



IMT 4891 - Digital Workflow Fundamentals
September 9, 2009

#3: Moving data

Kjell Are Refsvik

Welcome!

Student representatives

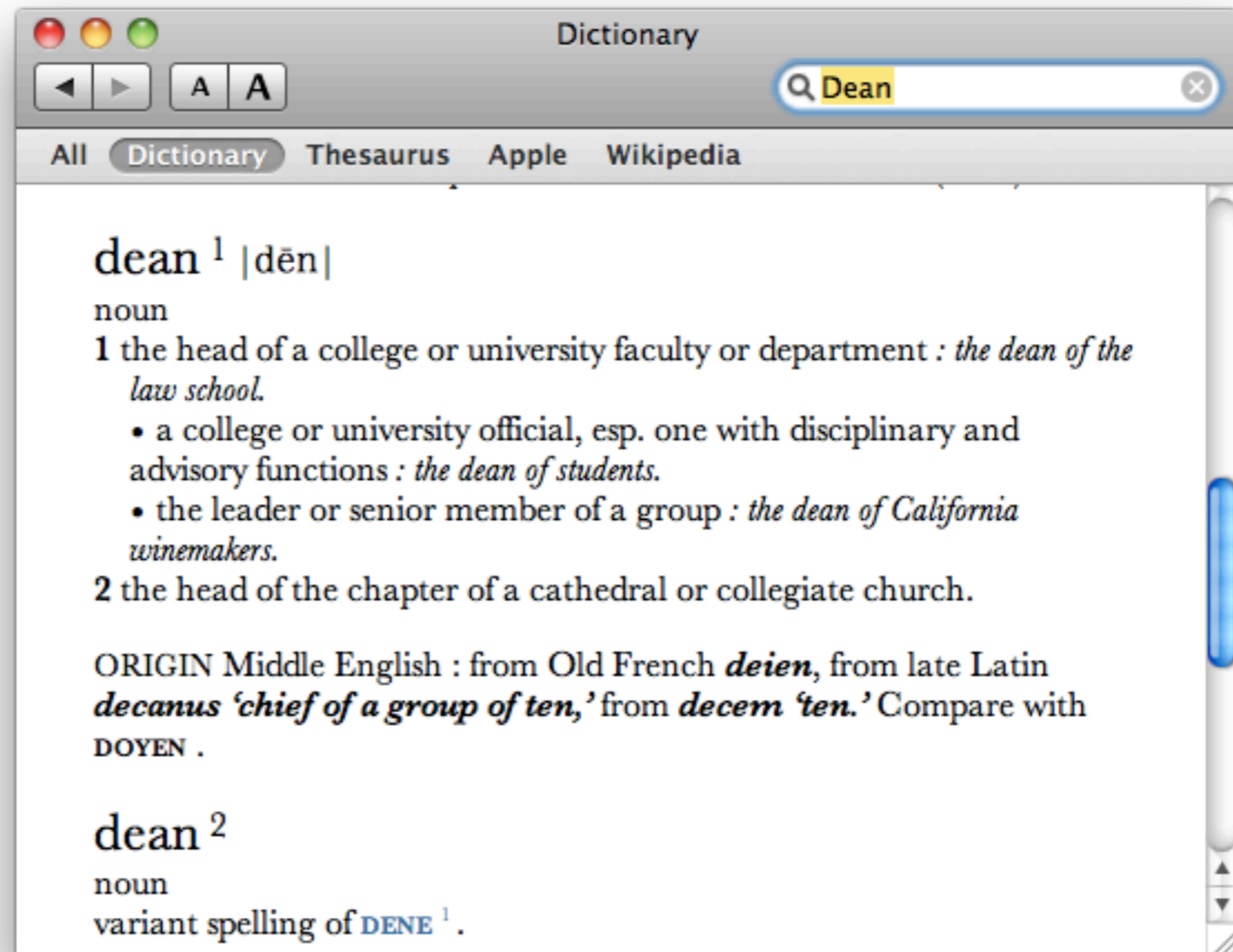


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Morten Irgens
New Dean, IMT



34	Introductions	Computer history Intellectual Property Rights and Creative Commons
35	Collect and describe data	
36	Transform, compress, encode data	
37	Moving data	
38	Workflow automation	
39	Academic writing using LaTeX and Bibtex	
40	Intellectual Property Rights	
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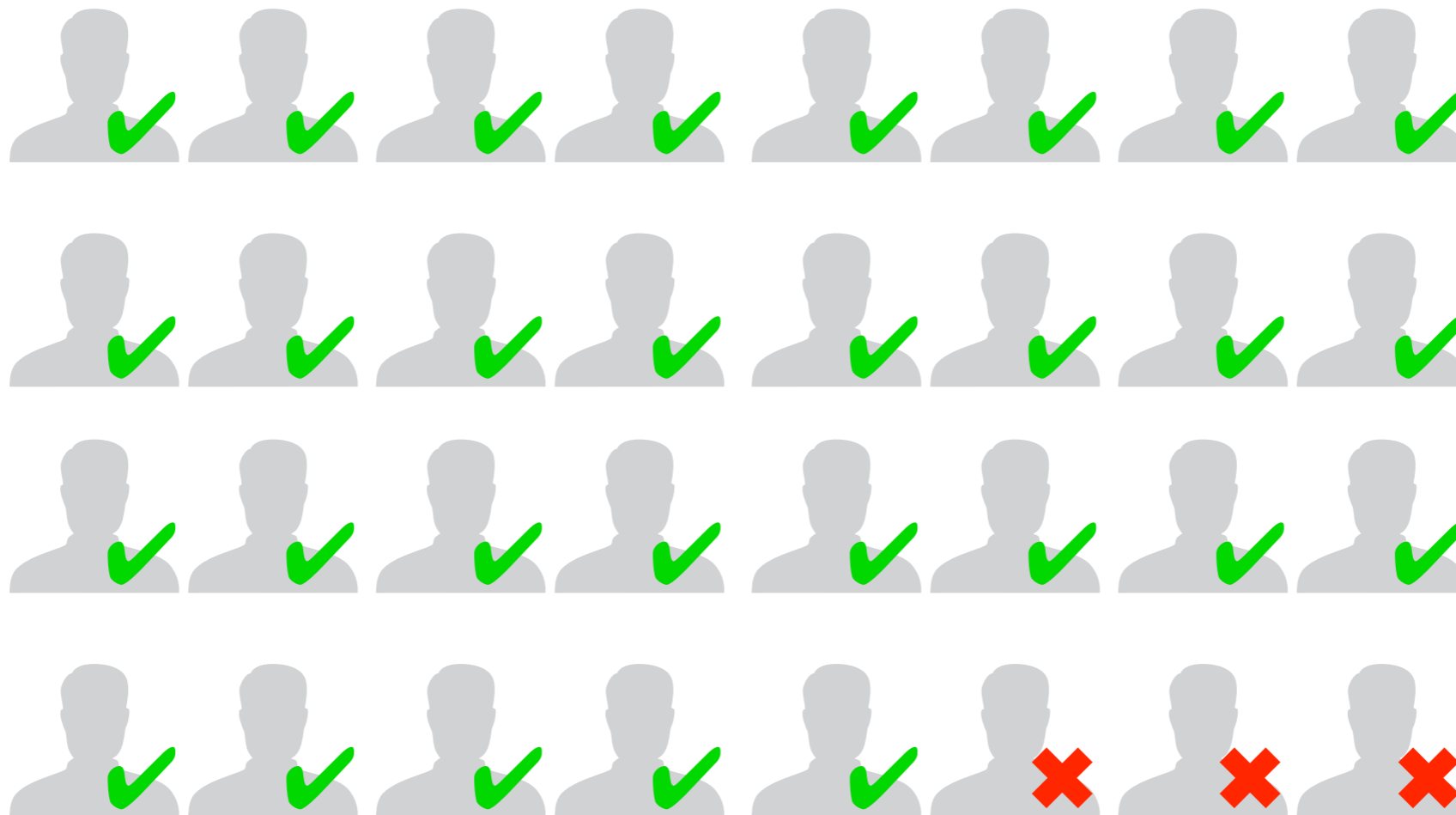
UNIX access and the lab

```
user: s<student_number>  
password: p<student_number>
```

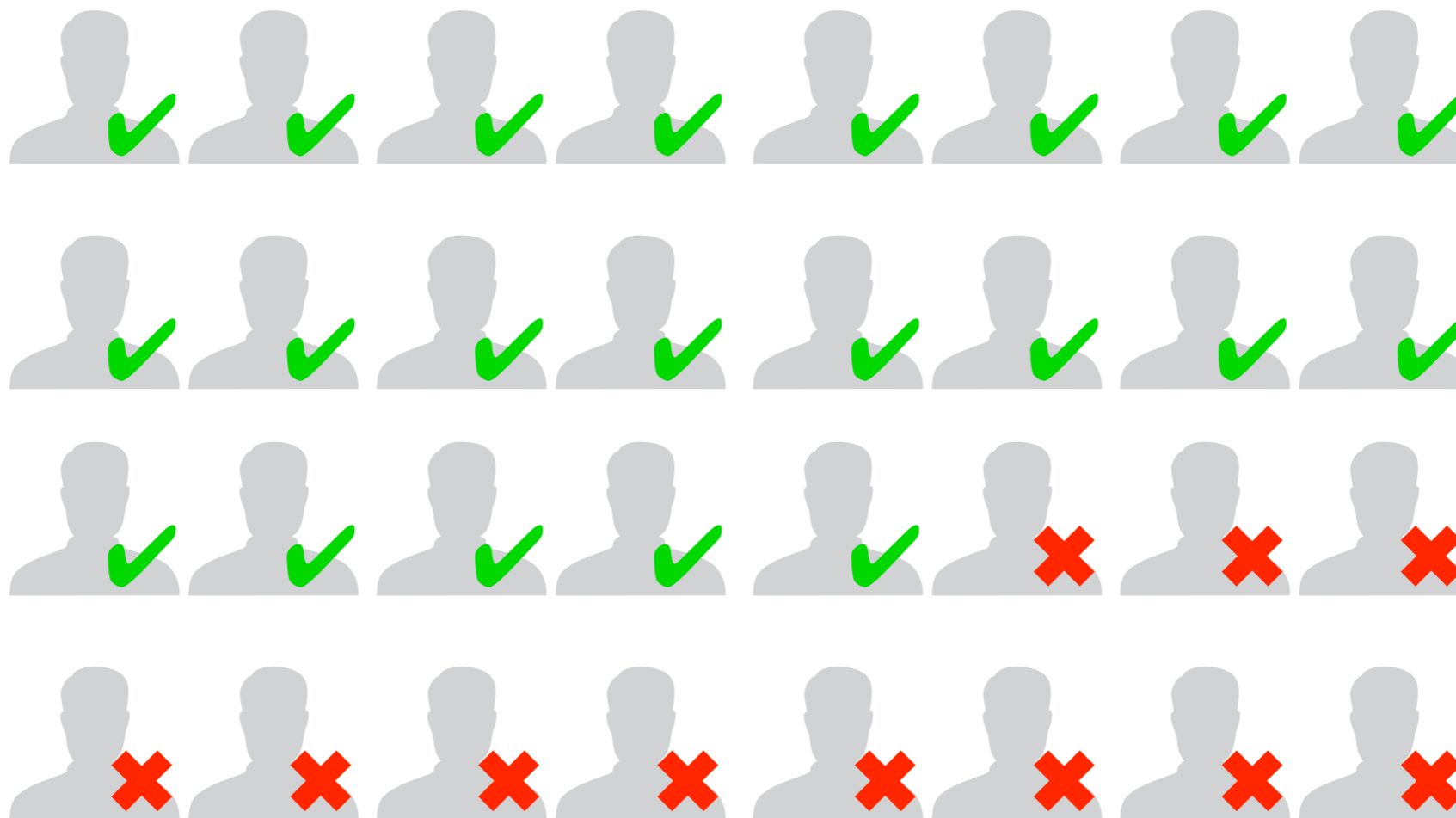
Mandatory exercises

week 36

Assignments, week 35



Assignments, week 36



0909090909

[http://en.wikipedia.org/wiki/9 %28number%29](http://en.wikipedia.org/wiki/9_%28number%29)

#1

Download the JPEG-files found on the page:

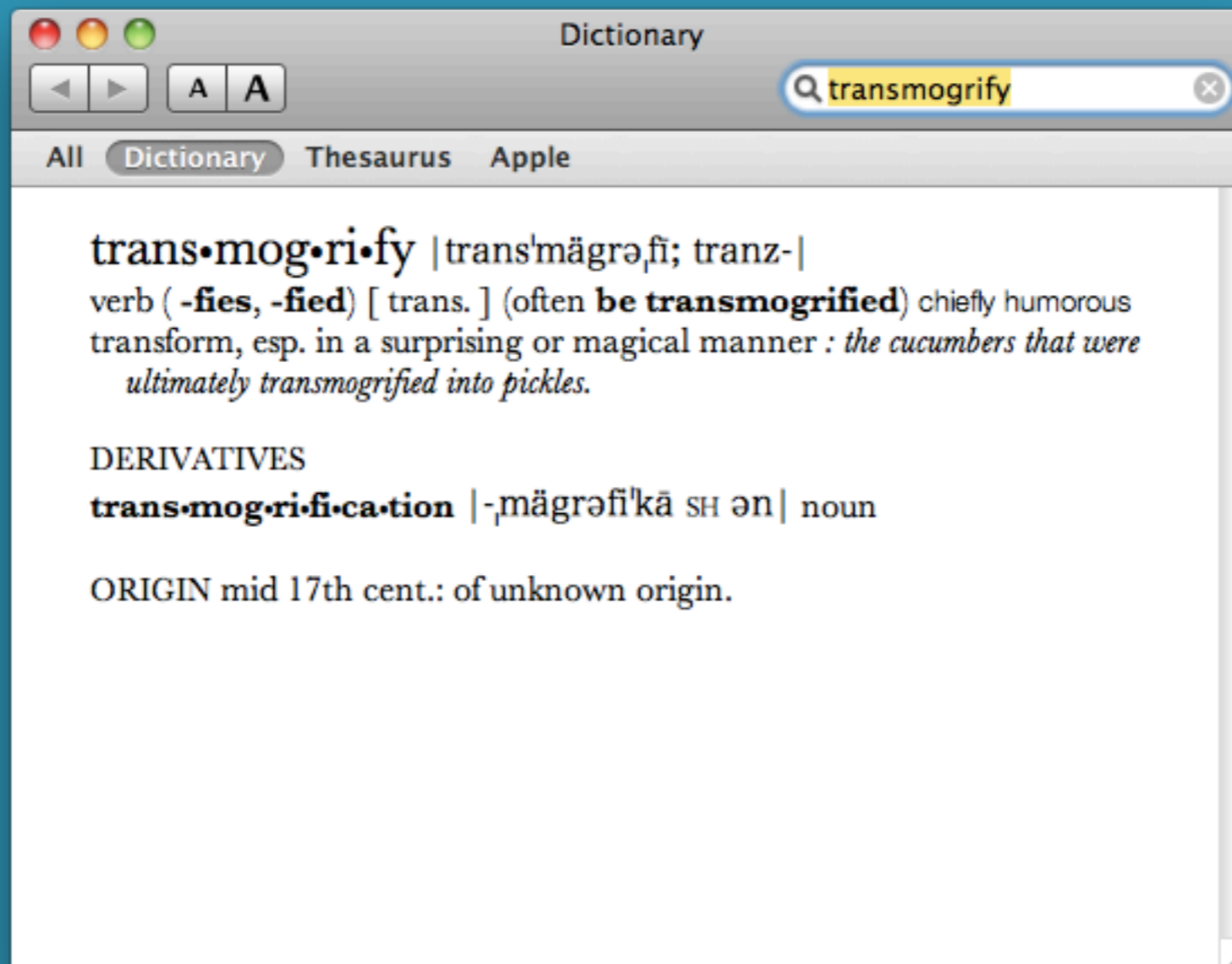
http://www.ansatt.hig.no/kjellr/misc/20090901_images/index.html

...to your local harddrive and convert it to the PNG format.
What happened to the filesizes after the file conversion?

```
wget -A.JPG -r -l1 -np http://www.ansatt.hig.no/kjellr/misc/20090901_images/index.html
```

```
Terminal — bash — 94x32
bash
Kjell-Are-Refsviks-MacBook:Desktop refsvik$ cd www.ansatt.hig.no/kjellr/misc/20090901_images
Kjell-Are-Refsviks-MacBook:20090901_images refsvik$ mogrify -format png *.JPG
Kjell-Are-Refsviks-MacBook:20090901_images refsvik$ ls -alF
total 67760
drwxr-xr-x  18 refsvik  staff    612 Sep  8 09:57 ./
drwxr-xr-x   4 refsvik  staff   136 Sep  8 09:52 ../
-rw-r--r--   1 refsvik  staff 1008420 Sep  1 15:42 IMG_0232.JPG
-rw-r--r--   1 refsvik  staff 3228447 Sep  8 09:57 IMG_0232.png
-rw-r--r--   1 refsvik  staff 1078028 Sep  1 15:42 IMG_0233.JPG
-rw-r--r--   1 refsvik  staff 3543269 Sep  8 09:57 IMG_0233.png
-rw-r--r--   1 refsvik  staff 1019006 Sep  1 15:42 IMG_0234.JPG
-rw-r--r--   1 refsvik  staff 3273922 Sep  8 09:57 IMG_0234.png
-rw-r--r--   1 refsvik  staff 1002339 Sep  1 15:42 IMG_0235.JPG
-rw-r--r--   1 refsvik  staff 3195190 Sep  8 09:57 IMG_0235.png
-rw-r--r--   1 refsvik  staff 1039695 Sep  1 15:42 IMG_0236.JPG
-rw-r--r--   1 refsvik  staff 3512444 Sep  8 09:57 IMG_0236.png
-rw-r--r--   1 refsvik  staff  991557 Sep  1 15:42 IMG_0237.JPG
-rw-r--r--   1 refsvik  staff 3325943 Sep  8 09:57 IMG_0237.png
-rw-r--r--   1 refsvik  staff  980810 Sep  1 15:42 IMG_0238.JPG
-rw-r--r--   1 refsvik  staff 3327101 Sep  8 09:57 IMG_0238.png
-rw-r--r--   1 refsvik  staff  938932 Sep  1 15:42 IMG_0239.JPG
-rw-r--r--   1 refsvik  staff 3187087 Sep  8 09:57 IMG_0239.png
Kjell-Are-Refsviks-MacBook:20090901_images refsvik$
```

mogrify???





All

Dictionary

Thesaurus

Apple

trans•mog•ri•fy |trans'mägrə,fī; tranz-|

verb (**-fies, -fied**) [trans.] (often **be transmogrified**)

transform, esp. in a surprising or magical manner : *the*

ultimately transmogrified into pickles.

DERIVATIVES

trans•mog•ri•fi•ca•tion |-,mägrəfī'kā SH ən| noun

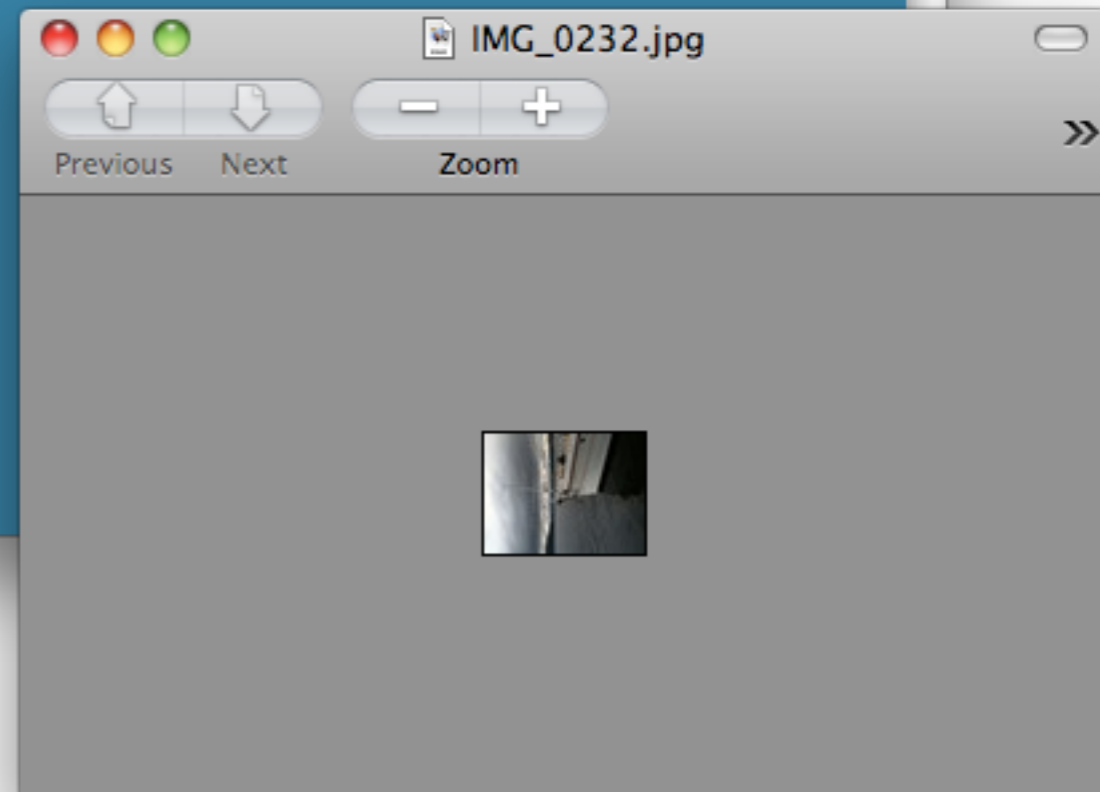
ORIGIN mid 17th cent.: of unknown origin.

#2

Take the same files as in exercise 1 and make a 60 pixel wide thumbnails of each file. Place the thumbnails in a folder named `_thumbs` in the same folder as the main images themselves.

State the command(s) you used and list the files to show file sizes.


```
Terminal — bash — 111x32
bash
Kjell-Are-Refsviks-MacBook:20090901_images refsvik$ ls
IMG_0232.JPG      IMG_0234.JPG      IMG_0236.JPG      IMG_0238.JPG
IMG_0232.png     IMG_0234.png     IMG_0236.png     IMG_0238.png
IMG_0233.JPG     IMG_0235.JPG     IMG_0237.JPG     IMG_0239.JPG
IMG_0233.png     IMG_0235.png     IMG_0237.png     IMG_0239.png
Kjell-Are-Refsviks-MacBook:20090901_images refsvik$ rm *.png
Kjell-Are-Refsviks-MacBook:20090901_images refsvik$ mkdir _thumbs
Kjell-Are-Refsviks-MacBook:20090901_images refsvik$ ls
Kjell-Are-Refsviks-MacBook:20090901_images refsvik$ mogrify -format jpg -path _thumbs -thumbnail 60x60 *.JPG
Kjell-Are-Refsviks-MacBook:20090901_images refsvik$ cd _thumbs
Kjell-Are-Refsviks-MacBook:_thumbs refsvik$ ls
IMG_0232.jpg     IMG_0234.jpg     IMG_0236.jpg     IMG_0238.jpg
IMG_0233.jpg     IMG_0235.jpg     IMG_0237.jpg     IMG_0239.jpg
Kjell-Are-Refsviks-MacBook:_thumbs refsvik$ ls -alF
total 64
drwxr-xr-x  10 refsvik  staff   340 Sep  8 10:08 ./
drwxr-xr-x  12 refsvik  staff   408 Sep  8 10:07 ../
-rw-r--r--   1 refsvik  staff  1344 Sep  8 10:08 IMG_0232.jpg
-rw-r--r--   1 refsvik  staff  1490 Sep  8 10:08 IMG_0233.jpg
-rw-r--r--   1 refsvik  staff  1258 Sep  8 10:08 IMG_0234.jpg
-rw-r--r--   1 refsvik  staff  1432 Sep  8 10:08 IMG_0235.jpg
-rw-r--r--   1 refsvik  staff  1217 Sep  8 10:08 IMG_0236.jpg
-rw-r--r--   1 refsvik  staff  1399 Sep  8 10:08 IMG_0237.jpg
-rw-r--r--   1 refsvik  staff  1444 Sep  8 10:08 IMG_0238.jpg
-rw-r--r--   1 refsvik  staff  1299 Sep  8 10:08 IMG_0239.jpg
Kjell-Are-Refsviks-MacBook:_thumbs refsvik$ open IMG_0232.jpg
Kjell-Are-Refsviks-MacBook:_thumbs refsvik$
```



#3

Repeat exercise 2, but try to reduce the thumbnail filesize to a minimum while keeping pixel size (by reducing colours or increasing compression).

bash

```
Kjell-Are-Refsviks-MacBook:20090901_images refs vik$ ls
IMG_0232.JPG  IMG_0234.JPG  IMG_0236.JPG  IMG_0238.JPG
IMG_0233.JPG  IMG_0235.JPG  IMG_0237.JPG  IMG_0239.JPG
Kjell-Are-Refsviks-MacBook:20090901_images refs vik$ mkdir _thumbs
Kjell-Are-Refsviks-MacBook:20090901_images refs vik$ mogrify -format jpg -path _thumbs -thumbnail 60x60 -quality 10 *.JPG
Kjell-Are-Refsviks-MacBook:20090901_images refs vik$ cd _thumbs
Kjell-Are-Refsviks-MacBook:_thumbs refs vik$ ls -alF
total 64
drwxr-xr-x  10 refs vik  staff   340 Sep  8 10:24 ./
drwxr-xr-x  12 refs vik  staff   408 Sep  8 10:24 ../
-rw-r--r--   1 refs vik  staff   423 Sep  8 10:24 IMG_0232.jpg
-rw-r--r--   1 refs vik  staff   450 Sep  8 10:24 IMG_0233.jpg
-rw-r--r--   1 refs vik  staff   410 Sep  8 10:24 IMG_0234.jpg
-rw-r--r--   1 refs vik  staff   439 Sep  8 10:24 IMG_0235.jpg
-rw-r--r--   1 refs vik  staff   372 Sep  8 10:24 IMG_0236.jpg
-rw-r--r--   1 refs vik  staff   423 Sep  8 10:24 IMG_0237.jpg
-rw-r--r--   1 refs vik  staff   441 Sep  8 10:24 IMG_0238.jpg
-rw-r--r--   1 refs vik  staff   398 Sep  8 10:24 IMG_0239.jpg
Kjell-Are-Refsviks-MacBook:_thumbs refs vik$
```



60x60px jpg 1344bytes



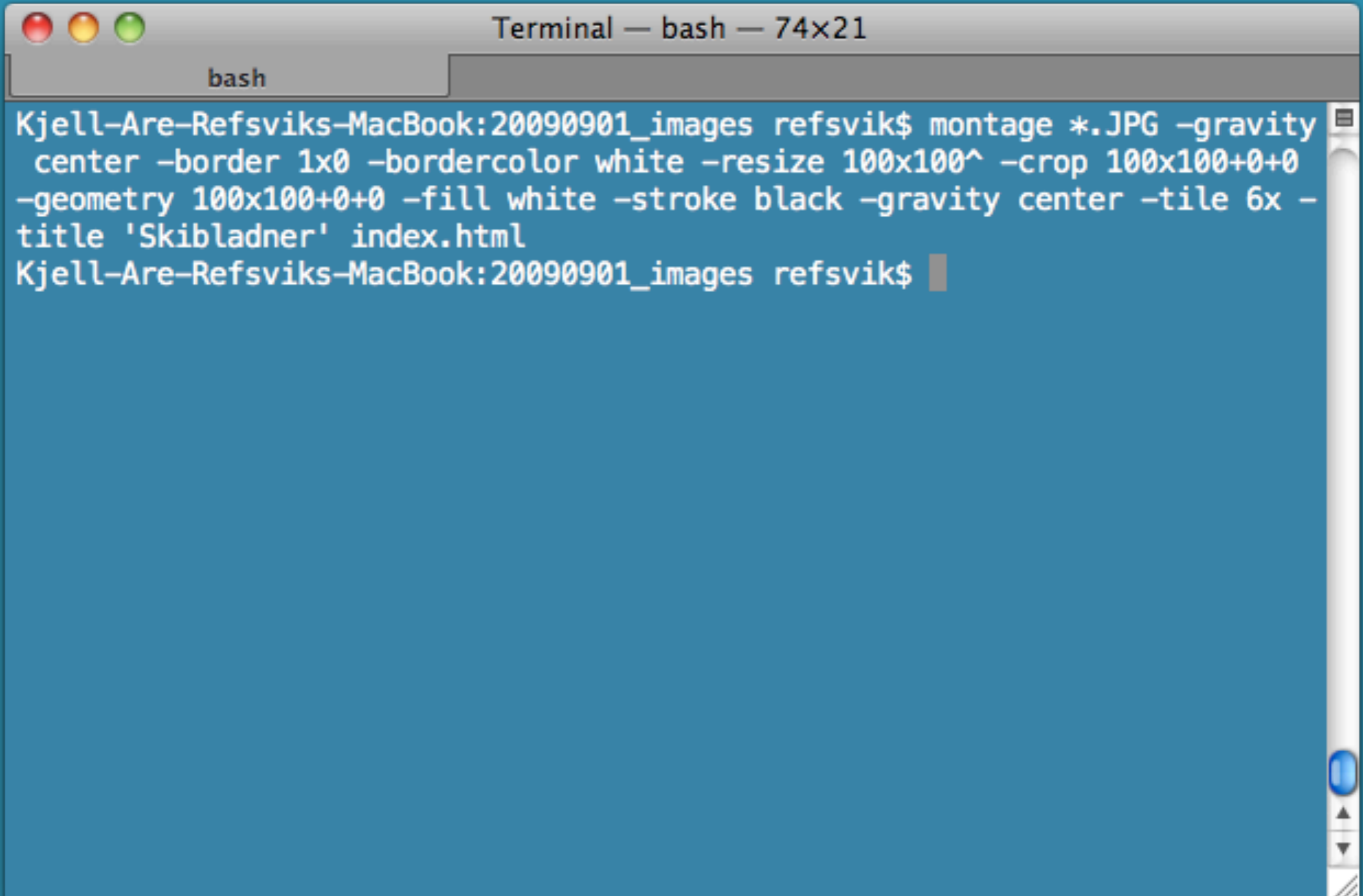
60x60px jpg 423bytes

#4

Use Imagemagicks “montage” command to generate a web page of the images in:

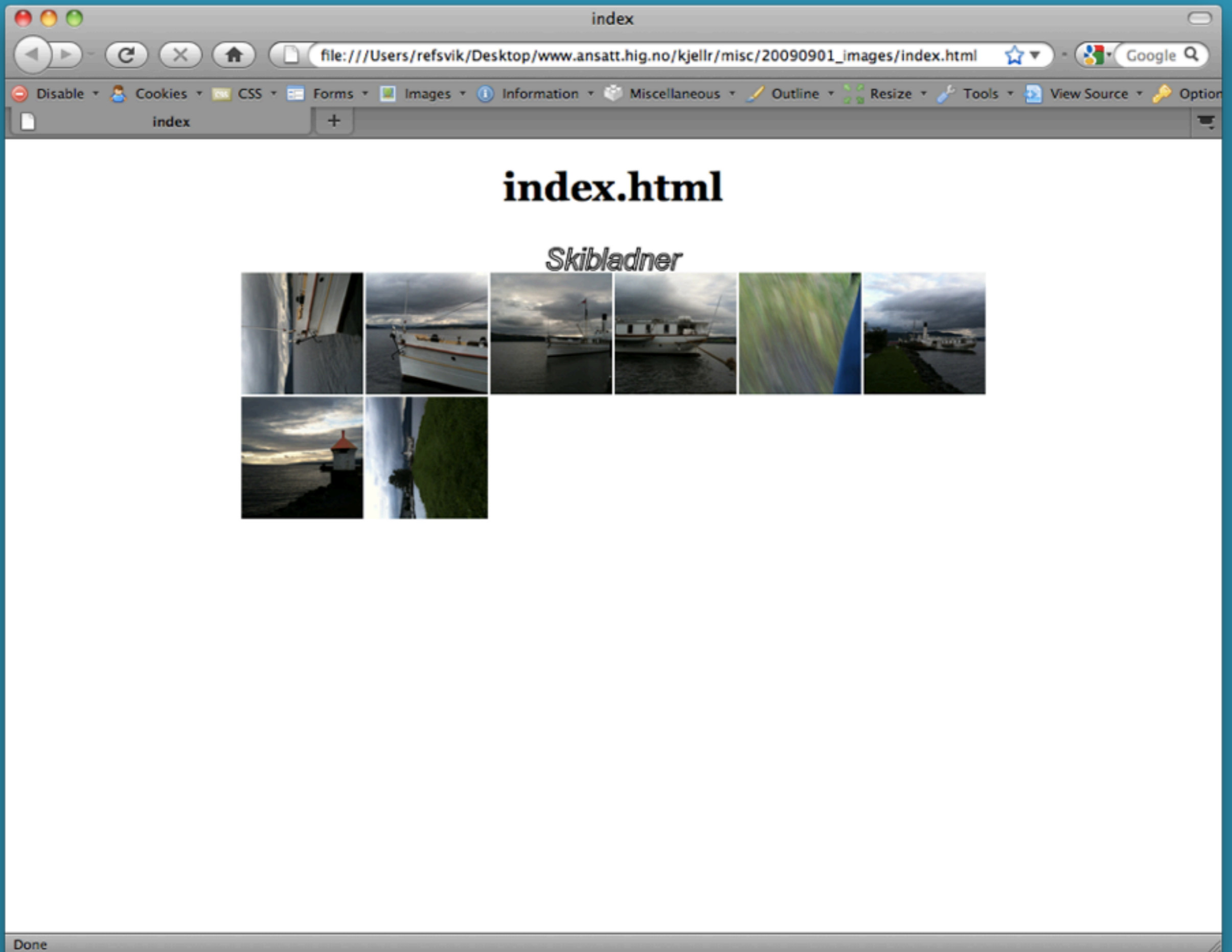
http://www.ansatt.hig.no/kjellr/misc/20090901_images/index.html

Upload your montage-command and a png of the finished web page in a browser.

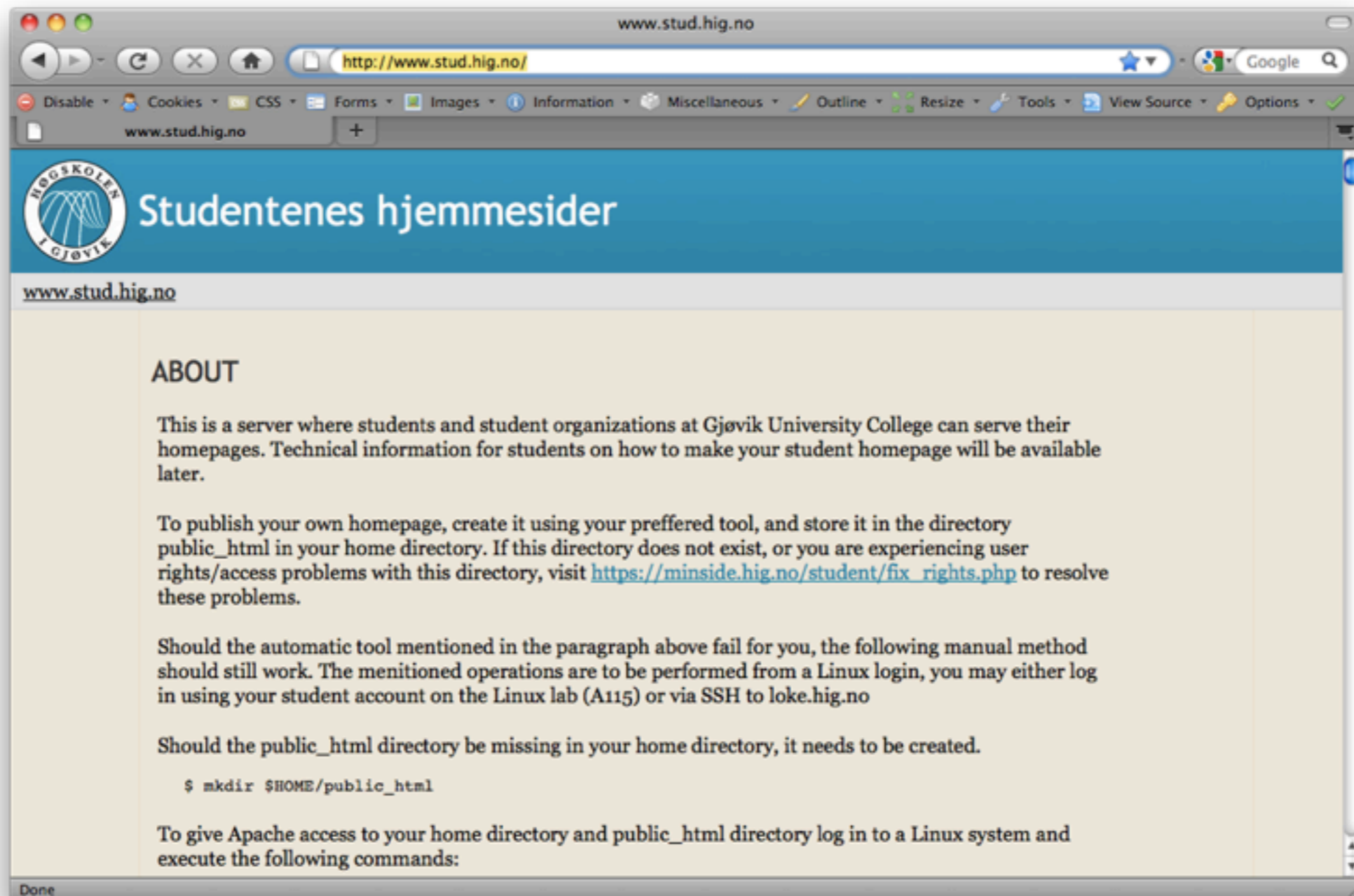
A screenshot of a macOS Terminal window. The title bar reads "Terminal — bash — 74x21". The window contains a single command line for the 'montage' utility. The command is: `montage *.JPG -gravity center -border 1x0 -bordercolor white -resize 100x100^ -crop 100x100+0+0 -geometry 100x100+0+0 -fill white -stroke black -gravity center -tile 6x -title 'Skibladner' index.html`. The prompt shows the current directory is `20090901_images` and the user is `refsvik`.

```
Terminal — bash — 74x21
bash
Kjell-Are-Refsviks-MacBook:20090901_images refsvik$ montage *.JPG -gravity
  center -border 1x0 -bordercolor white -resize 100x100^ -crop 100x100+0+0
-geometry 100x100+0+0 -fill white -stroke black -gravity center -tile 6x -
title 'Skibladner' index.html
Kjell-Are-Refsviks-MacBook:20090901_images refsvik$
```

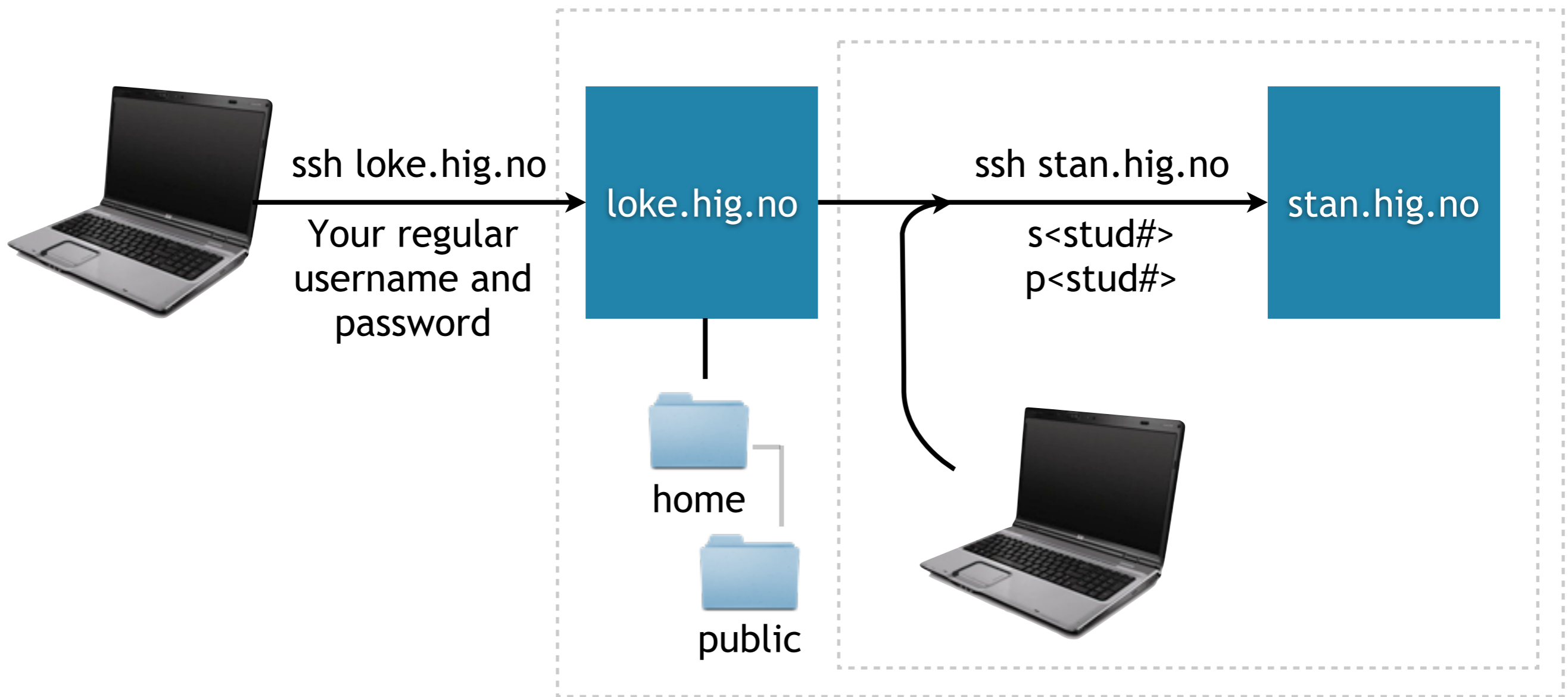
```
montage *.JPG
-gravity center
-border 1x0
-bordercolor white
-resize 100x100^
-crop 100x100+0+0
-geometry 100x100+0+0
-fill white
-stroke black
-gravity center
-tile 6x
-title 'Skibladner'
index.html
```



Your home directory and web site



Servers



Collect useful commands!

WEB: Create a web gallery with 100x100 square thumbnails
montage *.JPG -gravity center -border 1x0 -bordercolor white
-resize 100x100^ -crop 100x100+0+0 -geometry 100x100+0+0 -
fill white -stroke black -gravity center -tile 6x -title
'Skibladner' index.html

IMAGE: Create very small 60x60 jpeg thumbnails:
mogrify -format jpg -path _thumbs -thumbnail 60x60 -quality
10 *.JPG

IMAGE: Create png copies of a group of jpeg images:
mogrify -format png *.jpg

FILE: Small script to rename all files from '.JPG' to '.jpg'
in a folder:

```
for f in *.JPG;
do
  base='basename $f .JPG'
  mv $f$base.jpg
done
```

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Basic UNIX commands

```
find . -name "myfile"
```

search for a file named "myfile" recursively down from the current directory

```
find ~ -name "myfile" > ~/Desktop/files.txt
```

search for a file named "myfile" recursively down from the home directory and save the result in a file named "files.txt" on the Desktop of the user

```
find / -name "kjell" | grep refsvisk
```

search for a file named "kjell" and send the result to the grep command that will search for the word "refsvisk" inside all those files

```
find / -name "myfile" -type f -print 2>/dev/null
```

Search for a file named "myfile" starting on the root of the drive, but suppress permission warnings

<http://en.wikipedia.org/wiki/Find>



Purpose of archive formats

Reduce size

Archive/collection

Formats and programs

Formats	<u>ZIP</u>	tar
Programs	tar, zip/unzip, gzip/gunzip	

Lecture

Moving data

Protocol

Sets of formalised rules that computers use to talk to each other

7	Application	HTTP (Hyper Text Transfer Protocol)
6	Presentation	NCP (NetWare Core Protocol)
5	Session	SMB (Server Message Block)
4	Transport	TCP (Transport Control Protocol)
3	Network	IPv4 (Internet Protocol version 4)
2	Data Link	Ethernet
1	Physical	ADSL (Asymmetrical Digital Subscriber Line)

ftp/sftp
rsync
pop3/imap4
Telnet/ssh
rlogin
WebDAV
HTTP

http://en.wikipedia.org/wiki/Internet_Protocol_Suite
http://en.wikipedia.org/wiki/Protocol_%28computing%29

Activities, Protocols and Programs

	FIND	DESCRIBE	TRANSCODE TRANSFORM	MOVE	MASHUP AND PRESENT
PROTOCOL	HTTP*			SCP SSH SFTP	
PROGRAM (UNIX/Linux)	wget* find	exiftool	imagemagick ffmpeg	scp ssh sftp wget	

Programs used to move...

...ourselves to another machine:
ssh

...files from one machine to another:
wget, scp, sftp

scp

Secure CoPy

Advantage: speed
Disadvantage: interruptability

Copy files from a remote machine back the account we are logged into now:

```
student1@stan:~/demo_files — grep — 112x20
student1@s...files — grep
Kjell-Are-Refsviks-MacBook:Desktop refsvik$ pwd
/Users/refsvik/Desktop
Kjell-Are-Refsviks-MacBook:Desktop refsvik$ scp -r student1@stan.hig.no:demo_files ~/Desktop/demofiles
student1@stan.hig.no's password:
ImageVaultHandler.jpg          100%  92KB  92.3KB/s  00:00
Gjovik-Nyhavna.JPG             100% 315KB 315.0KB/s 00:00
READ_Final.pdf                 100% 1061KB 1.0MB/s  00:00
freeculture.pdf                100% 2538KB 2.5MB/s  00:00
Gjovik_sett_fra_Nordlia.jpg    100%  93KB  93.2KB/s 00:00
all.txt                         100%  16KB  15.8KB/s 00:00
IMG_0137.JPG                   100% 1184KB 1.2MB/s  00:00
soknad.doc                     100%  35KB  35.0KB/s 00:00
index.html                     100%  491   0.5KB/s  00:00
Gjovik2006_22.jpg              100% 146KB 146.1KB/s 00:00
index_map.shtml                100%  310   0.3KB/s  00:00
index.gif                       100%  32KB  31.6KB/s 00:00
Kapittel4_4_5Idrettsanlegg.pdf 100% 433KB 432.8KB/s 00:00
Gjovik_2003.jpg                100%  50KB  49.5KB/s 00:00
Kjell-Are-Refsviks-MacBook:Desktop refsvik$
```

Copy files from our local account to a another machine/account:

```
student1@stan:~/demo_files — grep — 112x20
student1@s...files — grep
ImageVaultHandler.jpg          100%   92KB  92.3KB/s   00:00
Gjovik-Nyhavna.JPG             100%  315KB 315.0KB/s   00:00
READ_Final.pdf                 100% 1061KB  1.0MB/s   00:00
freeculture.pdf                100% 2538KB  2.5MB/s   00:00
Gjovik_sett_fra_Nordlia.jpg    100%   93KB  93.2KB/s   00:00
all.txt                         100%   16KB  15.8KB/s   00:00
IMG_0137.JPG                   100% 1184KB  1.2MB/s   00:00
soknad.doc                     100%   35KB  35.0KB/s   00:00
index.html                     100%   491    0.5KB/s   00:00
Gjovik2006_22.jpg              100%  146KB 146.1KB/s   00:00
index_map.shtml                100%   310    0.3KB/s   00:00
index.gif                       100%   32KB  31.6KB/s   00:00
Kapittel4_4_5Idrettsanlegg.pdf 100%  433KB 432.8KB/s   00:00
Gjovik_2003.jpg                100%   50KB  49.5KB/s   00:00
Kjell-Are-Refsviks-MacBook:Desktop refsvik$ pwd
/Users/refsvik/Desktop
Kjell-Are-Refsviks-MacBook:Desktop refsvik$ scp *.JPG student1@stan.hig.no:demo_files
student1@stan.hig.no's password:
IMG_0232.JPG                    100%  985KB 984.8KB/s   00:00
Kjell-Are-Refsviks-MacBook:Desktop refsvik$
```

http://en.wikipedia.org/wiki/Secure_copy

\$ man scp

sftp

SSH File Transfer Protocol or
Secure File Transfer Protocol

Advantage: interruptability
Disadvantage: speed


```
student1@stan:~ — less — 117x27
student1@stan:~ — less
Kjell-Are-Refsviks-MacBook:Desktop refs vik$ sftp student1@stan.hig.no
Connecting to stan.hig.no...
student1@stan.hig.no's password:
sftp> ls
demo_files  kjellare      rahat      sr
sftp> cd demo_files
sftp> ls
Gjovik-Nyhavna.JPG          Gjovik2006_22.jpg          Gjovik_2003.jpg
Gjovik_sett_fra_Nordlia.jpg IMG_0137.JPG              IMG_0232.JPG
ImageVaultHandler.jpg     Kapittel4_4_5Idrettsanlegg.pdf  READ_Final.pdf
all.txt                    freeculture.pdf           index.gif
index.html                 index_map.shtml           kjellar
soknad.doc
sftp> get IMG_0137.JPG
Fetching /home/student1/demo_files/IMG_0137.JPG to IMG_0137.JPG
/home/student1/demo_files/IMG_0137.JPG          100% 1184KB 592.0KB/s   00:02
sftp> bye
Kjell-Are-Refsviks-MacBook:Desktop refs vik$ open IMG_0137.JPG
Kjell-Are-Refsviks-MacBook:Desktop refs vik$
```

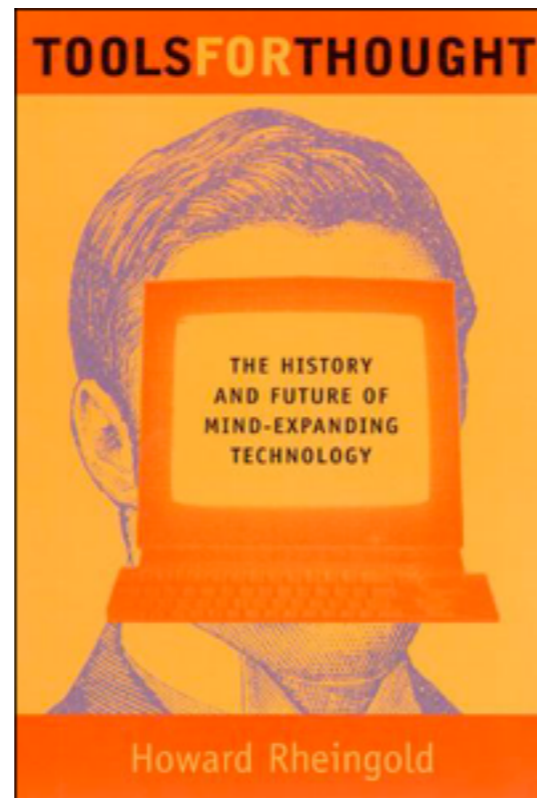


[http://en.wikipedia.org/wiki/SSH file transfer protocol](http://en.wikipedia.org/wiki/SSH_file_transfer_protocol)

<http://www.computerhope.com/unix/sftp.htm>

\$ man sftp

To read



Paper



Paper
Screen
Sound







onsdag 9. september 2009







The script

```
#!/bin/sh

for f in *;
do
convert $f -sigmoidal-contrast 3x10% \
    \( +clone -sparse-color Barycentric '0,0 black 0,%[fx:h-1] gray80' \
        -solarize 50% -level 50%,0\) \
    -compose Blur -set option:compose:args 15 -composite \
    model_$f
done
```

To watch

Some of Keith Loutit's amazing videos
with the tilt-shift visual effect:

<http://vimeo.com/5137183>

<http://vimeo.com/3156959>

To do, week 37

1. Provide a command that will move a file of your choice from a machine different from stan.hig.no (i.e. your local laptop) to your account on stan.hig.no. Verify that the file was moved.
2. Provide (a) command(s) that will download the image files you used in week 36, compress the images into a zip-file that is named according to the date the images was taken and upload them to your account on stan.hig.no
3. Provide (a) command(s) that will download the image files you used in week 36, make a web page out of them, and upload them to your web folder on loke.hig.no. Provide a screen capture together with your answer that can verify that the files are uploaded and are available through HTTP and make the screenshot legible, yet as small as possible.
4. Now repeat exercise 3, but this time - insert the name of the photographer (your teacher), into a appropriate IPTC field in the image files and also onto the images themselves in the bottom right corner. Provide a screen capture together with your answer that can verify that the files are uploaded and are available through HTTP and make the screenshot legible, yet as small as possible.