctly. When choosing from Ubuntu or Windows, we choose Ubuntu in this case because you can very easily delete the specific folder.

Go three layers deep into your folder-structure (starting from 'My documents' in Windows, and from 'Documents' in Ubuntu), **what information is visual or available which gives you an indication of where you are?**
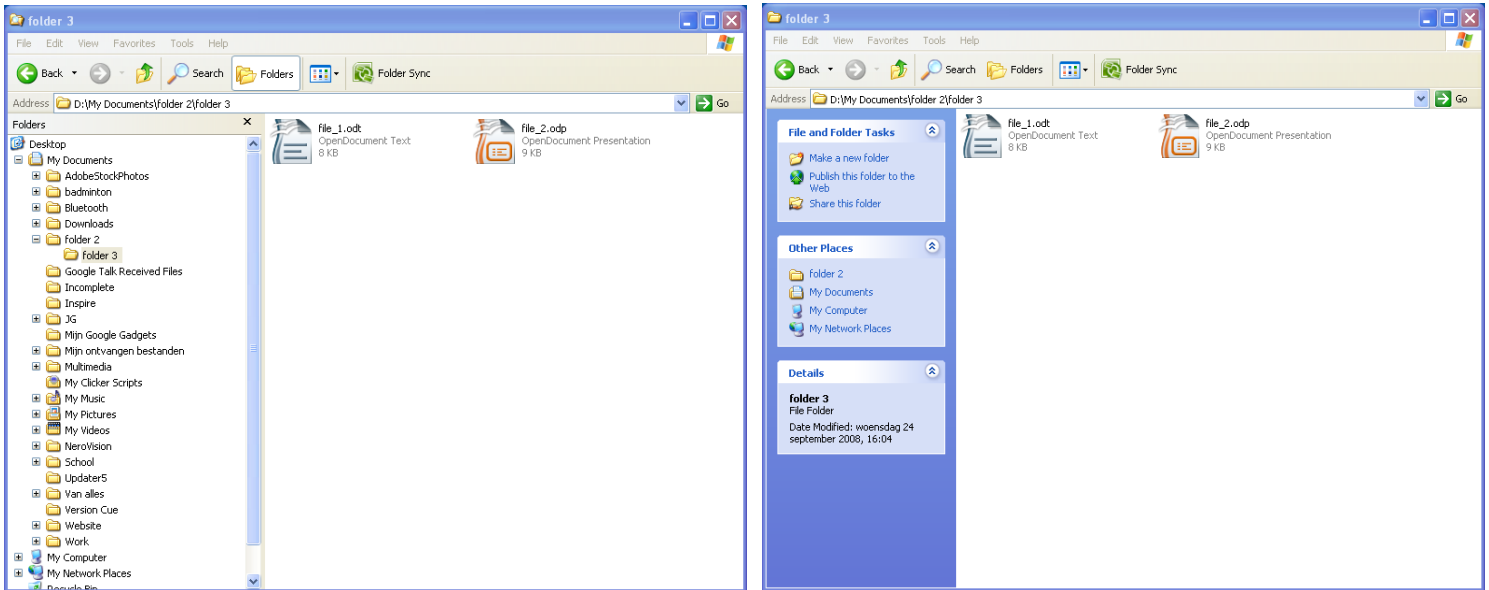

Windows:
You can find 'breadcrumbs' at the top of the window, showing first on what drive you are. In this case 'D:\My Documents\folder 2\folder 3'.
At the left of the folder, you can also find some information concerning the place. In the 'Other Places' window you see the previous folder ('folder 2') and the folder before the previous one ('My Documents').
Some options, like the 'breadcrumbs' or 'Address bar' can be put on or off by using the 'View' option in the top.
Another way to view files in windows is by using the 'Explore'-option. Then you will get a view like in the left picture on this page. You can also see the overview of other folders.
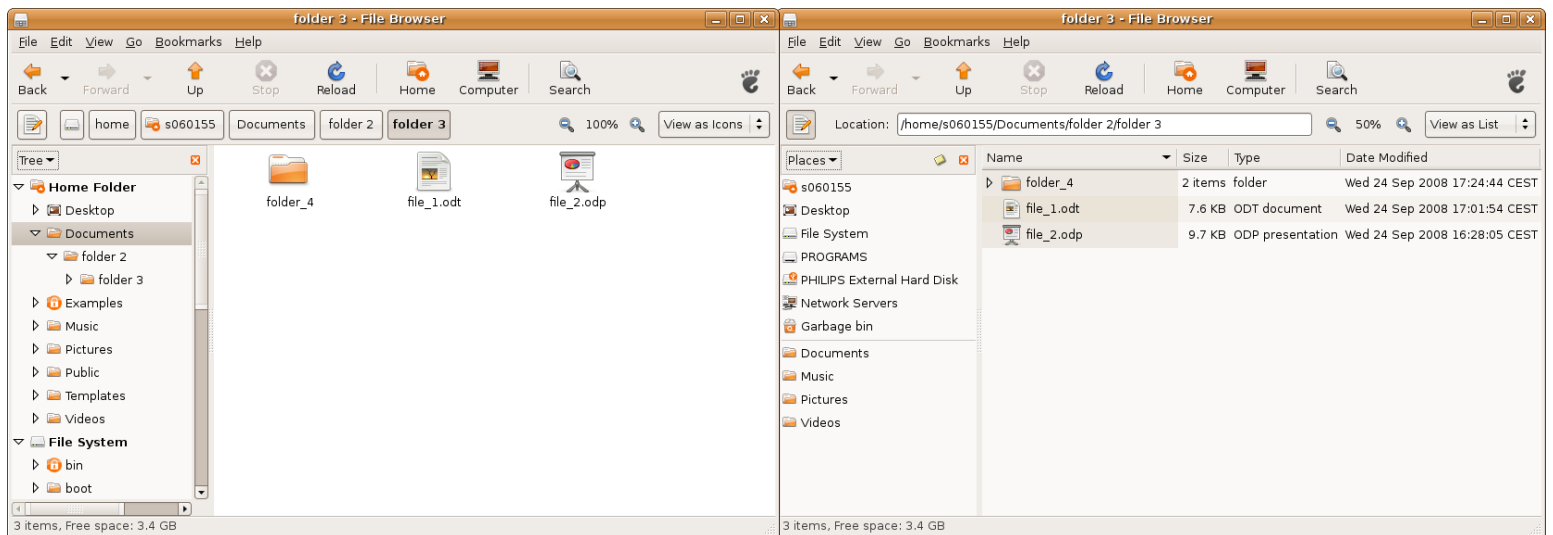
Ubuntu:
Here you can find 'breadcrumbs' also at the top, but here they are represented like different buttons which makes it possible for you to switch to certain folders immediately (left picture). At the normal view (right picture), you can see other places at the left, but they do not really match with the place you are currently in. You can also change that view into a 'Tree'-view which makes it possible to have more information concerning the folder-structure (left picture). There is also a possibility to view the history of the folders you have visited by switching to the 'History'-view. This makes also clear where you are and what folders you have visited before. Ubuntu does still have another option which can be quite useful; when having a folder in the 'list'-view mode, you see folders as a icon with an arrow where you can click on and which will unfold. This creates no need to leave, in this case, 'folder 3' to see what 'folder 4' does have as contents.

Conclusion:
Ubuntu does have quite some more options available concerning this task. For example the 'button'-breadcrumbs can be a good way to help you navigating more easily back or further in the folders. Then it also gives you some addition to only information. In Windows, we assume that the 'Other places'-menu does not help that much because it is not really clear why these folders are there if you not actively focus on when they change for example. For our target-group button-breadcrumbs can be useful to improve the speed while working. An 'explorer' or 'tree'-structure can help to give you a certain overview of where you are exactly concerning other folders around you. The 'history'-option does not add that much we guess.
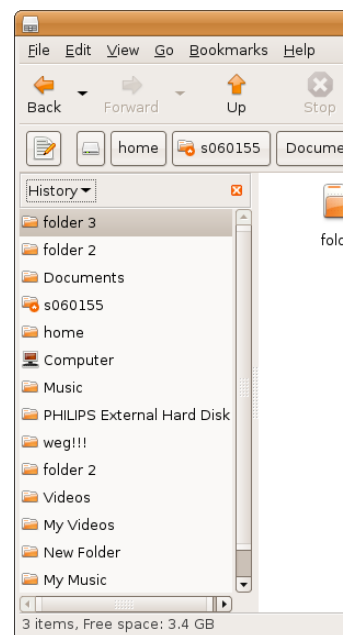
In that same folder of the previous task, **what possibilities do you have to personalize the way how the files are ordered and presented to you?**

Windows:
In this version of Windows, you have the possibility to view the files in five different ways:

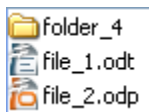Thumbnails: (When possible a preview is shown of the file of content of a folder.)

Tiles: (This gives some more information about the file, e.g. the size and kind of document)

Icons (just the file-name and a icon):

List: (almost the same as an icon, but now organized in a list)

Details: (the same as list, but now more information can be showed)

Name	Size	Type	Date Modified
folder_4		File Folder	24-9-2008 16:31
file_1.odt	8 KB	OpenDocument Text	24-9-2008 16:27
file_2.odp	10 KB	OpenDocument Pre...	24-9-2008 16:28

In all the different views you have the possibility to arrange the files by 'Name' 'Size' 'Type' and 'Modified'.
You can also choose how you want to arrange the icons; 'Show by groups' (divide the different types for example under a different heading), 'Auto Arrange' (the computer puts the files in one line, you are not able to place them on a random point on your page) and 'Align to grid' (you can arrange the icons randomly, but they stay fixed on a grid).
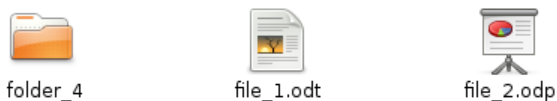Extra: Concerning pictures and some other multimedia, there are also some extra settings you can choose from. E.g. with pictures you can choose to view the files also in a 'Filmstrip'-way and arrange them also on 'Picture Taken On' and 'Dimensions'.
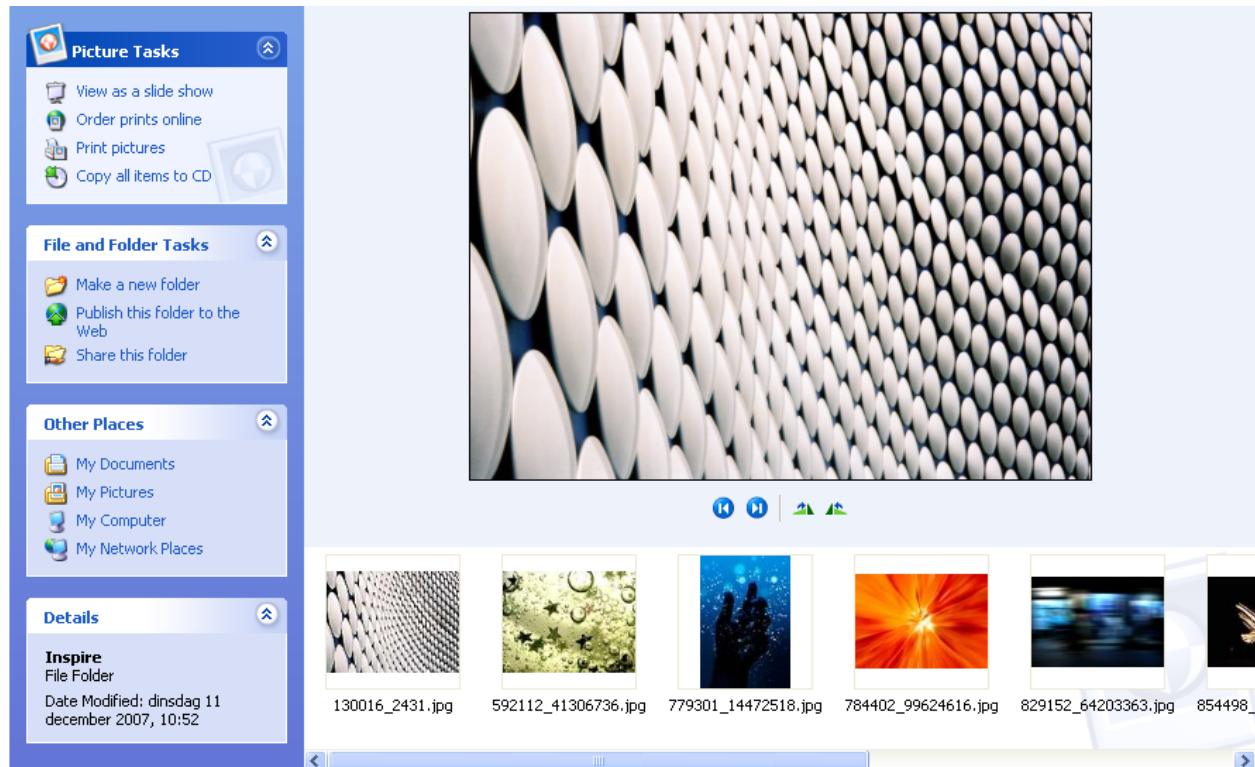
Ubuntu:
In Ubuntu you can view the files in two different ways: view as 'Icons' or as 'List'.

Icons (file-name and an icon):

List:

There is also an option where you can zoom in/out from the list- or icon-view. Ubuntu also gives the option to choose whether you want to arrange the list/icons 'By Name' 'By Size' 'By Type' 'By Modification Date' and 'By Emblems'. There is also a possibility where you can choose if you want to view the folders before the files or that the folders are threatened the same as the files.
As far as we could find, Ubuntu does not have a special way of threatening multimedia-files like Windows can do for example.

Conclusion:
There is not that much difference between Ubuntu and Windows in the way how files can be arranged. A positive point from Ubuntu is that you can label files and folders with icons so that you can easily have them together. Windows does have some more visualizations of how the files and folders inside a folder can be presented. This is not really necessary because the differences between them are quite small. For multimedia, and mainly pictures, Windows does have some more possibilities. This can also be useful for our target group, more easily presenting of pictures for example.
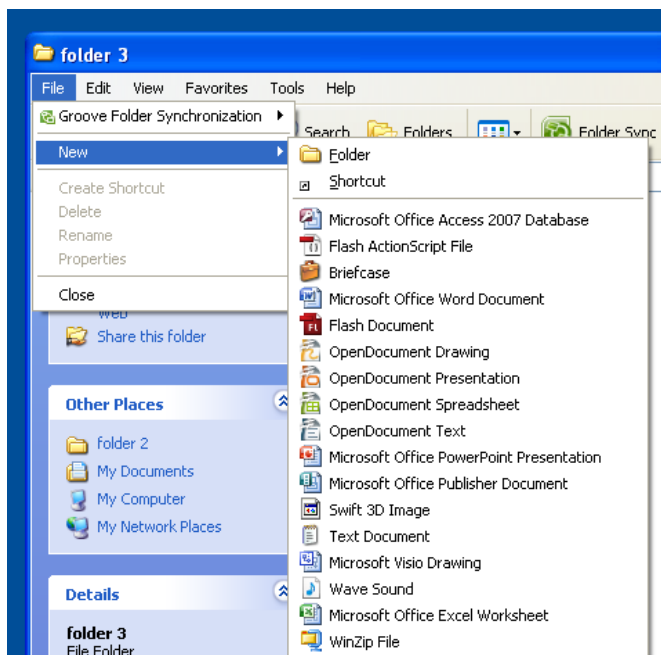
When being in your personal folder, how can you set up new folders with files?

Windows:
When being in a folder, you can find some information at a window on the left where you can choose new actions from.
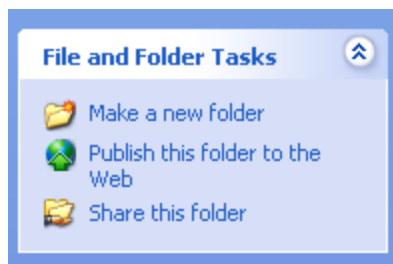

Secondly you can go to the top bar, and choose 'File' where you can choose to set up a new folder, shortcut or a specific file.

And a third possibility is to right-click in the folder and then goes to 'New', which does give the same overview as mentioned in the previous one.

Ubuntu:
At the top bar you can find 'File' and when you click there you can immediately click on 'Create Folder' or 'Create Document'. You can also use the right-mouse-click to create a new file or folder.
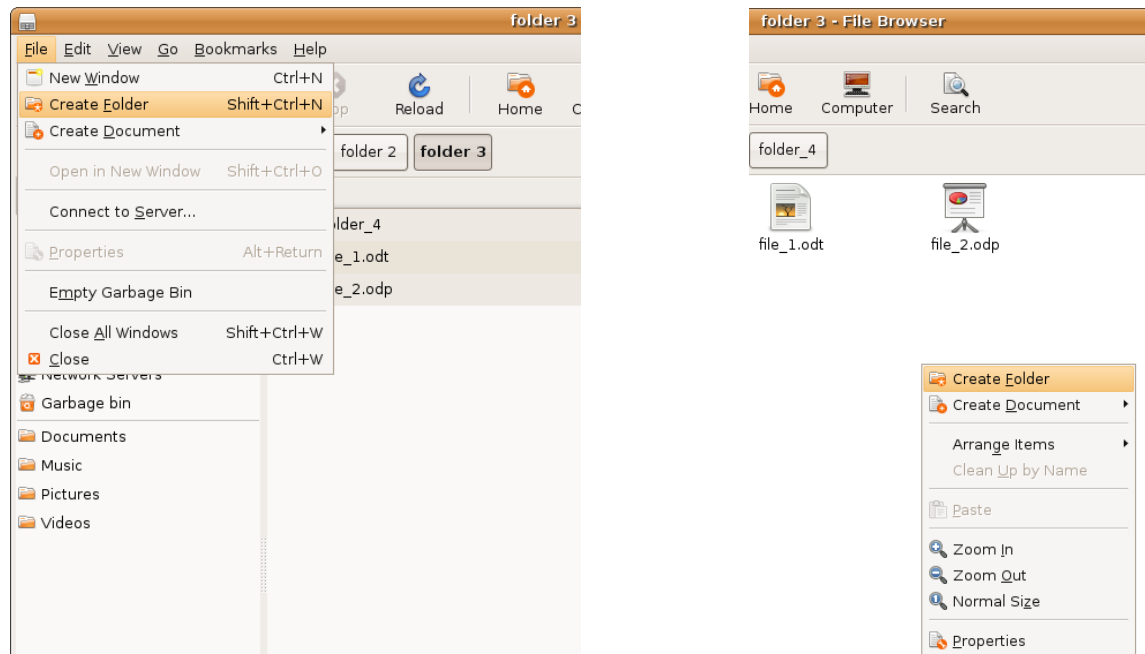
Conclusion:
There are not that many differences in how a new folder can be created. An advantage of Windows is that you immediately can click on the option in the window on the left, and there is no other action required. But mainly we cannot clearly indicate how this does have an effect on our target group.
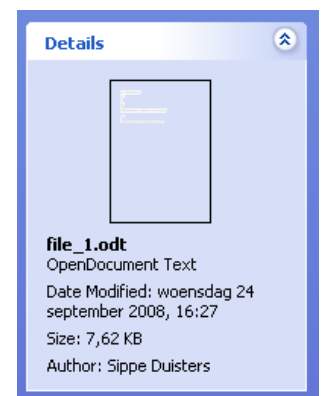
Folder and file information

Go to a third layer-folder (see also task 2) where you have a few documents. **What information can be found immediately and what information is available?**

Windows:
By clicking on a file, a 'Details'-window is shown at the left of the folder, where you immediately can see a preview of the file and other characteristics.
A lot of this information can also be found when having your folder in a 'Details'-view. You can choose what information you want to have available e.g.:

Name	Size	Type	Date Modified	Date Created	Date Accessed	Attrib...	Status	Owner	Author	Pages	Title	Subject	Category	Comments	Copyright	Artist	Album Title	Year
folder_4		File ...	24-9-2008 1...	24-9-2008 1...	24-9-2008 16:31		Online	TUE\s...										
file_1.odt	8 KB	Ope...	24-9-2008 1...	24-9-2008 1...	24-9-2008 17:01	A	Online	TUE\s...		1	File	Test	School	This documen...				
file_2.odp	10 KB	Ope...	24-9-2008 1...	24-9-2008 1...	24-9-2008 16:28	A	Online	TUE\s...	Sippe ...									

When you right-click on a document, and then go to 'Properties', you can find more characteristics concerning the document and add some information if you want to.
As already mentioned in another task, you can see a preview of a document when being in the 'Thumbnail'-mode when being in the specific folder.

Ubuntu:
In Ubuntu you can, just like in Windows choose some details which you want to see in the folder.

Name	Size	Type	Date Modified	Date Accessed	Group	MIME Type	Octal Permissions	Owner	Permissions	SELinux Context
▷ 📁 folder_4	2 items	folder	Wed 24 Sep 2008 17	Wed 24 Sep 2008 :	s060155	inode/director	40777		s060155 · drwxrwxrwx	unknown
📄 file_2.odp	9.7 KB	ODP pre:	Wed 24 Sep 2008 16	Wed 24 Sep 2008 :	s060155	application/vn	100777		s060155 · -rwxrwxrwx	unknown
📄 file_1.odt	7.6 KB	ODT doc	Wed 24 Sep 2008 17	Wed 24 Sep 2008 :	s060155	application/vn	100777		s060155 · -rwxrwxrwx	unknown

Another option is to have icons but then zoom in, how further you zoom, how more information you can see.
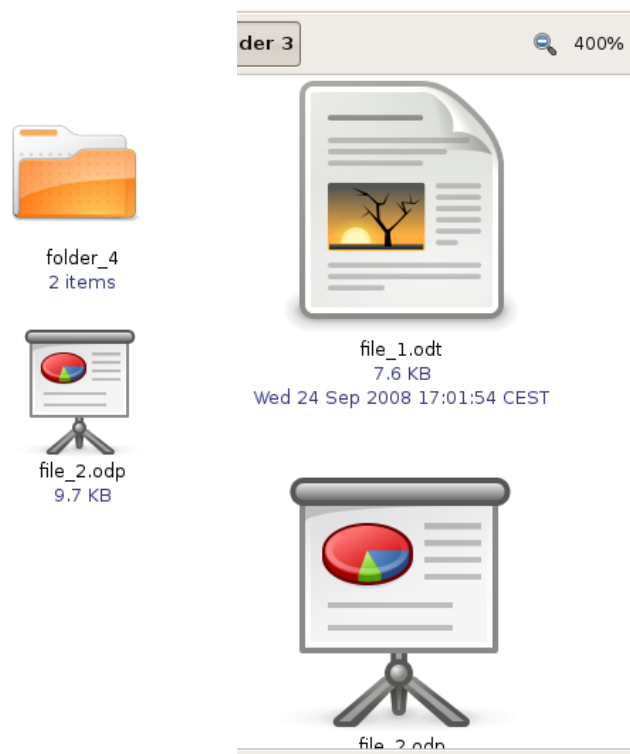
Also a 'Properties' screen can be seen when right-clicking with your mouse on the document.
Ubuntu does also give you a quite unique way of organizing or labeling documents. You can choose to add different 'emblems' to files and folders. This makes it quite easy to recognize specific files and creates a better overview.
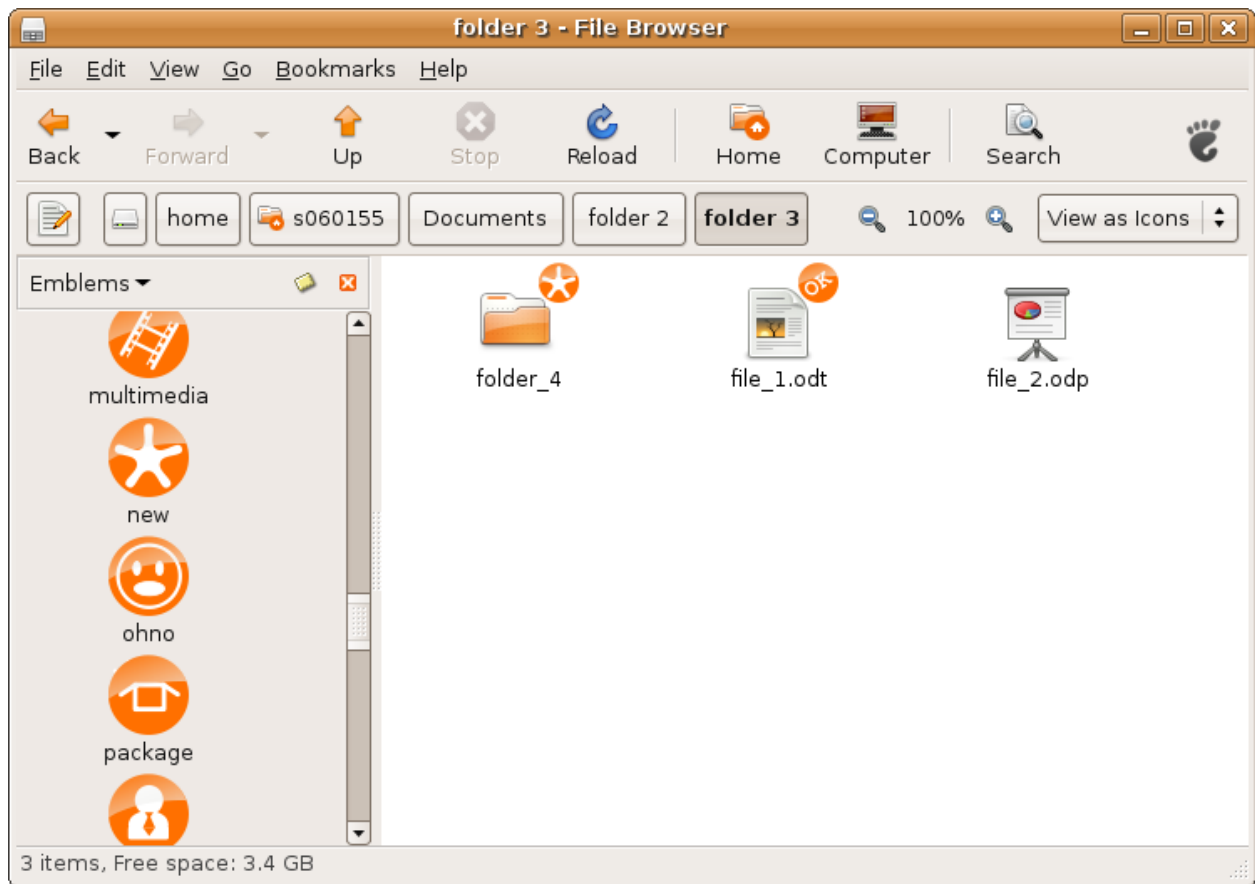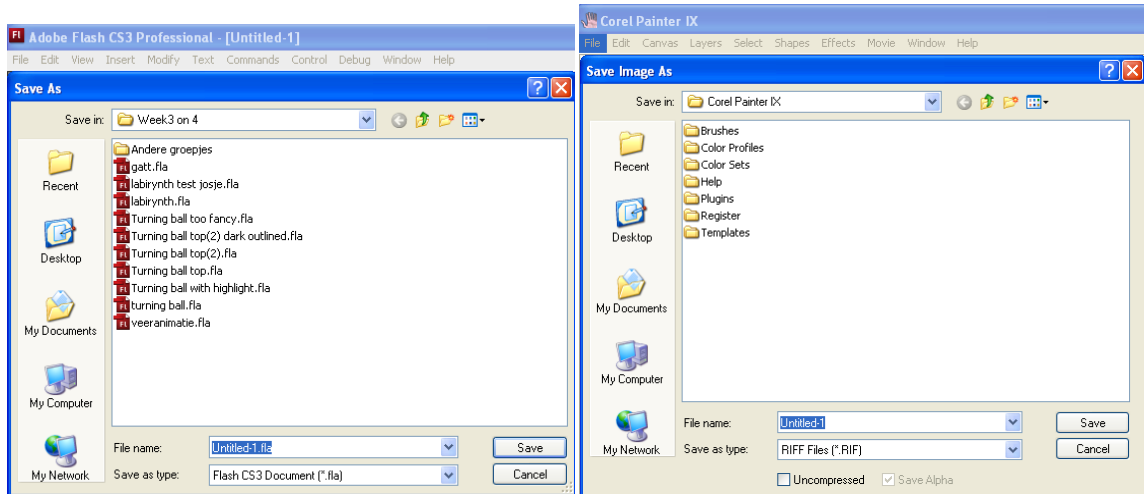
Conclusion

Ubuntu uses a quite smart way to see what information is visible when using icons. The details-view do not really differ that much. In Windows although, you do have more information possibilities which you can manually add. For our target group it can be useful to have a preview shown of how the specific file looks like. This can be done in Windows. The 'emblems' part of Ubuntu is certainly a useful tool for our target group, it makes it easy to specify more what kind of file it is, the importance etc. Ubuntu does this in a quite more interesting and useful way than Ubuntu does.

Josje

Saving & opening files

1. Open two different programs (which use different file types) and create a new document in each. **When saving these documents, which folder do the different programs recommend?** (Is there regularity?)

Windows

//Folder "Week3 on 4"   *//Folder "Coral Painter IX"*

Conclusions
Adobe Flash opens a folder of files I've recently been working on. I haven't worked in Coral Painter recently, so that program refers me to the program's general folder.

Ubuntu
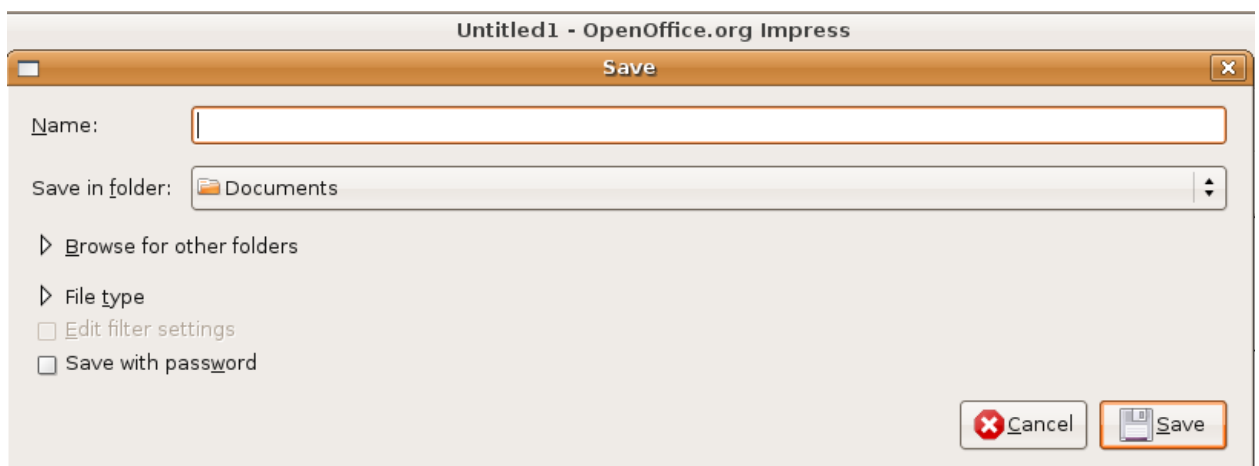
//Folder "Documents"

2. Save the file from one program one a folder higher, and save the one from the second program one a folder deeper (by creating a new folder and saving it in there). If you now again create a new document for each and save it, **did the folder at hand change from the first situation**?

Windows
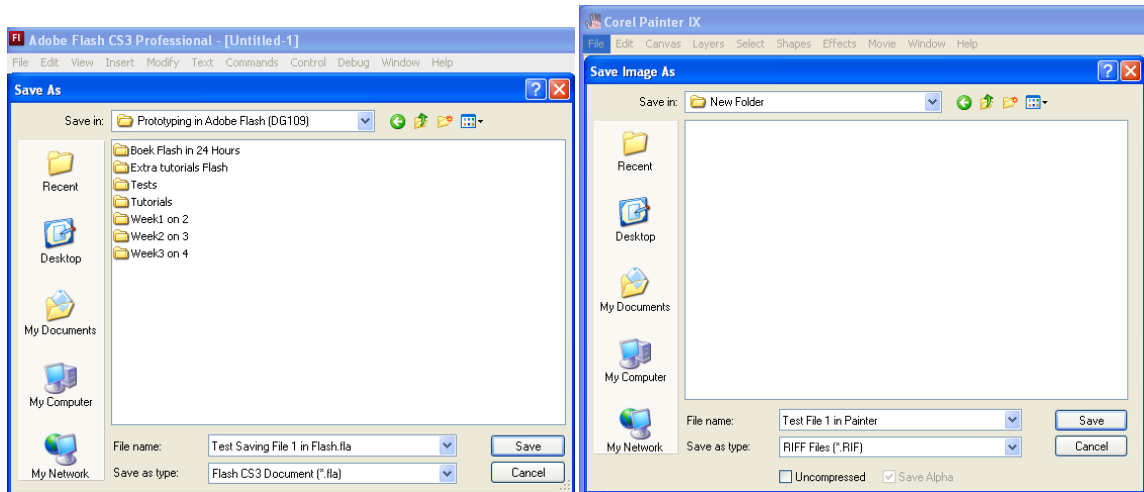
//Folder "Prototyping in Adobe Flash"   *//Folder "New Folder"*
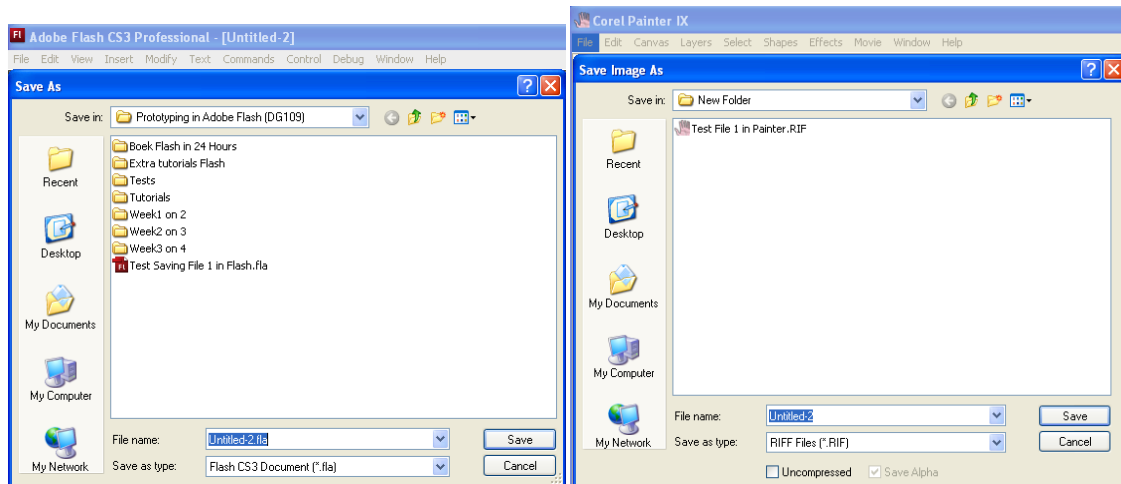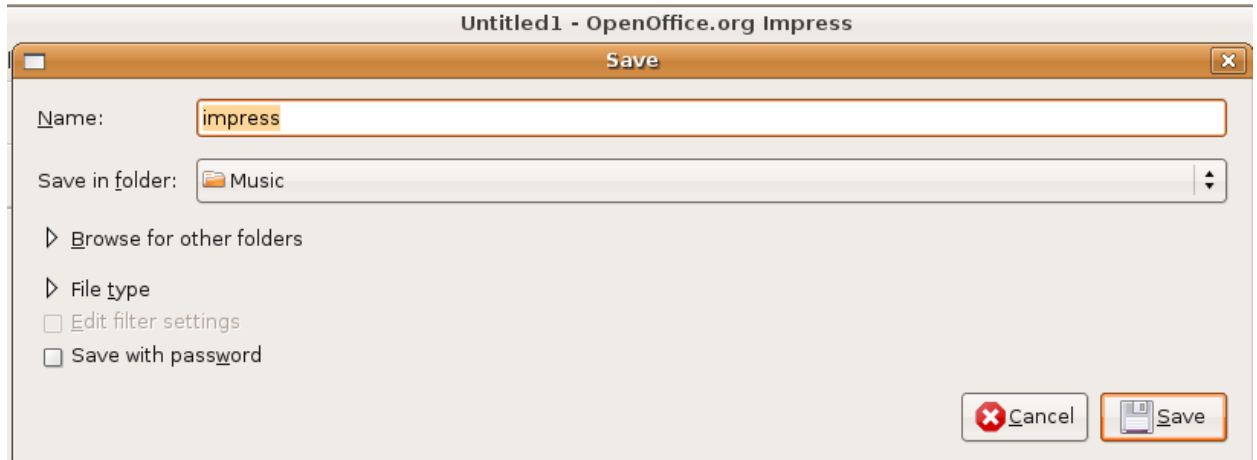

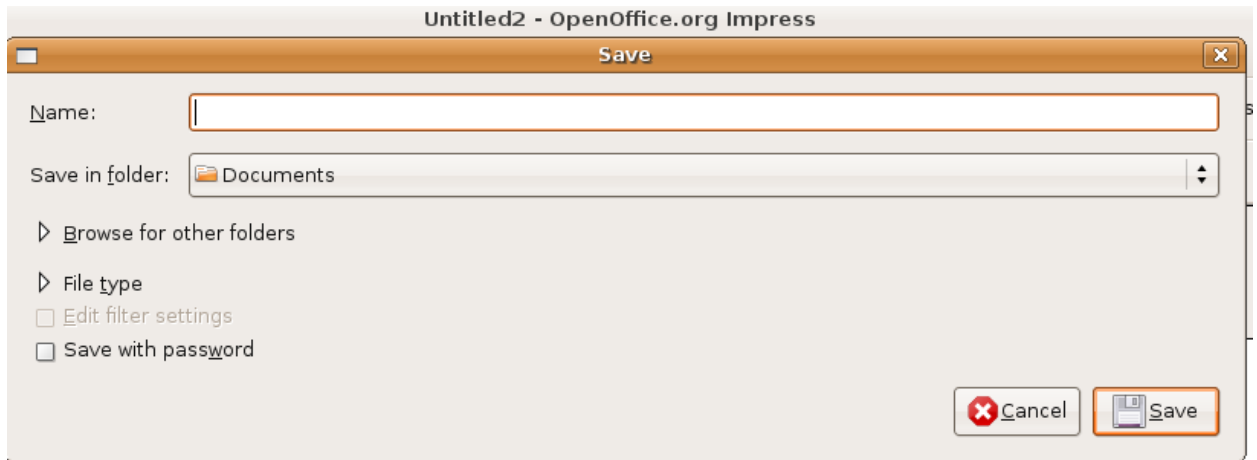*//Folder "Prototyping in Adobe Flash"*   *//Folder "New Folder"*

Conclusions
When saving a file, the program suggests the folder in which you saved your previous file.

Ubuntu

//Folder "Music"

//Folder "Documents"

3. Close both programs and start them again. Again create a new document in each and save them, **does the program recommend the folder presented in the first task, or the folder presented in the second task by the program?**
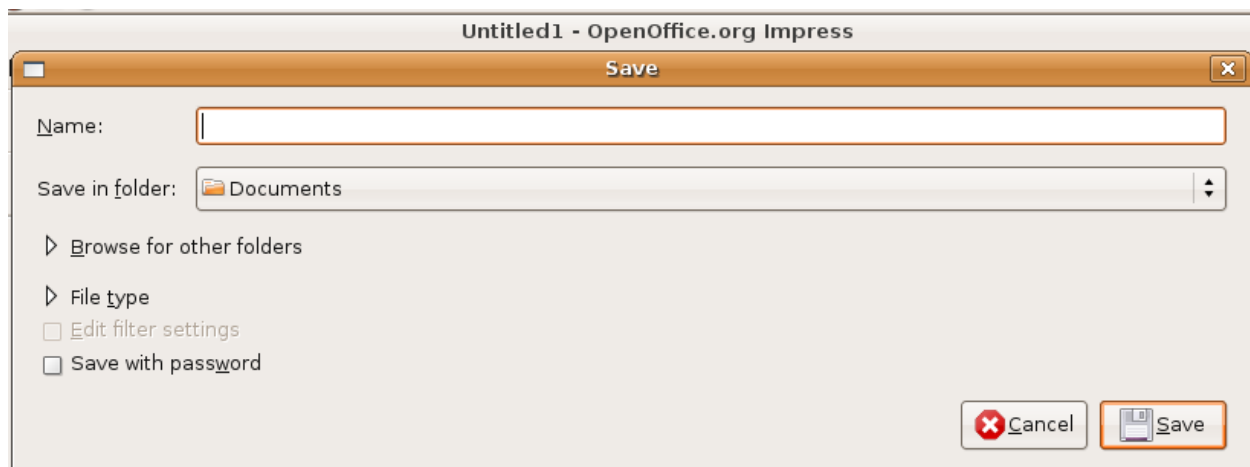
Windows
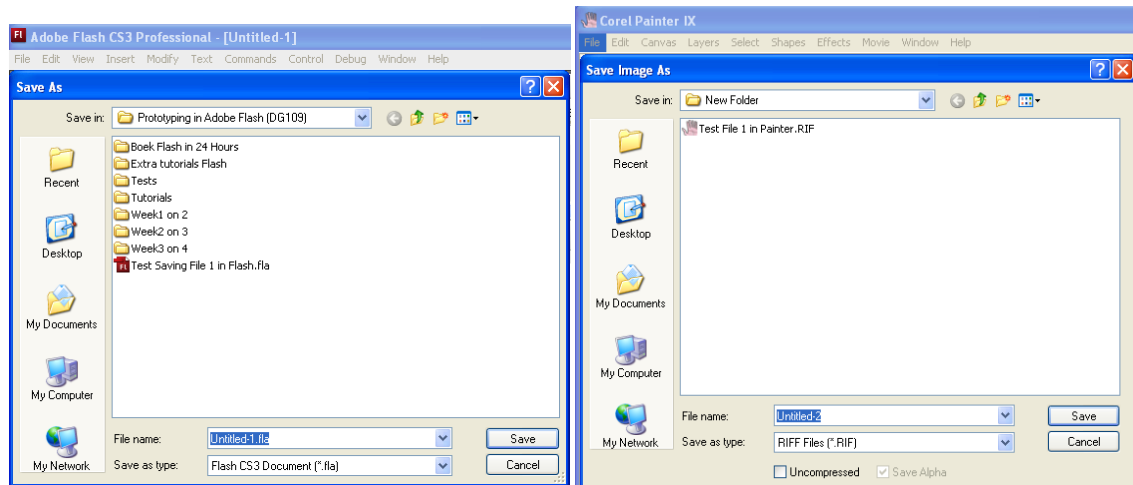
//Folder "Prototyping in Adobe Flash"   //Folder "New Folder"
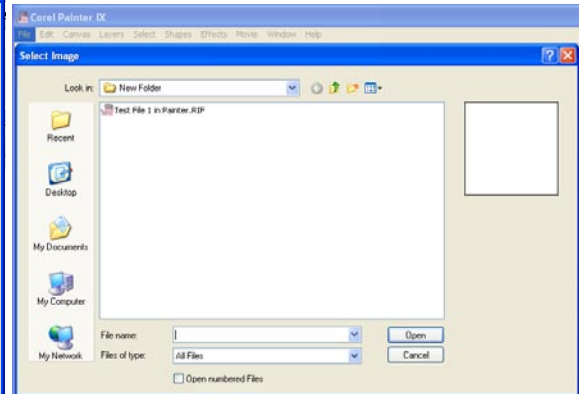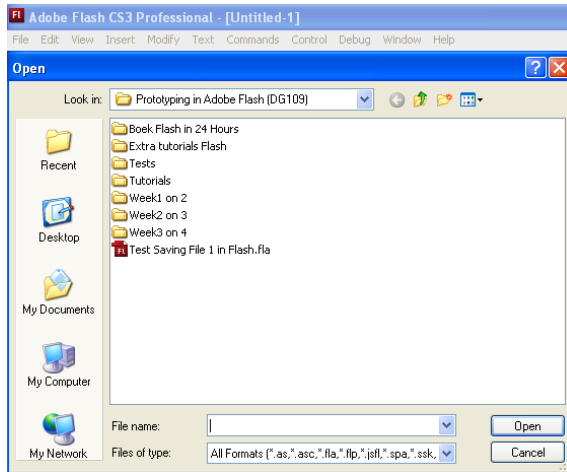
Conclusion
Even after quitting and restarting the program, when saving a new file the program remembered the file you saved your previous file in and refers you to that folder (so the folder from the second task).

Ubuntu

//Folder "Documents"

4. If you want to open a document in both, **what is the first folder presented by the program when selecting 'open'?**
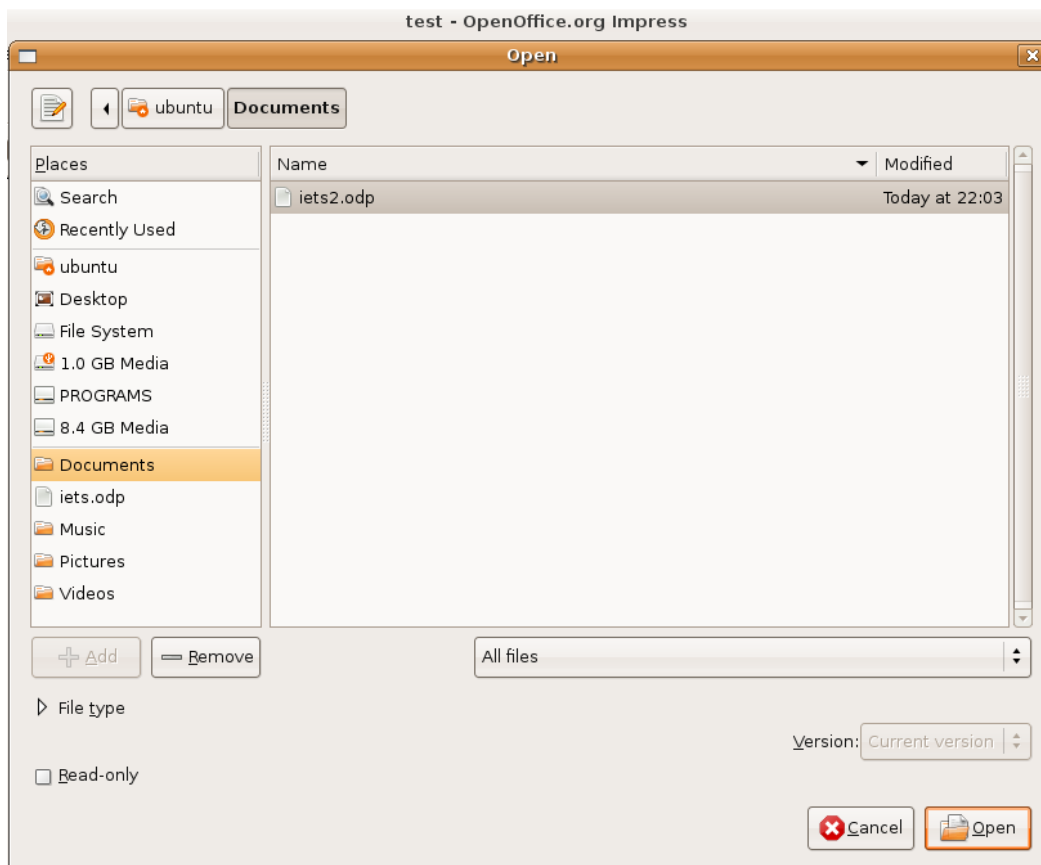
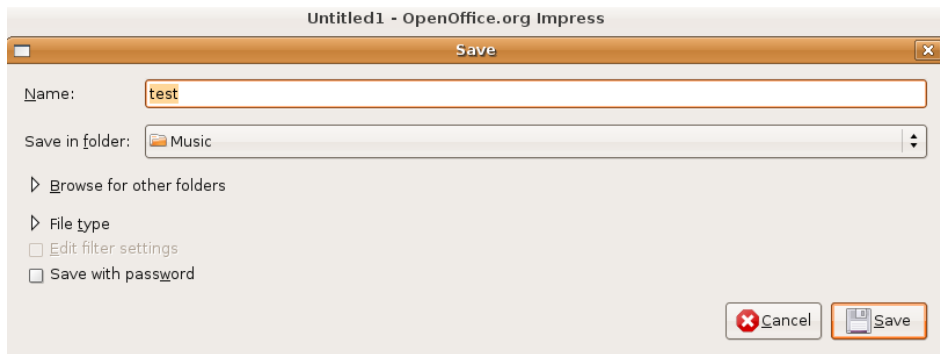*//Folder "Prototyping in Adobe Flash"*   *//Folder "New Folder"*

Conclusion
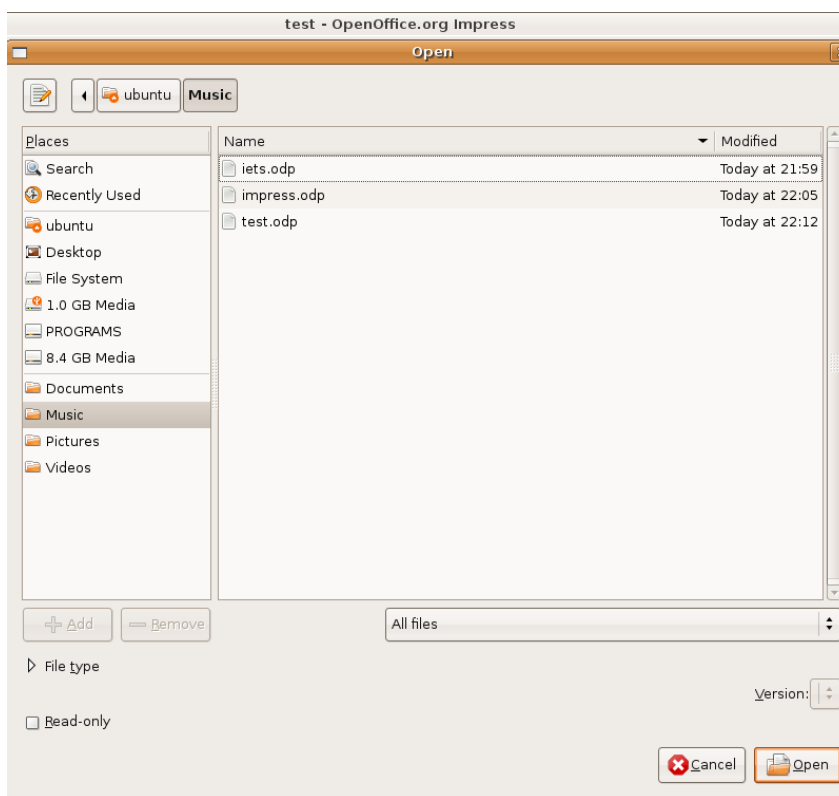Even for the opening function, both programs refer the user to the folder in which he saved his previous file.
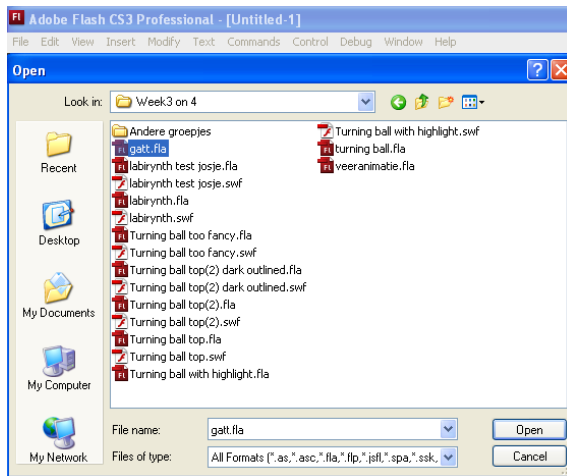
Ubuntu
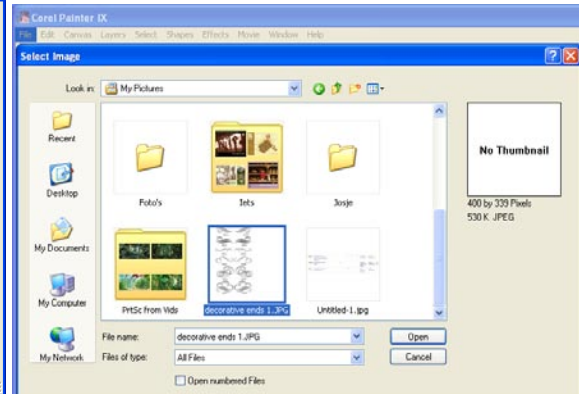

//Folder "Documents"

//Folder "Music"

//Folder "Music"

5. Open a file in each document in the way you saved documents in task 2 and again create 2 new documents. **If you save them now (in a different place than were you found the file, preferably in a folder not yet used), does this affect the folder the program provides when opening another time?**
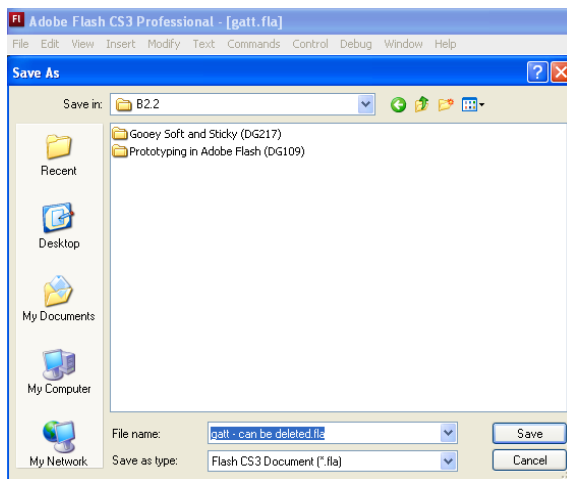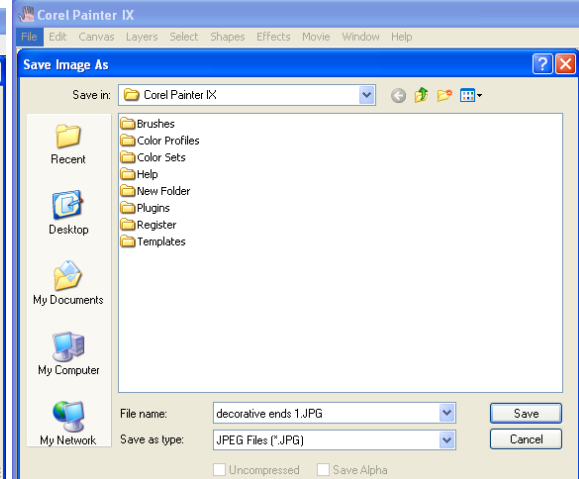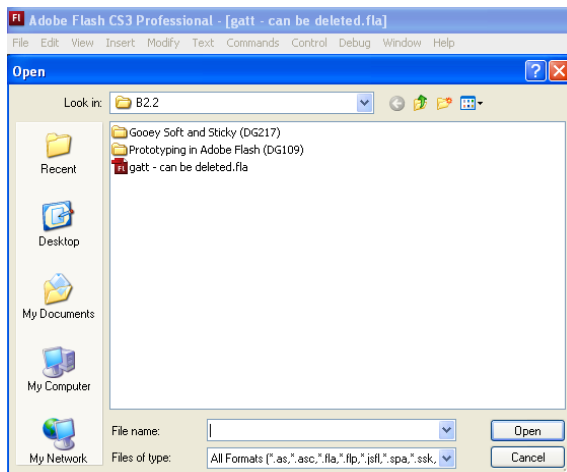
Windows

//Folder "Week 3 on 4"

//Folder "My Pictures"

//Folder "B2.2"

//Folder "Coral Painter IX"

//Folder "B2.2"
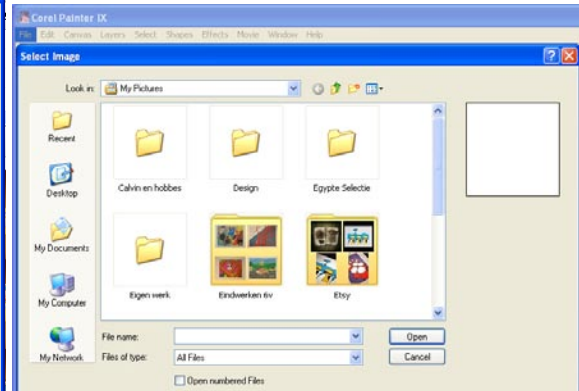
//Folder "My Pictures"

Conclusions

When saving an existing file into another folder, at opening another file Adobe Flash refers the user to the folder used to save the previous file, whereas Painter does not refer to the file in which previous file was stored, but to folder from which the previous file was opened.

Here we see there is some irregularity between these programs on which folder to recommend when opening a file. One is solely based on where the previous file was saved. The other program refers to the previous used opening-folder when opening, and to the previous used saving-folder when saving.

Ubuntu
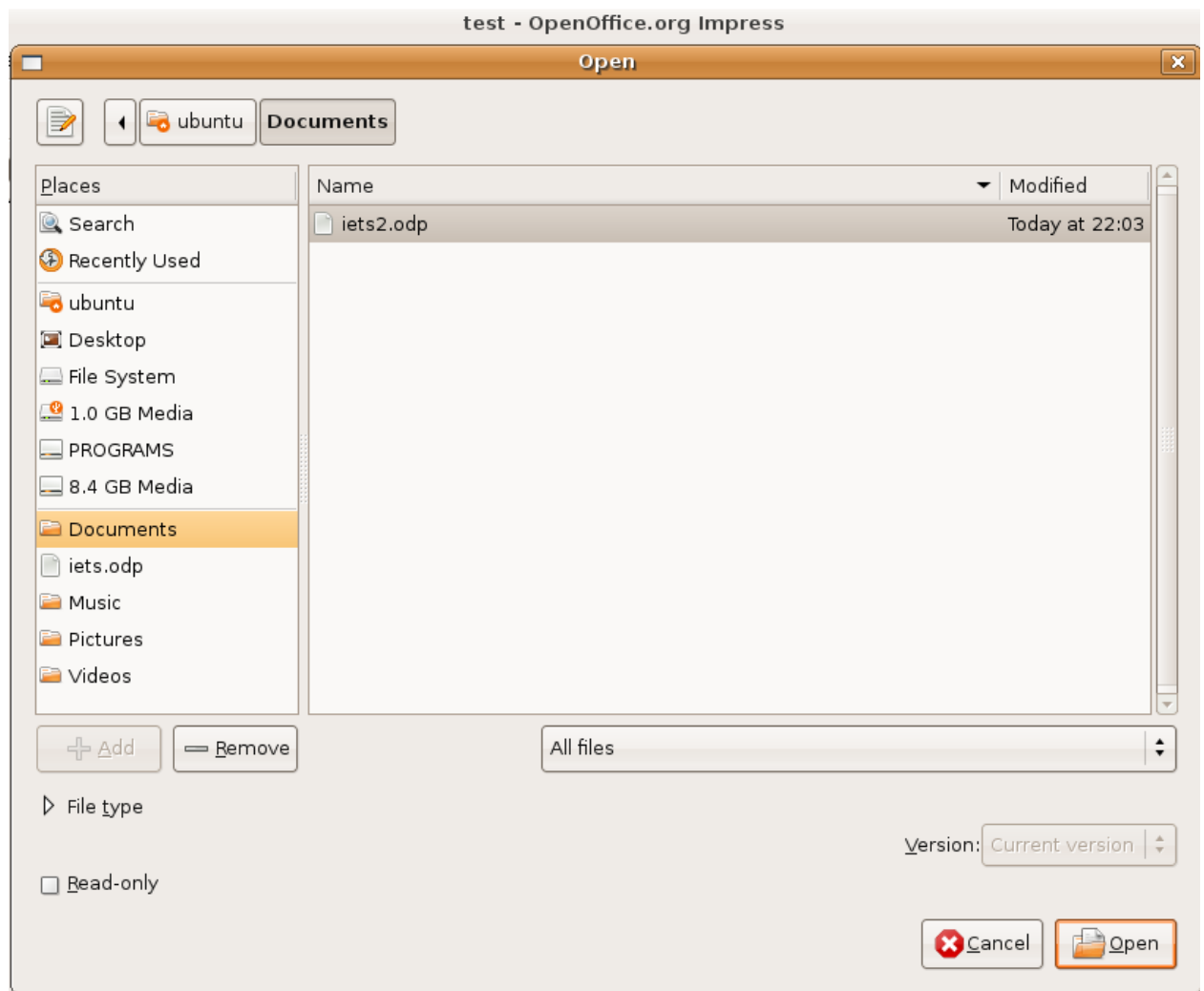
//Folder "Document" (open this file)
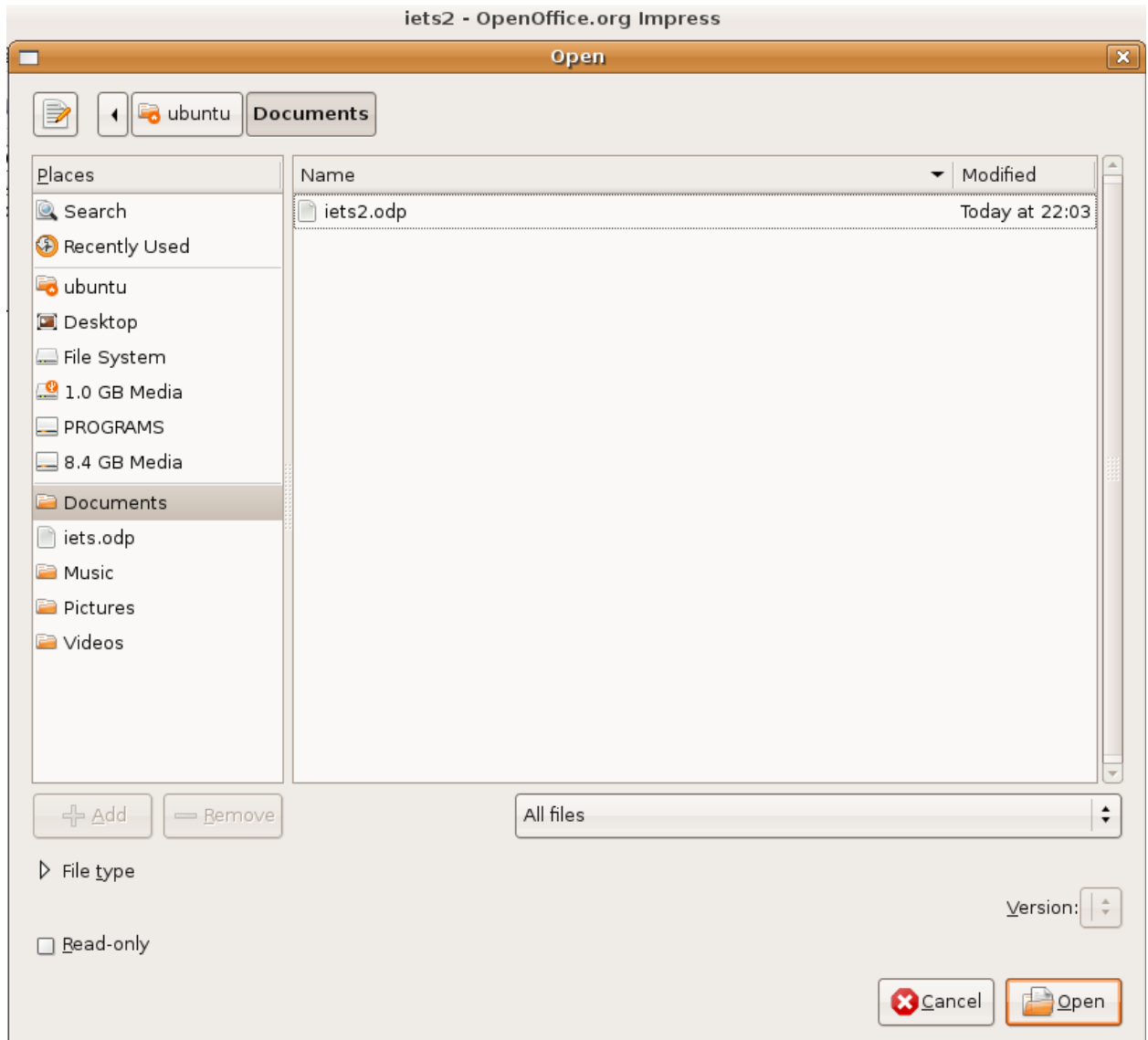
//Folder "Documents" (next time you open, again will be documents)

6. You want to navigate from the folder the program recommends to another folder. **Try this each one of the programs and comment on the smoothness of navigation by using the criteria: where are you, overview, structure, preview of documents, customize-options.**

Windows
Conclusions
In both programs you cannot see where you are, but you can see the name of the folder you are about to save the file into. This belongs to a pull-down menu, showing (in a list) the roots of the folder, also enabling you to choose a different folder (within this root, so you might have to choose a number of different folders and go through different roots before you arrive at the wanted folder).

The icons on the left hand side of the window provide shortcuts to specified places, in which the contest is presented in a list (only "Recent" provides (time-)details in this list, and only portrays files that can be opened by this specific program).

Even though the settings are adjustable, as default only "My Pictures" and "My Videos" present their content in thumbnails (adjusted settings in this case are not saved, nor is format of presentation linked to anything else).

Ubuntu
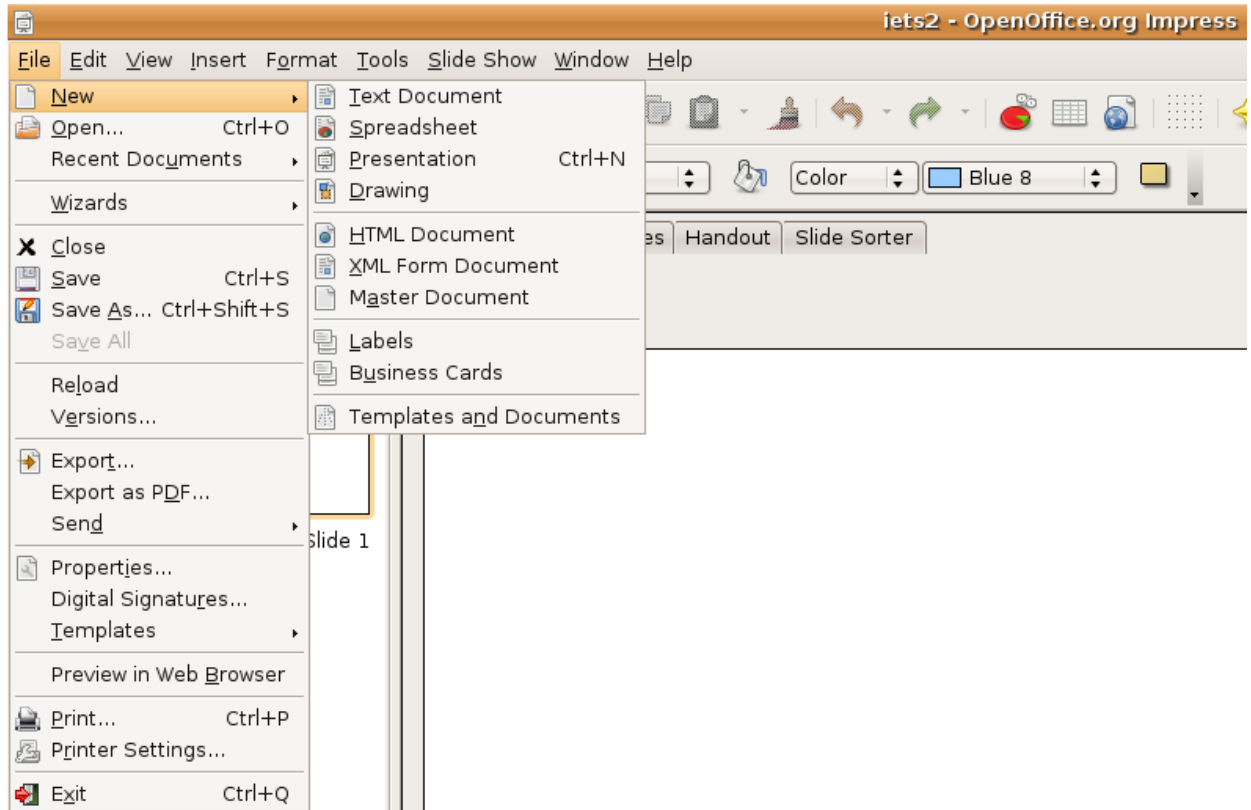
//When creating a new document, the program 'starts again' → you end up with two windows, instead of two subwindows within a program.

Paper prototypes

Here you can find our first paper prototypes.
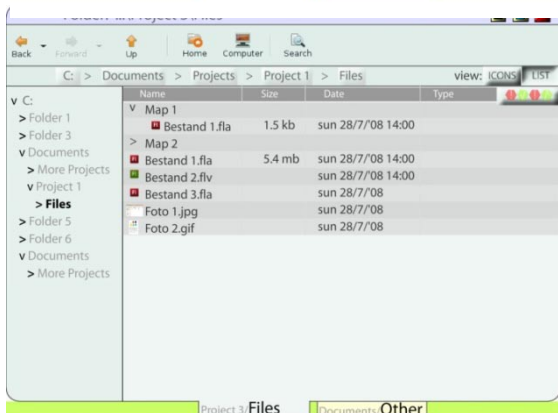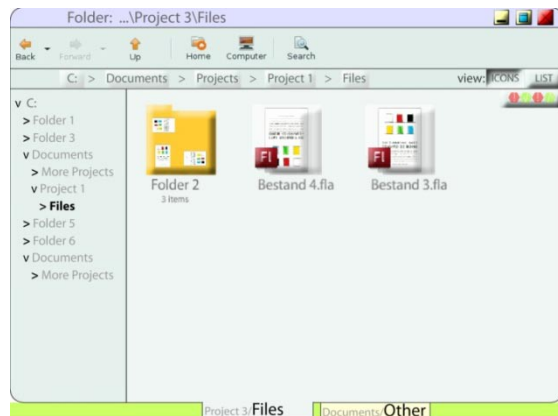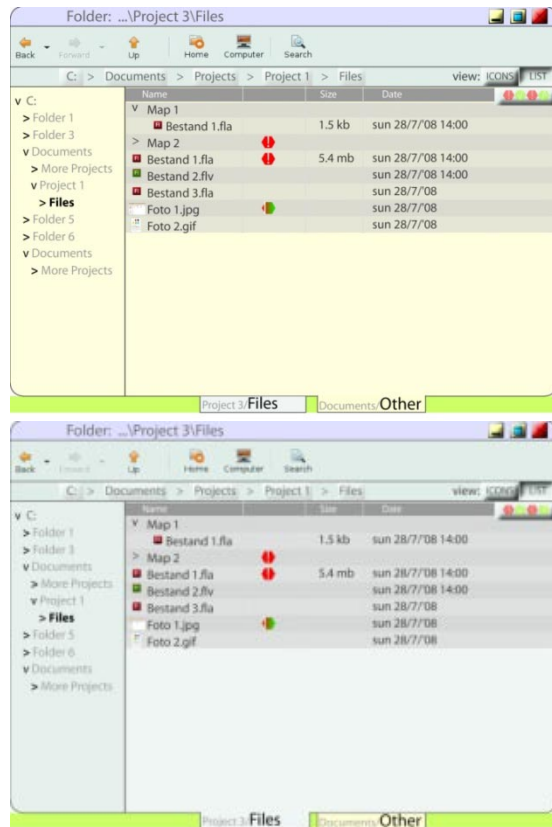
Sippe's prototype

In this first prototype I immediately tried to address several aspects like the breadcrumbs, tree-structure on the left which gives an indication on where you are in the folder-structure. Also the use of tabs (on the bottom) to make more clearly what windows belongs where.

The possibility to switch only between an 'icons' and 'list' view. With the difference that 'icons' provide a preview of the file and an indicator which shows with which program it will be opened.

We also wanted to have the different labels incorporated in the design (to add different labels to files to give them a personal indicator.

Above is just a selection of the different aspect where I focused on. The pictures explain also some more aspects.
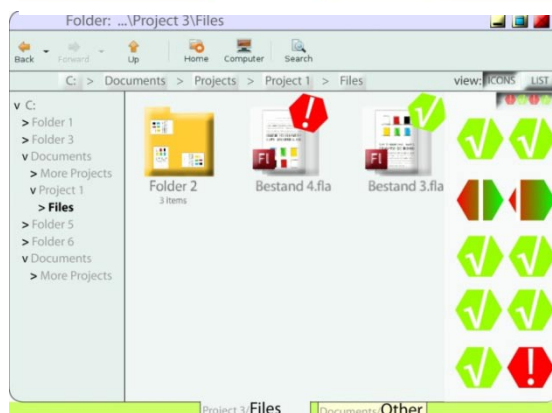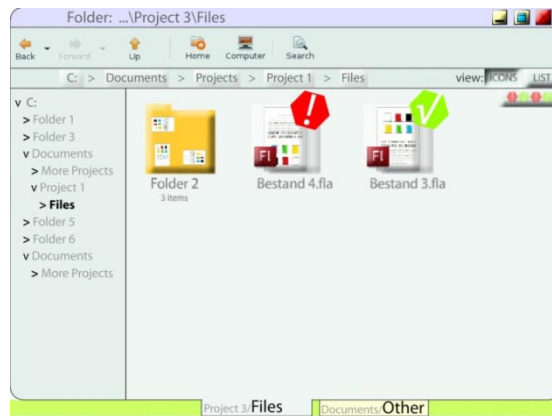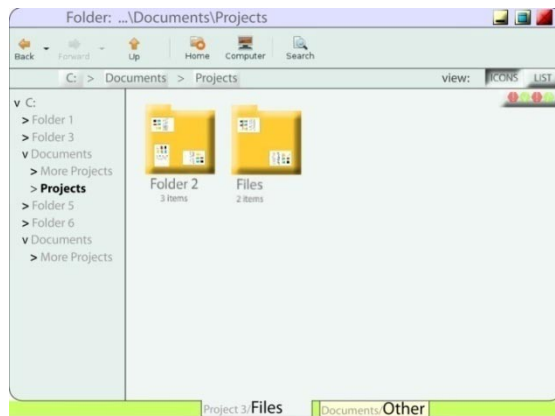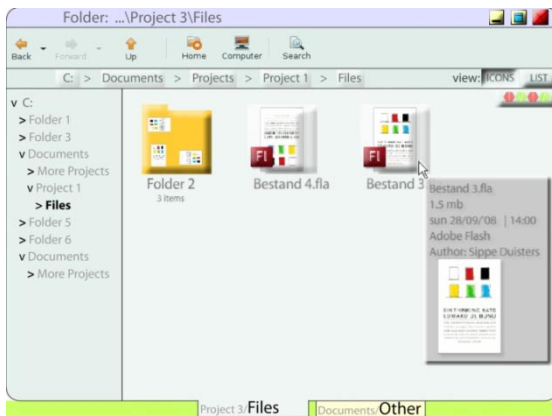
Maarten's paper prototype

My prototype is based on Gnome's user interface in Ubuntu. On the desktop you can see in de upper bar the tabs which represents the most used items of a project. From left to right there are applications, places, schedule, contacts and system. By clicking on an item a new list of items will appear beneath the tab. Moreover this paper prototype enables users to switch from virtual desktop by clicking a desktop in the right corner below, just like Ubuntu. Every virtual desktop represents a project, including its own files and tabs which are discussed earlier.
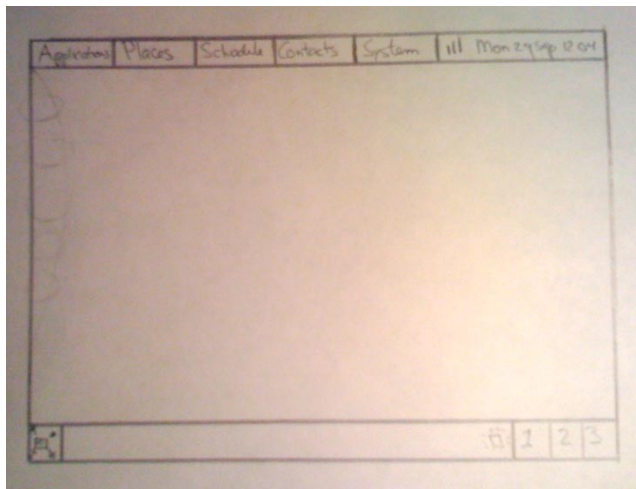
//Paper prototype: desktop   *//Tab contacts*

Besides I made a paper prototype of a possible file-browser. You can see a picture down here.
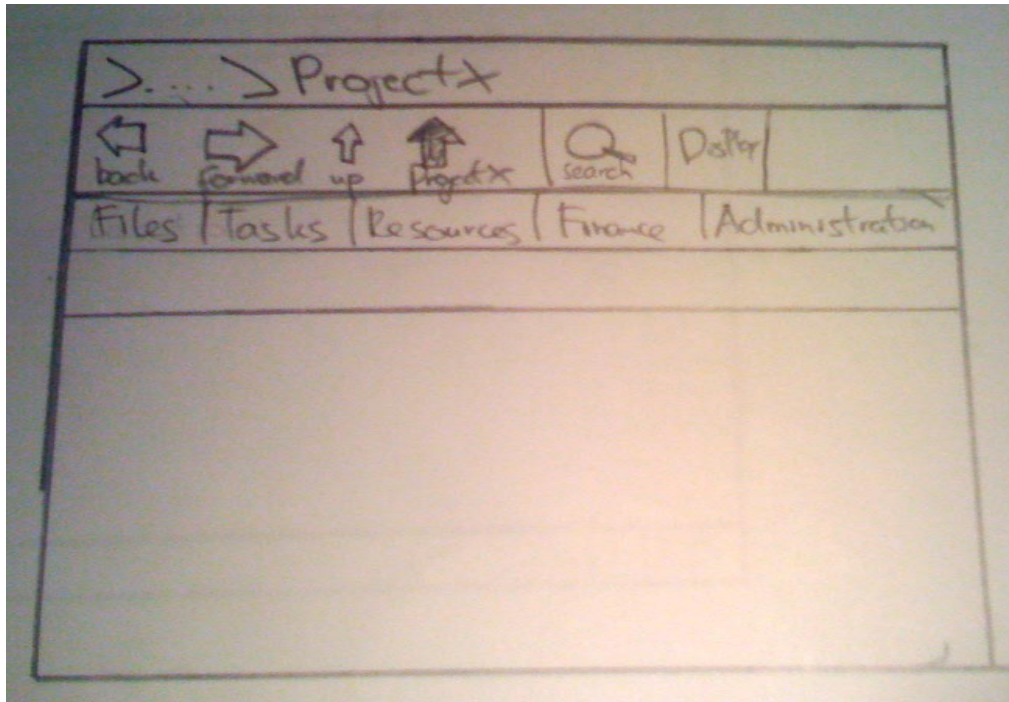
The upper bar shows the current location or directory including clickable breadcrumbs; when you click on one of the parent folders you go directly towards that folder.

The bar beneath is focusing on navigation. The first three buttons are focusing on back, forward and level up. Moreover this bar contains a shortcut to go the root folder of current project. Furthermore this bar includes a search button and a shortcut to the view the desktop.

The bar beneath contains clickable tabs (files, tasks, recourses, finance and administration) which are related to the current project. Clicking the 'files' tab will enable the file browser. By clicking the other tabs will provide more information of the current project; respectively tasks, resources, finance and administration.

Paper Prototype Josje
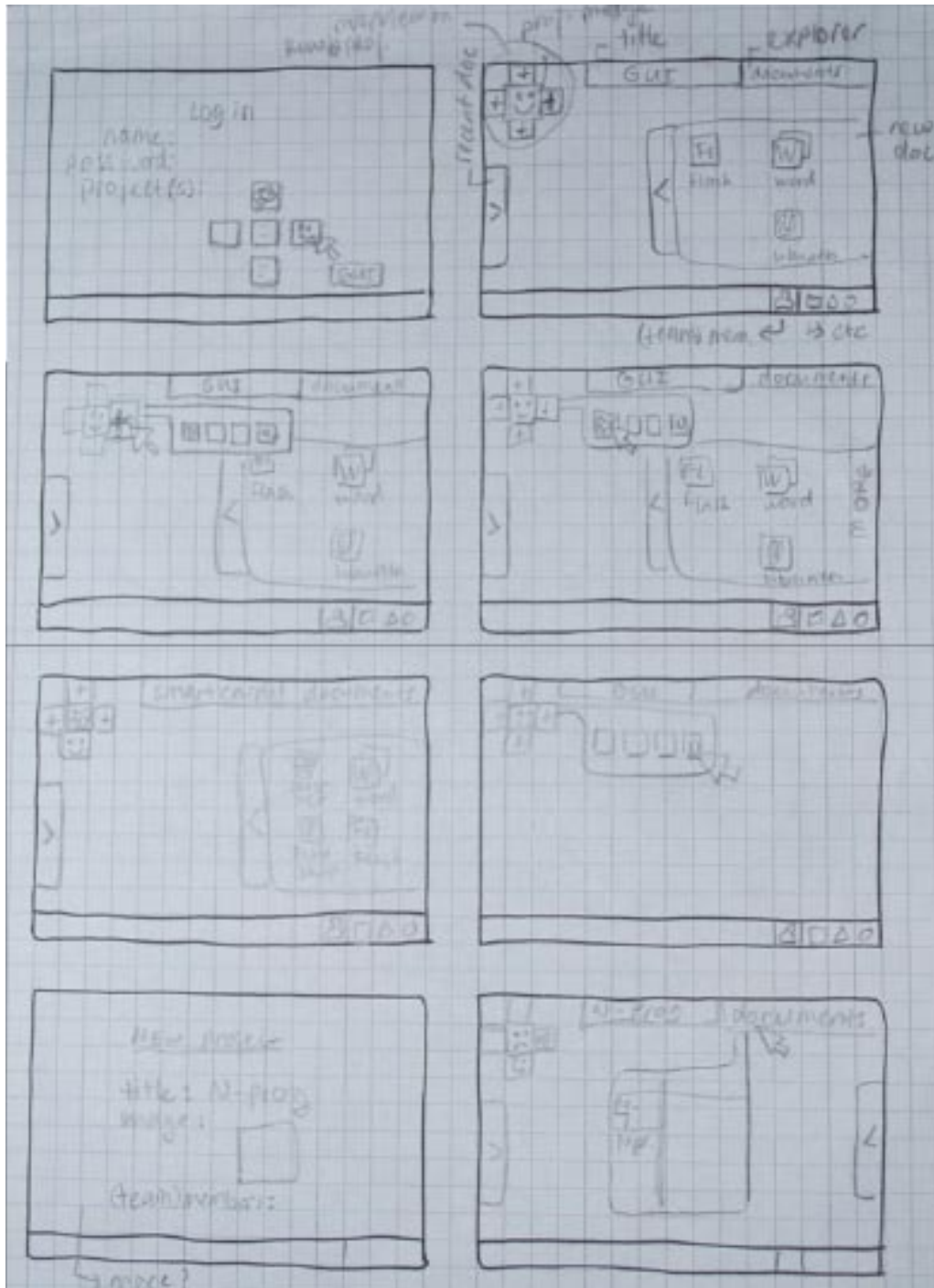
This paper prototype, or storyboard, created by Josje, communicates the idea of creating a project-based surrounding. In the first image you can see that when logging in the user should decide what project he/she wants to start working on. In the second picture you see how you then get to a project-related desktop in which you can quickly access files which are important to this project only. The third,

fourth and fifth image show that you can open more project-desktops (let's just call them projects) so you can work on these projects simultaneously and easily shift between these. Last there are some explorations about letting the user create his/her own icon for each project, so that he/she can easily navigate through projects based on these icons. There were also some thoughts about where to put the access to the documents, and where exactly the user should have access to. The user should have access to all files; at any time in any project access any document, and new files; starting a program. Most new is the direct access to recent files, which especially in case of people who work on different projects regularly, and with more people within a team, is extremely useful.

Our focuses

1. Managing projects

We wanted to change the idea of using directories, because in our eyes this is not the most logical way to cluster files. We wanted the operating system to evolve around projects. In this way, files, documents, contacts that belong to a certain project, will be more easily accessible in this way. Because then you think about which project a certain file belongs to (if you want to work on a GUI report for example, it is clear that this will be found in the project GUI). This is an improvement on having to find files by struggling through directories.

2. Desktop functionality

In order to make project-specific file accessible in a specific project, we decided to link the projects to desktops, meaning that every project has its own desktop: its own working environment, with the documents, contacts, programs belonging to it in it. The most important elements to mention here would be the direct access to all files (explorer), so you can still access all files when you are working on a project, and the direct access to recent files, so you do not have to open a certain program first in order to open a file, but directly access the file, thus opening the program.

We wanted the desktop to reflect which project it was in, plus we wanted to create the ability for the user to work on more projects at once. That is why we created a "project selector" in which is shown what project you are currently in, and which other projects are on the other desktops.

3. Explorer navigation

Explorer navigation, navigation through all your files, should be quick and easy. Important for this focus is to communicate where you are, how to get to different places and to make sure that the point you start in is logic (which would be in the main folder of a certain project, and not somewhere deep within the structure in some pictures-folder just because you happened to have opened that the last time you used the explorer).

4. File representation

File representation is not only about how to represent files, but about the idea of at what time a certain file should communicate what details or aspects.

First interactive prototype

First interactive prototype. This is basically the same as our paper prototype, but now worked out in Adobe Flash.
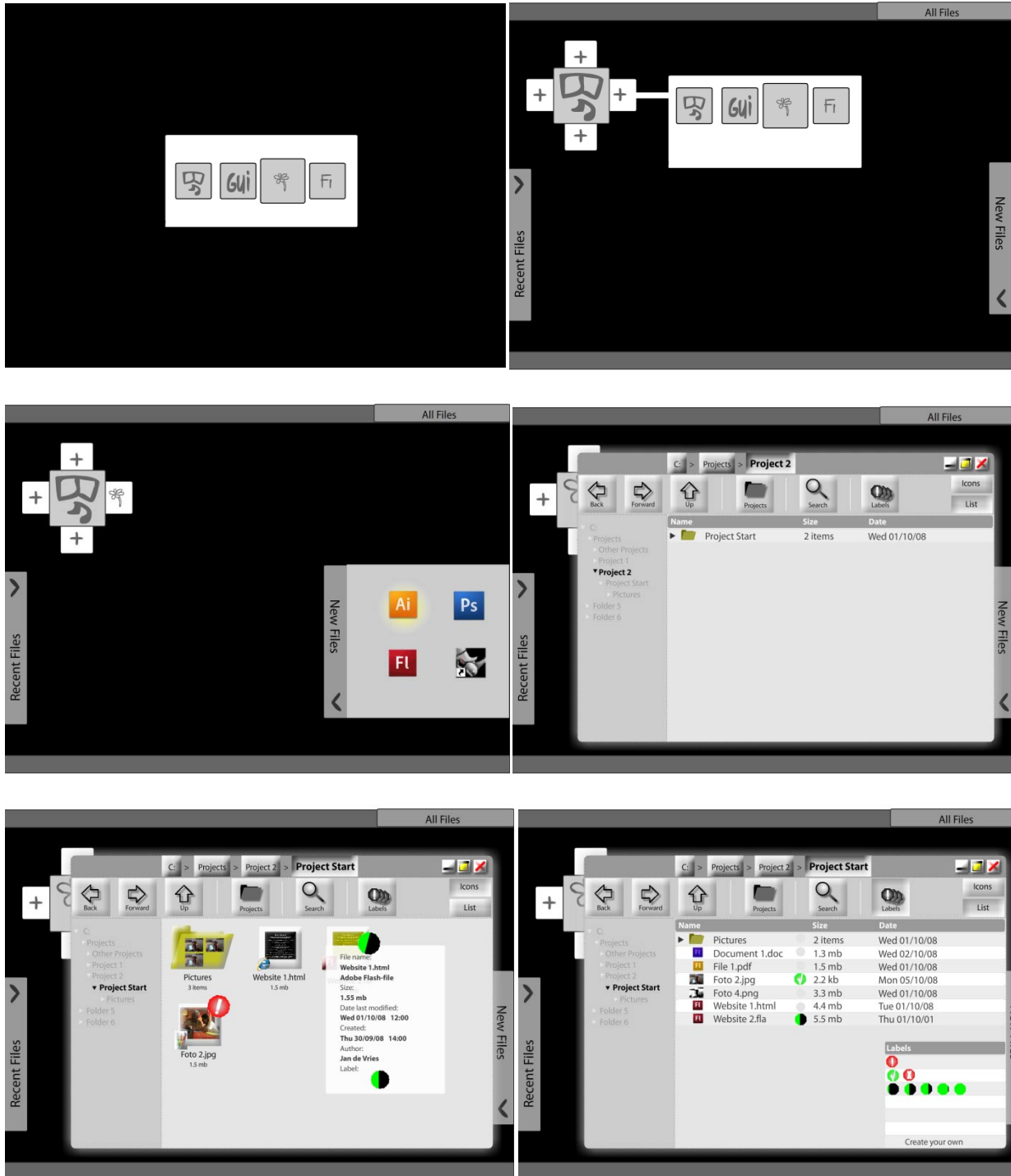
First User test set-up

We asked several users to test our first interactive prototype
What do you think of? What will happen when you click on this? What do you expect that this button means?
We tested with four different persons. They all work regurlay with the computer and they work with different projects and in age, they differ from 18 to 58.

First user test

Tested with Jacques Geraets (49)
- Not completely clear that cross in the left upper corner represents all the projects.
- How about adding a new project or delete any project?
- How about managing more than 5 projects, or projects which are finished?
- Maybe it would be nice to minimize the cross, so it would not annoy the user's desktop
- Concerning the previews; it's a nice feature, but sometimes also annoying.
- Can I edit the information on the previews?
- Give 'icons' another name, like previews for example

Tested with Tom Wijnen (18) (Note: tested with a different desktop)
Desktop
- Without starting-up screen it is unclear how the project selector works (or what it is)
- After playing with it once, how it works is clear
- It is immediately clear that recent files and new files are project dependent, and that all files is something which does not change along with the projects
All Files (our 'explorer')
- The names icons/list is confusing: maybe use miniature, preview or something alike instead of icons?
- The labels on the files are not immediately recognized as labels, confusion arises about the names labels and icons.
- The files in list shouldn't contain any screenshots, but just the filetype-icon, otherwise it becomes very chaotic and difficult to see
- The information shown when moving your mouse over the tiles (in icon-mode), maybe too much/ irrelevant information which could better be presented in the list-mode?
- Title is considered very useful, but there should be something before the C-drive (my computer?), the starting point. (+ people usually have more drives)
- The prototype is in need of better synchronization between the two different parts (desktop and explorer).
- The tile saying "projects" should be the name of the project on the desktop?

Tested with Bart Duisters (48)
- He thinks that the recent files which you directly can enter are very useful. It does give him the opportunity to work in a quicker way.

- He wonders (why in this first prototype) the colours of the project-icons do not match the background-colour.
- First it is not immediately clear that the icons in 'new files' correspond to new files. Because he thinks that it just opens the program and does not create a new file. But after a short explanation he understands why we did it like this.
- Concerning the browser, he mentions that it is clear in which project you start (that it corresponds to the project which you choose to be your starting project).
- The back-button was not totally clear to him where it leads to but that was mainly due to the fact that we did not implemented it correctly in this prototype.
- The button 'Projects' which we added in the navigation-area to go to the main project folder, was not used, he mainly choose to use different buttons to get to this folder.
- To add a label to a specific file, he first tries to open it, or to use the right mouse-button. On first hand he does not see the button 'Labels'. But after he used it he was quite enthusiastic. He already did know such a feature in Mac, but there you could for example only change the colour of the line where the file is in. The advantage of this, he mentions, is that it can be made personal (e.g. to have labels which correspond to files where different people are working on, for example to have a label with a 'B' which corresponds to the name 'Bart').
- He understands that the symbols which have two different colours represent how far a file is finished.
- He wonders what he has to do if he wants to open more than one folder at the same time.
- As a last comment he tells that the visualizations can be better.


Tested with Wil Leppers (58)
- He immediately says that he likes that he can enter the recent files in a quick way. Because he admits that he does not always know where is working on on that moment.
- Another positive point was that the breadcrumbs in the top gave him an indication where he was working on and that it helps in navigating. (he adds that he often does not know on which network place he is working and that he often has to go back 10 folders for example, so that this can be a very useful)
- He was wondering how we would solve the problem with the triangle to open folders in another folder when there were a lot of files. You probably will get lost by this information.
- He uses the 'list'-view the most when he is working on the computer.
- Concerning the extra information which can be seen when you move your mouse over the icons; he does like that because otherwise he would have to keep track of too much information. (the view will be too busy when all this information is presented to the user immediately.
- On first hand he did not see the usefulness of labels. He does admit that the way you can add labels to files is quite logical (but he mentions that he also would like to do it by using the right-mouse-button)
- Then he remembers that he likes this feature in Outlook (that he can for example can mark certain messages). And his view changes a bit to more positive. Also when I mention the possibility to have labels for certain team members or persons who are also involved in this project.
- When he was working on projects he wanted to see what previous kinds of work he has done concerning some similar projects; so he mainly advices us to develop a system which makes it possible to add related folders/projects with a project where you are currently working on.

Changes made for the second prototype

Based on the conclusions of the user test we changed the following things before we tested again:
- Added the possibility to increase nr of projects you can work on simultaneously
- Changed "new files" into "create new files"
- Changed the label-icon in the explorer
- Made all buttons clickable, so you can see where you can click on
- Introduced tabs to show which project is selected
- Present the project's title on its desktop
- More use of white space to reduce noise and to give the user air to breathe.
- Linked colours to projects to (metaphorically) communicate the idea of each project having a unique work environment more clearly
- Spent time to make an even more clear hierarchy

Second interactive prototype
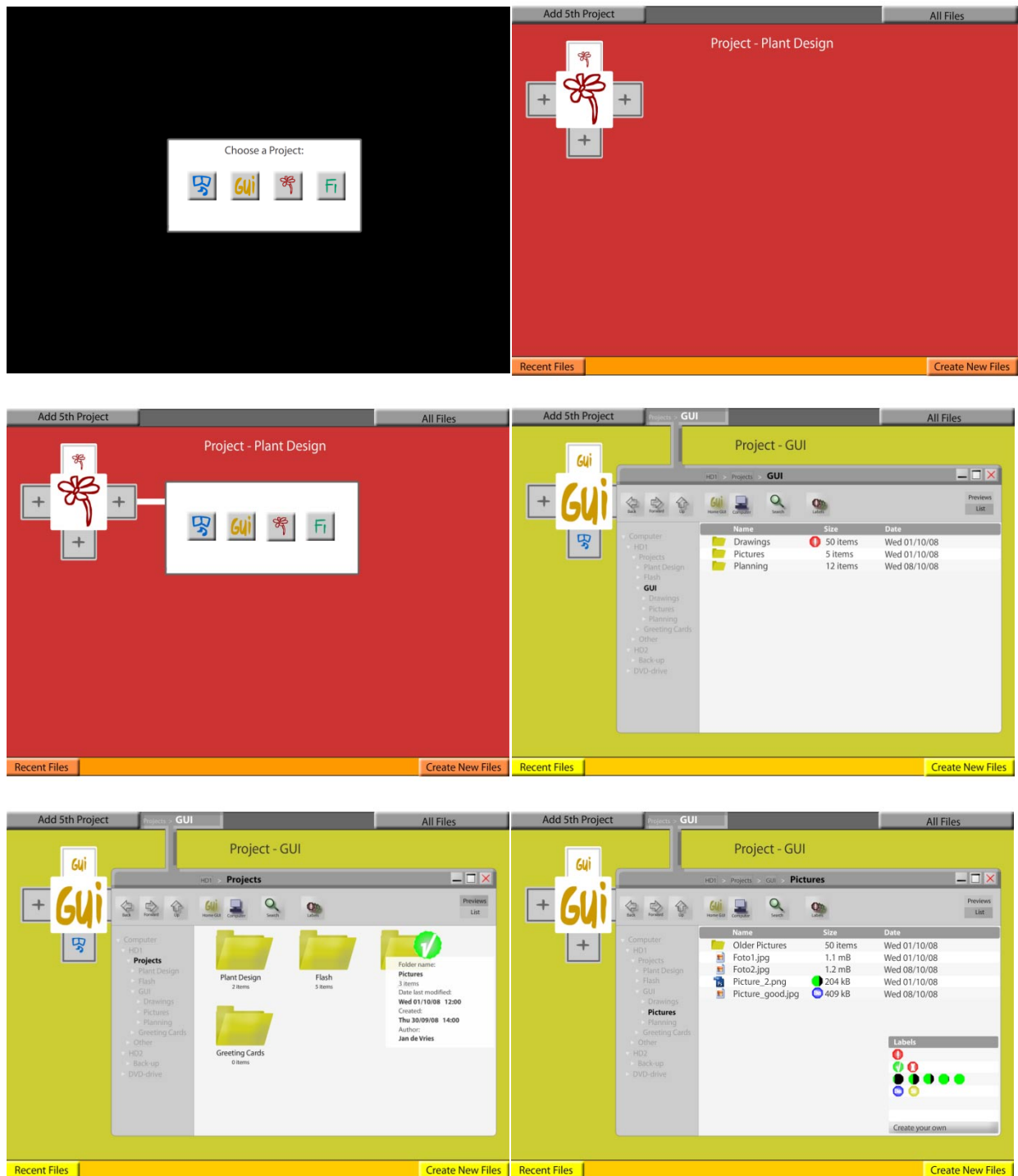
Test the prototype yourself?
The prototype can be found too at: http://www.sippe.nl/GUI/prot.swf

Second user test

The way we conducted this second round of user testing was almost the same as how we did it the first time. Now we tested with 6 people, but they differed in how much experience they do have concerning computers and project-based working.

Participant 1
- The idea of multiple desktops comes immediately clear when logging in. However, the project-selector of in the left upper corner cannot be mineralized. This can be annoying according the tested person. Moreover it would be nice to integrate the button "add 5th-project" onto the "star". Furthermore the buttons "new, recent and all files" are now located in every corner of the screen. The user suggested placing all these buttons in one section, i.e. in the right upper corner.
- The idea of adding labels to files is nice; however it would be nice to change the percentage of completeness rather than selecting a specific label. Also a label including the name rather than the initials would be better.
- The function of showing previews is interpreted as helpful. Especially previewing a folder including pictures is helpful.
- In the end, the user addressed the feature of creating a project-independent folder. This data can be accessed from all projects and might contain data which is useable for all projects (like templates, examples, pictures).

Participant 2
- Concerning this 'second round' of testing, I did not get that much comments about the design. My first test-person was wondering why she would like to add a 5th project. This was not totally clear for her at the start.
- She also wonders why, by minimization of the window, the small bar goes to the top. She is used to have these in the bottom.
- At first she has to realize that our designed system is linked to projects. And that that was our main focus.
- Most things are clear to her.

Participant 3
- My second participant gave as a first comment that it was not clear where you can click because the buttons should react on a mouse-over. He repeated this comment a few times, when he more often saw this lack in 'clickability'.
- Also he does not completely understand that it is mainly project-focused.
- When explaining the 'Up' button in the top-row he thinks that it moves the list (with all files) to the top.
- He thinks that the delay in finding more information is too long. But he admits that he likes some delay, otherwise it will be too busy.

Participant 4
- She wanted to click on the desktop to pull down the 'Recent Files' and 'Create new File' windows. (which is not possible in our design)
- She did have no clue about what the breadcrumbs might mean, or what they do. (She told that she had never seen these before)

- Normally she only uses the 'Back' button in the navigation, and not the 'Up' and 'Forward' button, so she did not know what they mean and do.
- When I asked to say what would happen when she clicked on 'Previews' or on 'List, she did not know what they meant.

Participant 5
- He thinks that it is very good that 'Recent files' and 'New Files' only open when you click on it (instead of using mouse-over).
- The person wonders why there is no word 'Computer' in front of the HD-directory in the breadcrumbs, because he sees this 'Computer' on the left in the navigation-'tree'.

Participant 6
- As a general remark she thinks that the project-division is too abstract.
- During this test, an error occurred when choosing the 'Flower design'-project.
- The breadcrumbs in the top of the 'explorer' look not very clickable.
- The preview mode is nice when having not too much files, because otherwise you will probably lose the overview.
- The button on the top, to go back to your starting point (the specific project you are currently in) is not clear enough for her.
- The preview/list option is not totally clear for her what it should be doing.

Conclusions second user test

We did not have the possibility to discuss the results of this second user test in our team. But a first impression gave the main points:

- Positioning of buttons on desktop
- Why to minimize the 'All-files window' in this way (that it goes to the top, instead of bottom)
- Label-improvements (What do they mean?)
- Make the buttons still more obviously clickable
- When to use one-click/double-click/mouse-over
- Are all navigation-buttons on the top needed?
- Preview/list-option and our use of symbols

Future plans and where we did not focus on

We did not have the possibility to address all the parts we wanted. That is why we added this small chapter. We for example used existing icons to display things like 'back', 'forward' etc. but we could have looked in more detail what (perhaps other shape) suits it the best. Also the meaning of the different labels which can be attached is made up by us, there is not much investigation done about that yet. Also the selection of navigation-buttons in the top is still a focus point (is every button needed there?). We also did not tackle the issue about how to drag and drop different files with different 'explorers'. Concerning how to activate buttons and other options, we just mainly used one-click. But perhaps is there a smarter and more logical way to do this.

Concerning some future plans, we would like to make the prototype work better, and that more parts are integrated. Also the issue of sharing files is not yet addressed but is a very interesting subject to think about. Also how you can have contact with different persons in your team.
As already mentioned we did not look at how different things should be activated (mouse-over etc.). And also the positioning of buttons etc. is still a topic which we have to investigate.
Concerning the desktop; a lot more possibilities are available. What can be done with it, more than just displaying in which project you are right now for example?

So in general we can say that very much different aspects are involved when (re)designing an (part of an) operating system.