

# Usability testing in open source software

Making your software easy to use

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# What is usability?





Real people



Real tasks



Reasonable amount of time

# When to do usability testing

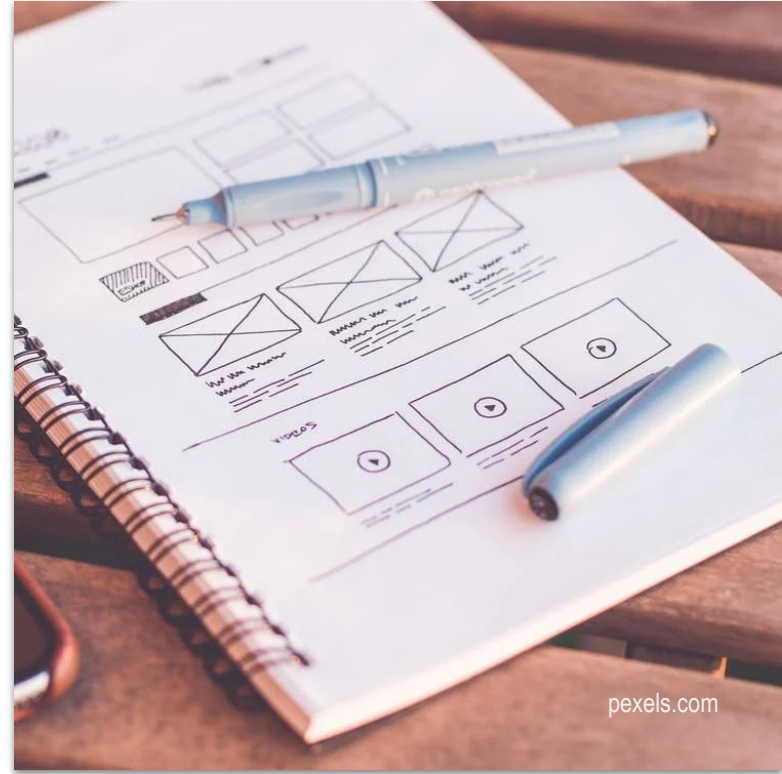
## Before

Paper prototype test

Mock up of new interface

Get an idea of how people will use it

design → test → update → test → update



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# When to do usability testing

## During

Test a new design

Use the actual interface

Update the design to make it better

design → test → update → test → update



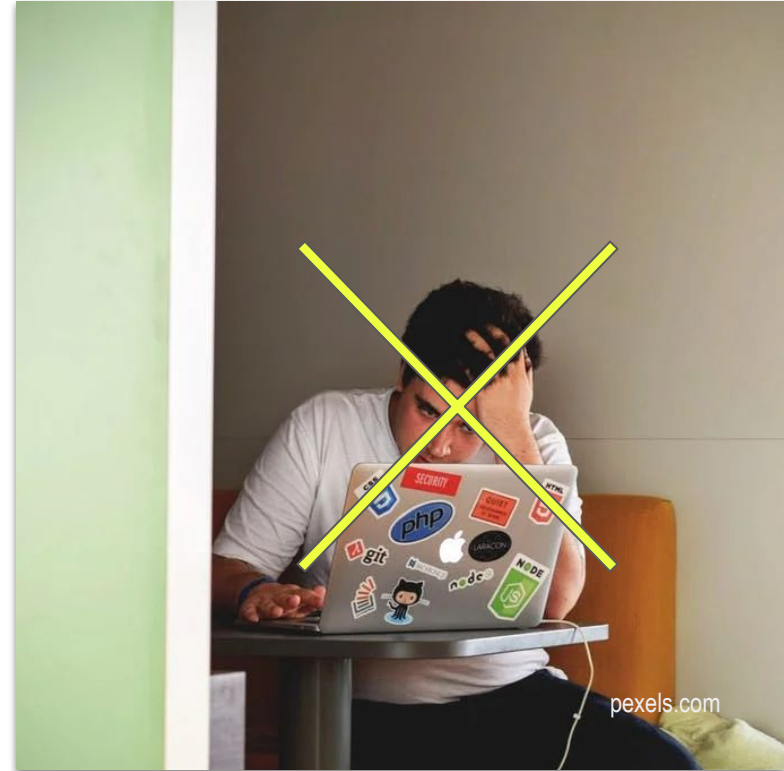
# Who can do usability testing

Not you

You know the system too well

You know the menus

You know the keyboard shortcuts



# Who can do usability testing

**Someone else**

Representative of your users

Real people

Real tasks





# How to do usability testing

1. Personas  
Watch someone else use it
2. Use Scenarios  
What's easy?
3. Scenario Tasks  
What's hard?
4. Test
5. Analyze  
You don't need a lab  
You can do it on your own

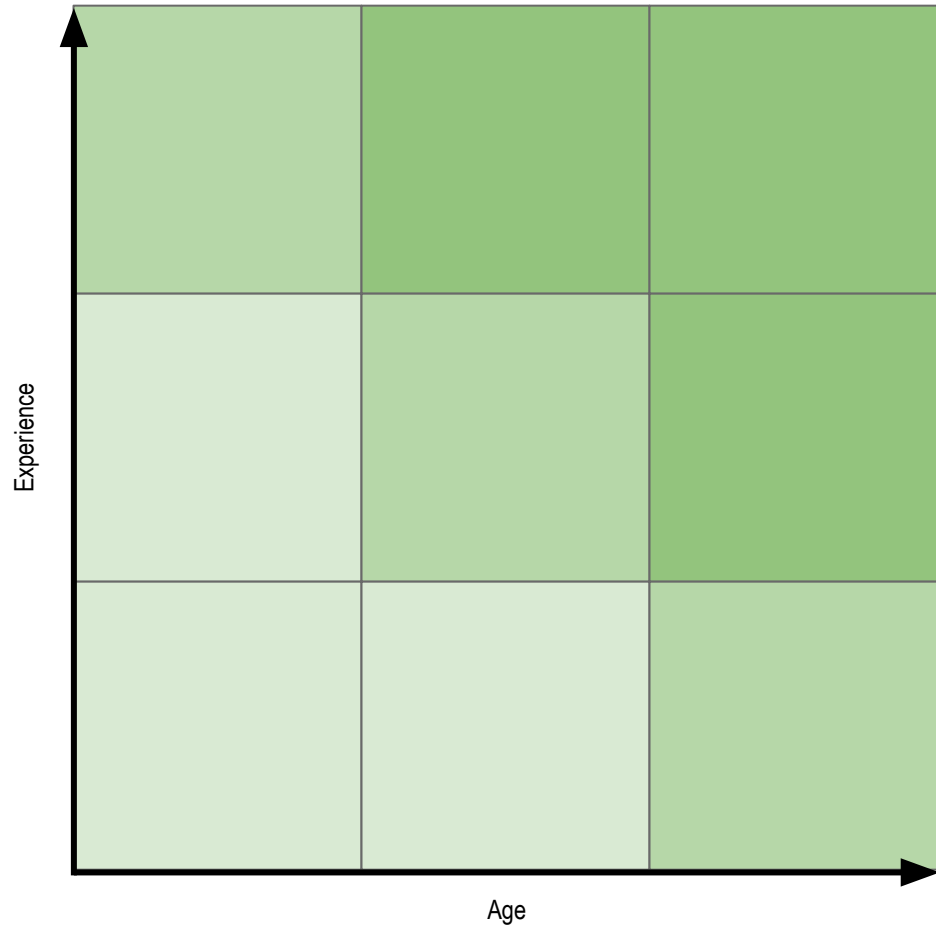
# 1. Personas

Fictional user

Make them real

Include a photo

Represent all users



# Todd

Todd (16, he/him) is a high school student who is getting interested in open source software.

At his school's computer club, a friend shows him Fedora, running GNOME on a lab PC.

Todd is learning about computers and is still getting started with using GNOME and the apps.



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# Stevie

Stevie (24, they/them) is a marketer for a mid-size company. They used Windows until recently, but would have had to buy a new computer to run Windows 11.

One of the web developers at the company suggested Stevie try Linux and GNOME, and after running the Live image, they made the switch.

Stevie is experienced with computers but new to GNOME.



[bit.ly/QueerInTechPhotos](https://bit.ly/QueerInTechPhotos) (cc-by)

# Maria

Maria (33, she/her) is a web developer for an online retailer.

Maria has run Linux since she was an undergrad CS student. She was a GNOME2 user but switched to KDE after GNOME3.

After reading articles about GNOME 40, Maria would like to try GNOME again. She's very familiar with Linux distros but re-learning GNOME.



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# Dan

Dan (45, he/him) teaches math and CS at a university.

Dan has been a Linux user since the 1990s and has tried all the Linux desktops: twm, olvwm, WM, fvwm, KDE, and GNOME. His favorite is GNOME, which he's used solidly since GNOME2.

Dan uses GNOME for everything, including teaching classes.



pexels.com



# Jessica

Jessica (52, she/her) is a business analyst at a small firm.

Most of her home computing is email and Facebook, on a Mac laptop. When it was time to buy a new Mac, her college-aged child suggested she try Linux instead.

Jessica is an occasional computer user who is completely new to Linux and GNOME.



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## 2. Use Scenarios

Who/What/Where/Why

Brief story: what they are doing

How they use the system

Why they use the system



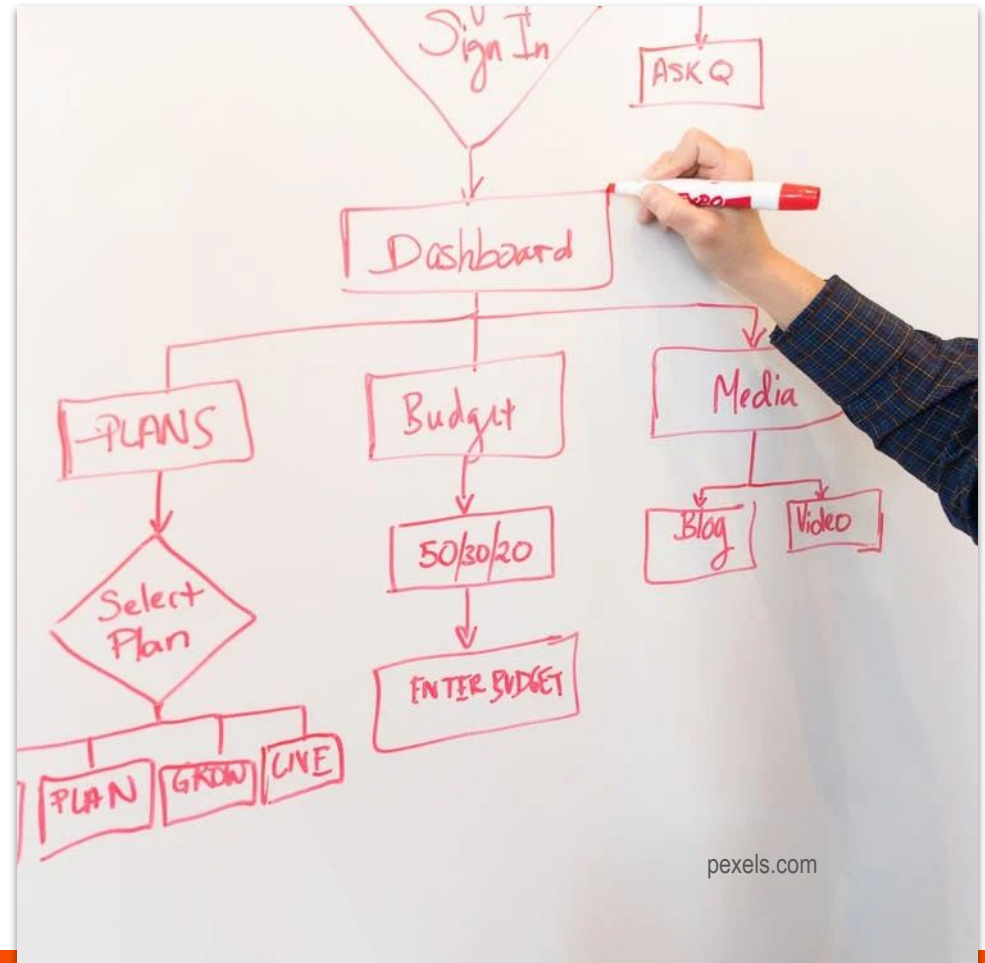


### 3. Scenario Tasks

Set a **brief context** then ask the tester to **do something specific**

Don't reuse menu terms

Make it **real**



## Sample scenario tasks

**text editor** "You want to finish writing a draft of a blog post that you are using in a project. You start the text editor (this has been done for you). Please open the file **blog post draft.txt** from the **Documents** folder."

**text editor** "Some of the names are incorrect in the document. Replace every occurrence of **Applejack** with **Fluttershy**, and all instances of **Rainbow Dash** with **Twilight Sparkle**."

## Sample scenario tasks

**calendar** "A client has asked to meet with you at their office next week. Add an event called **Meeting with client** to the calendar for next week on Thursday at 10:00."

**calendar** "Your boss just reminded you about an important conference you need to attend **August 15-18**. You already planned a trip for around that time, so you want to check if you are free to attend the conference. Please check your calendar to see when you have your vacation, and if you are able to attend the conference."

# Sample scenario tasks

**file manager** "Yesterday, you re-organized your files and you don't remember where you saved the copy of the class paper you were working on. Please search for a file named **The Hobbit.odt**."

**web browser** "You don't have your glasses with you, so it's hard to read the text on the website. Please make the text bigger on the website."



## 4. Test

Use the scenario tasks

Observe the user

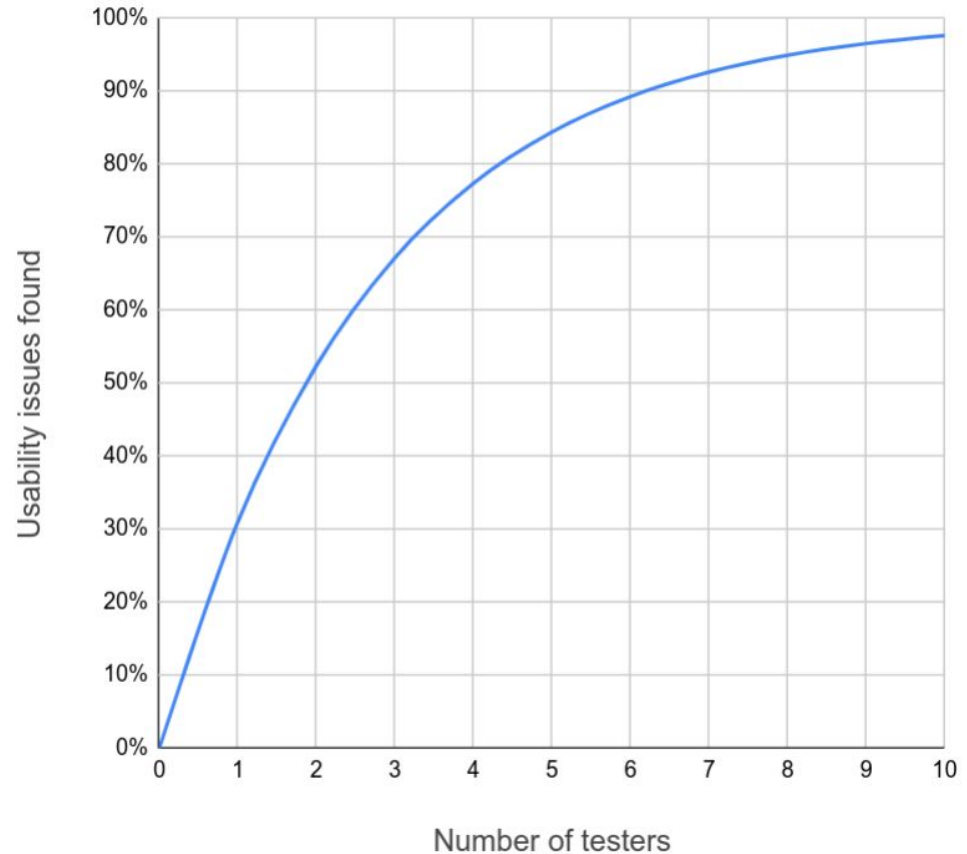
Take notes

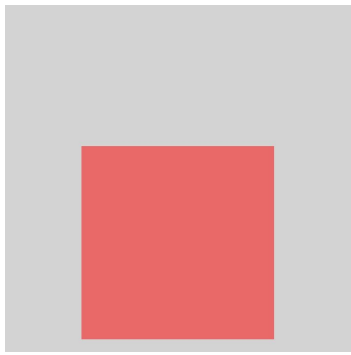
Ask follow-up questions

$$1 - (1-L)^n$$

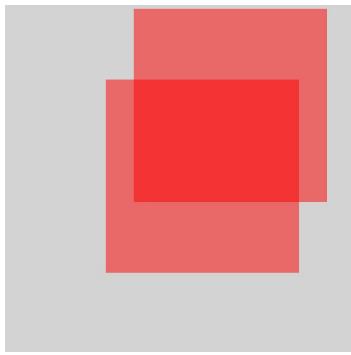
$$L = 31\%$$

Usability issues found vs Number of testers

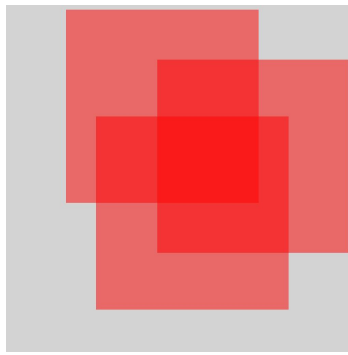




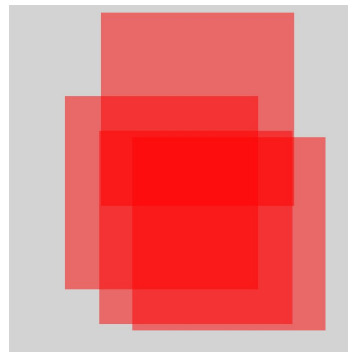
1



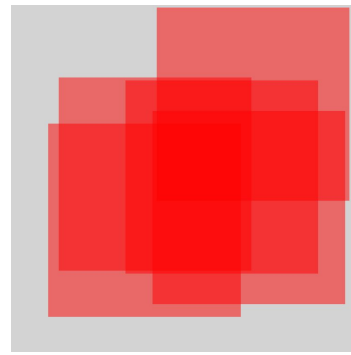
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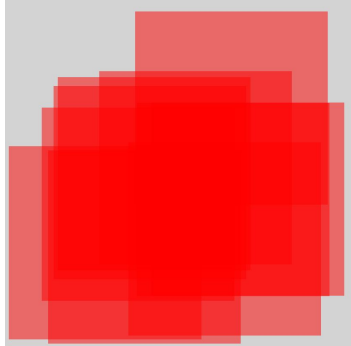
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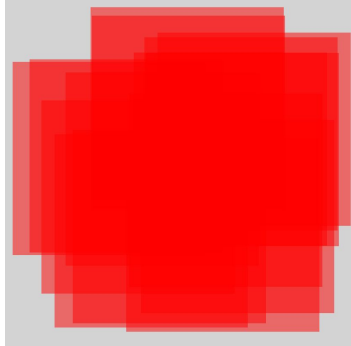
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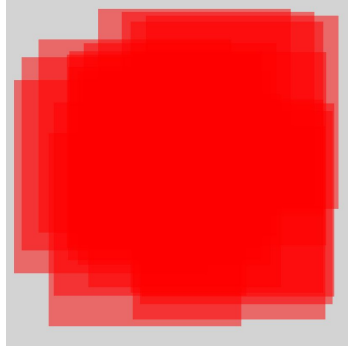
5



10



15



20

$L = 31\%$



```
#!/bin/bash
```

```
max=1  
if [ $# -eq 1 ] ; then  
    max="$1"  
fi
```

```
cat<<EOF  
<svg viewBox="0 0 819 819" xmlns="http://www.w3.org/2000/svg">  
<rect x="0" y="0" width="819" height="819" style="fill:lightgray"/>  
<!-- $max overlapping red squares -->  
EOF
```

```
# iterate n-many red squares
```

```
for n in $( seq 1 $max ) ; do  
xrand=$(( $RANDOM % 363 ))  
yrand=$(( $RANDOM % 363 ))
```

```
cat<<EOF  
<rect x="$xrand" y="$yrand" width="456" height="456"  
style="fill:red;opacity:0.5"/>  
EOF  
done
```

```
cat<<EOF  
</svg>  
EOF
```

```
# this assumes 819x819 gray square, and 456x456 red squares.  
# the gray square has area 670761 and the red square has  
# area 207936. That's 31.00001342% .. so basically L=31%.
```

```
# pick a starting x and y start value from 0-363 (that's 819-456)  
# for each red square.
```

## 4. Test

Welcome

Overview of the test

“Speak out loud” protocol

Get demographics

Do the test + take notes

Follow-up questions

“Thank you”



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# 5. Analyze

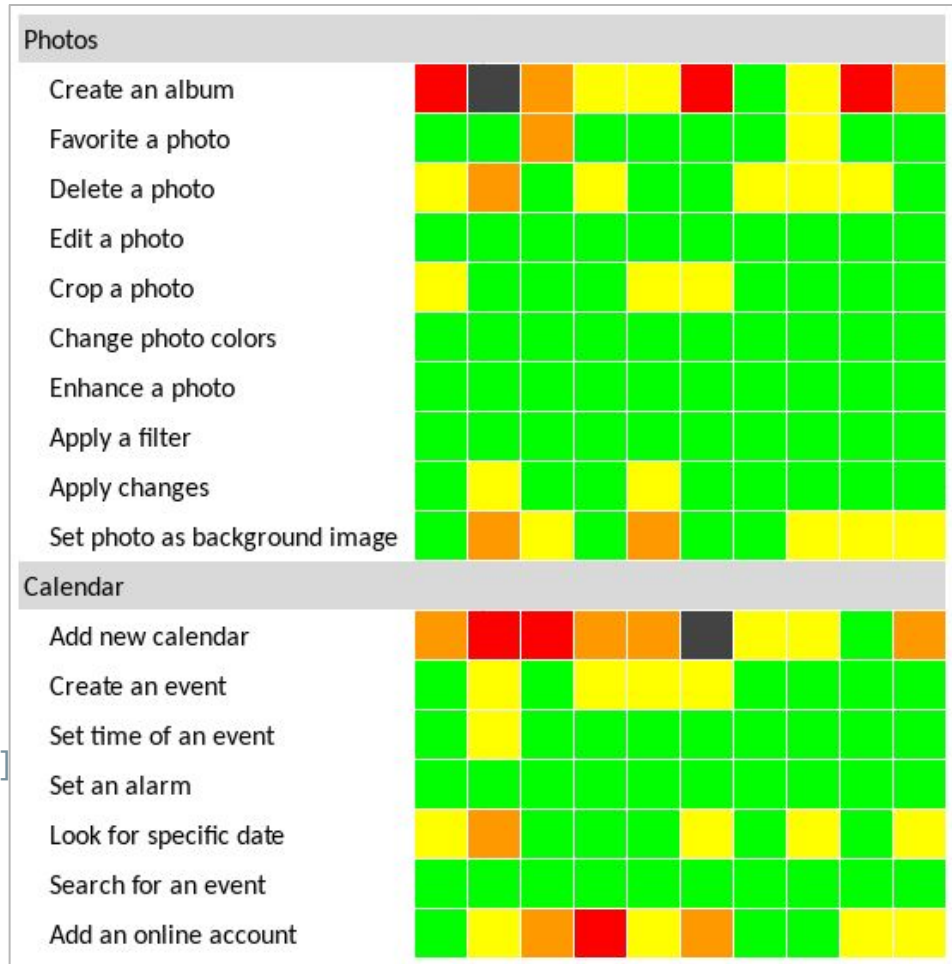
How easy to use?

How hard to use?

Find “hot spots”

Make it actionable

Renata Gegaj [GNOME]










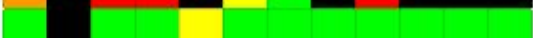







## 5. Analyze

Look for “hot rows”

Why was this hard? (look at notes)

Gina Dobrescu [GNOME]

Nautilus	
Search for a file	
Display files as list	
Make icons bigger	
Search for a recently modified file	
Save folder location	
Evince + Characters	
Open a PDF file	
Search for a title in the document	
Save title location	
Add a note containing a checkmark	
Display two pages at once	
Save file modifications	
Calendar	
Create a new meeting	
Switch to the next year	
Image Viewer	
Zoom into an image	
Launch the slideshow animation	

# Jim Hall

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“Thou shalt make thy program’s purpose and structure clear ... for thy creativity is better used in solving problems than in creating beautiful new impediments to understanding.”

*The Ten Commandments for C Programmers* (Henry Spencer)

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