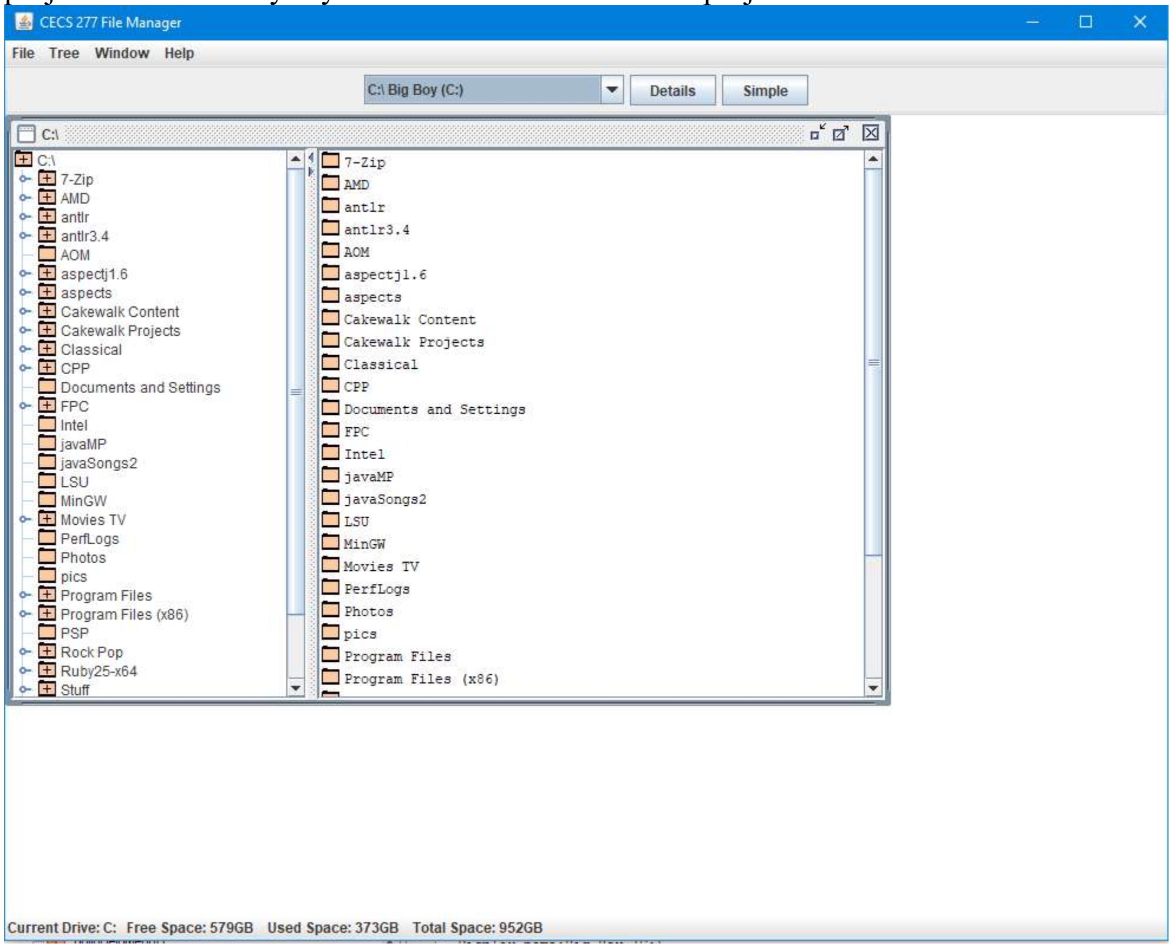
CECS 277
Semester Project
Due May 5, 6pm

What to turn in:

1. a jar file of your project's executable
2. a zip file of your project's source code

1. What is the project:

Our project is a "lite" version of Microsoft's ancient Windows File Manager (FM) program. This program has been re-released and is available for Windows 10 from the Microsoft store. It is not required that you download it, but it may help you understand some of our project's functionality if you use it. Here is shot of the project:



Current Drive: C: Free Space: 579GB Used Space: 373GB Total Space: 952GB

Figure 1 The Whole File Manager Enchilada

A first look at FM's requirements and features:

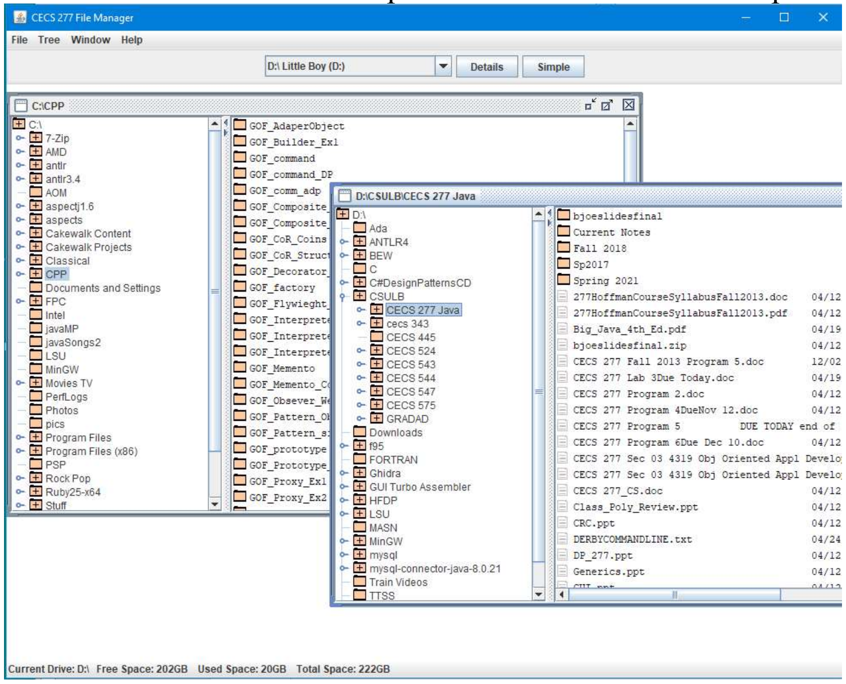
1. It has a GUI. I did mine in Java Swing which is pretty easy to learn.
2. It is a multiple document interface. One or more drive windows may be open at the same time.
3. There is a menu system.
4. There is a toolbar (just below the menu).
5. There is a “statusbar” (more like an information bar) at bottom.
6. Drive windows go into the main window pane. They are movable, resizeable, can be minimized, maximized, closed.

Yes, it is a lot of work. Yes, it does involve coding with libraries you’ve probably not used before. Yes, it looks really hard. But it isn’t. There are challenges to be certain, but if we work together, and try, starting today, there’s no reason why you can’t do this. This program cannot be finished in an evening. And I will provide beau coup examples on nearly every feature.

2. Main Feature

The main feature of the project is the presentation of multiple frames containing a split-pane. The frame holds a splitpane, both sides of which contain scrollpanes. The left scrollpane contains a tree structure representing the folder structure for the entire drive. The right scrollpane contains a list of all the folders and files in the folder which is currently selected in the left scrollpane. Selecting a different folder in the left scrollpane causes the right scrollpane to redraw to show the folers and file sthat belong to the newly selected folder.

The frame can be closed, minimized (what Java calls iconified), maximized (de-iconified) , and moved within the desktop of FM. The frame top bar always has the name of the current folder. More than one frame can be open at a time. Frames are independent of one another.



```
GOF_AdaperObject
GOF_Builder_Ex1
GOF_command
GOF_command_DP
GOF_comm_adp
GOF_Composite_
GOF_Composite_
GOF_CoR_Coins
GOF_CoR_Struct
GOF_Decorator_
GOF_factory
GOF_Flywieght_
GOF_Interprete
GOF_Interprete
GOF_Interprete
GOF_Memento
GOF_Memento_Co
GOF_Obsever_We
GOF_Pattern_Ob
GOF_Pattern_si
GOF_prototype
GOF_Prototype_
GOF_Proxy_Ex1
GOF_Proxy_Ex2
```

```
bjoeslidesfinal
Current Notes
Fall 2018
Sp2017
Spring 2021
277HoffmanCourseSyllabusFall2013.doc    04/12
277HoffmanCourseSyllabusFall2013.pdf    04/12
Big_Java_4th_Ed.pdf                     04/19
bjoeslidesfinal.zip                     04/12
CECS 277 Fall 2013 Program 5.doc        12/02
CECS 277 Lab 3Due Today.doc             04/19
CECS 277 Program 2.doc                  04/12
CECS 277 Program 4DueNov 12.doc         04/12
CECS 277 Program 5          DUE TODAY end of
CECS 277 Program 6Due Dec 10.doc        04/12
CECS 277 Sec 03 4319 Obj Oriented Appl Develo
CECS 277 Sec 03 4319 Obj Oriented Appl Develo
CECS 277_CS.doc                         04/12
Class_Poly_Review.ppt                   04/12
CRC.ppt                                 04/12
DERBYCOMMANDLINE.txt                    04/24
DP_277.ppt                              04/12
Generics.ppt                            04/12
```

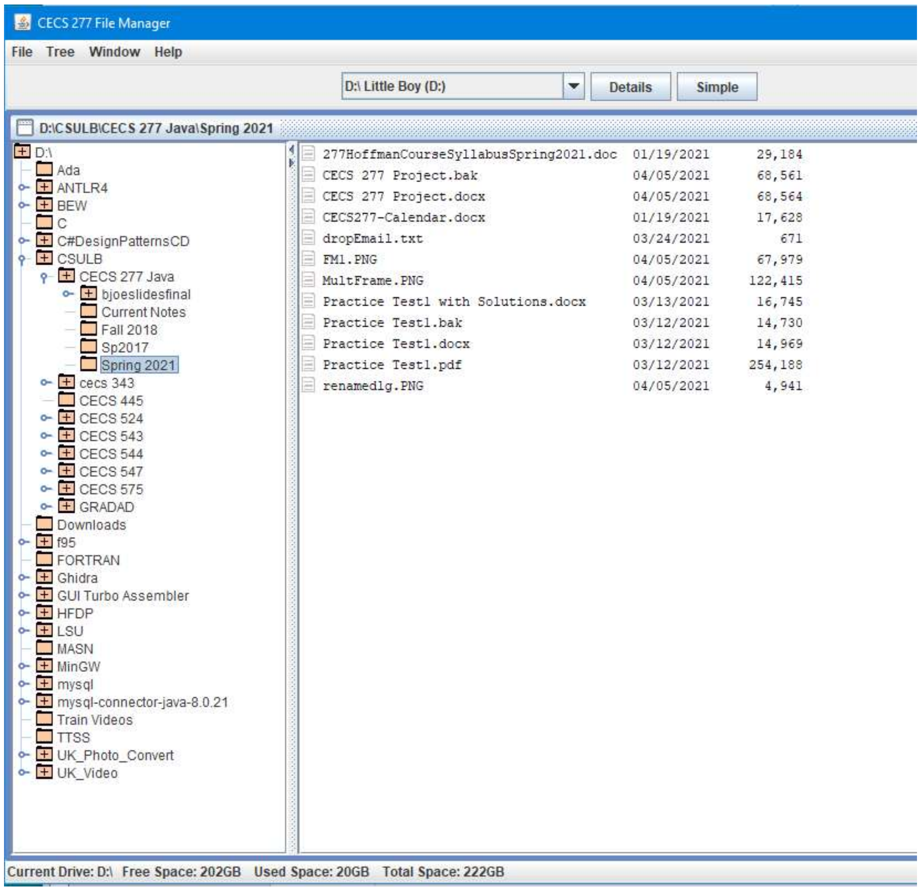
Current Drive: D:\   Free Space: 202GB   Used Space: 20GB   Total Space: 222GB

Figure 2 Multi-frames showing
As Figure 2 shows, there can be multiple frames open each containing its own directory information. Theoretically infinite.

Let’s take a closer look at the frame contents. The root of the tree in the left side is always a drive. The tree root is always expanded. Each entry in the tree is a directory (folder) on the drive. No files should ever be in the left window.

Notice that some folders have an icon with a +, others don’t. The + indicates that this directory (folder) has subdirectories. For example, in the front frame (D:\CCULS\CECS 277 Java) the CSULB directory icon has a + and can be seen to have multiple subdirectories. The selected folder D:\CCULS\CECS 277 Java has an icon with +, and as can be seen in the right scrollpane, has subdirectories (and files). We do not need to put + on the folders in the right side.

The files in a directory are presented with a different icon and additional information. The file icon is similar to that of a windows .html or .txt icon. The additional information is the file’s last modified date and its size in bytes. See Figure 3.



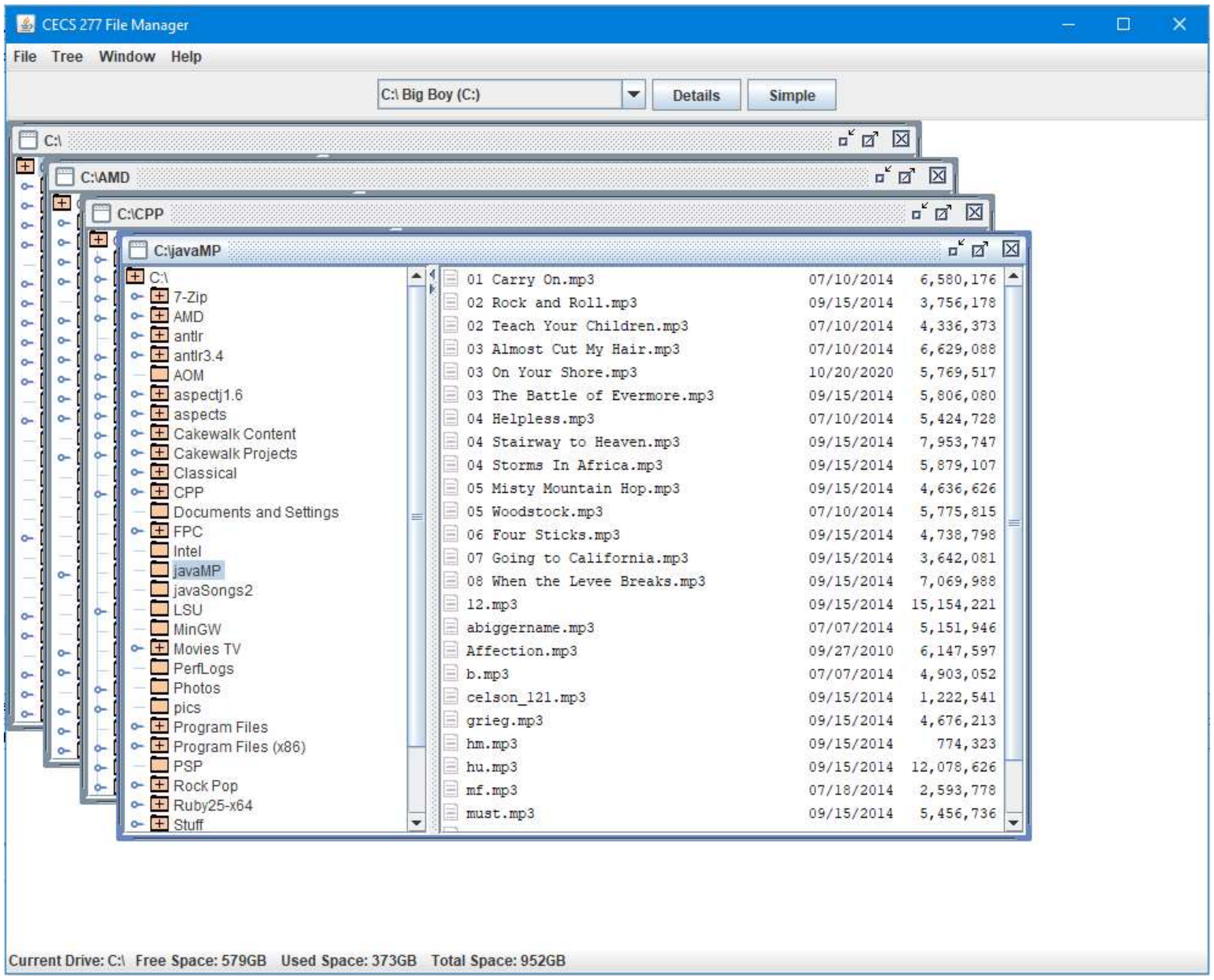
```
D:\
  Ada
  ANTLR4
  BEW
  C
  C#DesignPatternsCD
  CSULB
    CECS 277 Java
      bjoeslidesfinal
      Current Notes
      Fall 2018
      Sp2017
      Spring 2021
    cecs 343
    CECS 445
    CECS 524
    CECS 543
    CECS 544
    CECS 547
    CECS 575
    GRADAD
  Downloads
  f95
  FORTRAN
  Ghidra
  GUI Turbo Assembler
  HFDP
  LSU
  MASN
  MinGW
  mysql
  mysql-connector-java-8.0.21
  Train Videos
  TTSS
  UK_Photo_Convert
  UK_Video
```

```
277HoffmanCourseSyllabusSpring2021.doc  01/19/2021     29,184
CECS 277 Project.bak                    04/05/2021     68,561
CECS 277 Project.docx                   04/05/2021     68,564
CECS277-Calendar.docx                   01/19/2021     17,628
dropEmail.txt                           03/24/2021        671
FM1.PNG                                 04/05/2021     67,979
MultFrame.PNG                           04/05/2021    122,415
Practice Test1 with Solutions.docx      03/13/2021     16,745
Practice Test1.bak                      03/12/2021     14,730
Practice Test1.docx                     03/12/2021     14,969
Practice Test1.pdf                      03/12/2021    254,188
renamedlg.PNG                           04/05/2021      4,941
```

```
Current Drive: D:\  Free Space: 202GB  Used Space: 20GB  Total Space: 222GB
```

Figure 3 - It’s Us! CECS 277, Spring 2021
Notes on the frames.

1. In the tree, don't read the entire drive into the tree at once. That will take far too long and use too much memory. It is necessary to read at least one level further into a directory to determine if it has subdirectories unless there's a package that does that for us.
2. Double-clicking the folder in the tree "expands" that branch (and only that branch - does not expand the subdirectories if they exist). Each folder must be double clicked to expand it (except the root as noted).
3. As a tree branch is clicked (single or double) its corresponding content is displayed in the right scrollpane.



```
C:\
  7-Zip
  AMD
  antlr
  antlr3.4
  AOM
  aspectj1.6
  aspects
  Cakewalk Content
  Cakewalk Projects
  Classical
  CPP
  Documents and Settings
  FPC
  Intel
  javaMP
  javaSongs2
  LSU
  MinGW
  Movies TV
  PerfLogs
  Photos
  pics
  Program Files
  Program Files (x86)
  PSP
  Rock Pop
  Ruby25-x64
  Stuff
```

```
01 Carry On.mp3                    07/10/2014   6,580,176
02 Rock and Roll.mp3               09/15/2014   3,756,178
02 Teach Your Children.mp3         07/10/2014   4,336,373
03 Almost Cut My Hair.mp3          07/10/2014   6,629,088
03 On Your Shore.mp3               10/20/2020   5,769,517
03 The Battle of Evermore.mp3      09/15/2014   5,806,080
04 Helpless.mp3                    07/10/2014   5,424,728
04 Stairway to Heaven.mp3          09/15/2014   7,953,747
04 Storms In Africa.mp3            09/15/2014   5,879,107
05 Misty Mountain Hop.mp3          09/15/2014   4,636,626
05 Woodstock.mp3                   07/10/2014   5,775,815
06 Four Sticks.mp3                 09/15/2014   4,738,798
07 Going to California.mp3         09/15/2014   3,642,081
08 When the Levee Breaks.mp3       09/15/2014   7,069,988
12.mp3                             09/15/2014  15,154,221
abiggername.mp3                    07/07/2014   5,151,946
Affection.mp3                      09/27/2010   6,147,597
b.mp3                              07/07/2014   4,903,052
celson_121.mp3                     09/15/2014   1,222,541
grieg.mp3                          09/15/2014   4,676,213
hm.mp3                             09/15/2014     774,323
hu.mp3                             09/15/2014  12,078,626
mf.mp3                             07/18/2014   2,593,778
must.mp3                           09/15/2014   5,456,736
```

Current Drive: C:\ Free Space: 579GB Used Space: 373GB Total Space: 952GB

Figure 4 - 4 Frames on 4 different directories

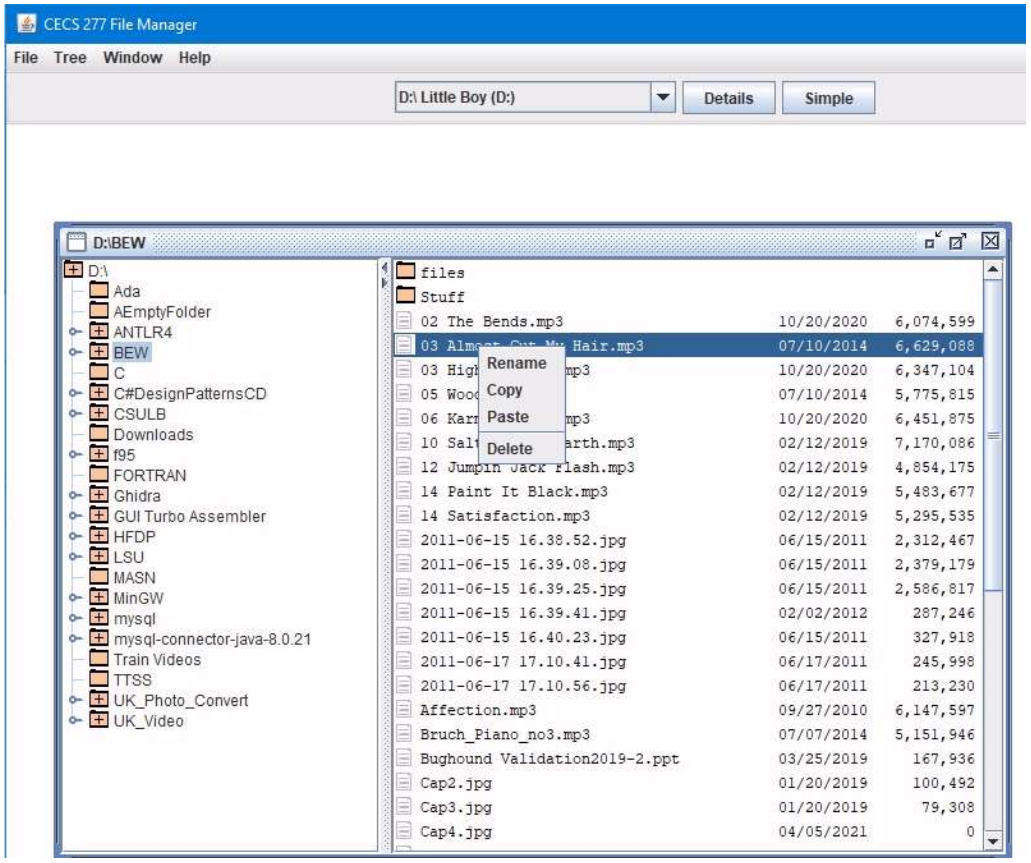
3. Secondary Features

File managers exist to manage files. Just looking at the contents of adrive is not all that useful. Here are the secondary but essential features of the project.

The following assume a file has been selected (single clicked)

1. Renaming a file. The selected file can be renamed in its directory.
2. Copying a file. The selected file can be copied to its directory (by renaming and copying) or copied to a different directory. Or by DnD.
3. Deleting a file. The selected file can be deleted from its directory.
4. Double clicking a file will either:
    a. execute the file is it is executable
    b. open the registered application for that type of file and load the file. For example, if the file is a .doc, the program registered with the OS for that file type (probably Word) will be launched and the file opened in Word.
    c. Don't worry. All it takes to execute the file is one declaration and ONE method call!

How does FM rename, copy and delete? Two ways to do the same thing.
1. File menu entries for Rename. Copy and Delete.
2. A popup menu that opens over the file.

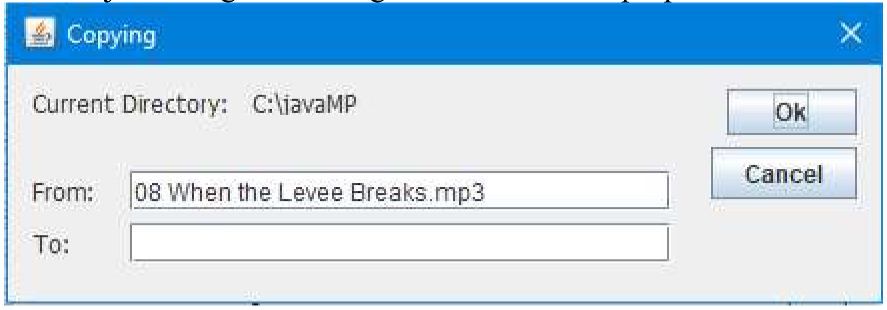


files		
Stuff		
02 The Bends.mp3	10/20/2020	6,074,599
03 Almo Hair.mp3	07/10/2014	6,629,088
03 High mp3	10/20/2020	6,347,104
05 Wood	07/10/2014	5,775,815
06 Karr mp3	10/20/2020	6,451,875
10 Salt arth.mp3	02/12/2019	7,170,086
12 Jumpin Jack Flash.mp3	02/12/2019	4,854,175
14 Paint It Black.mp3	02/12/2019	5,483,677
14 Satisfaction.mp3	02/12/2019	5,295,535
2011-06-15 16.38.52.jpg	06/15/2011	2,312,467
2011-06-15 16.39.08.jpg	06/15/2011	2,379,179
2011-06-15 16.39.25.jpg	06/15/2011	2,586,817
2011-06-15 16.39.41.jpg	02/02/2012	287,246
2011-06-15 16.40.23.jpg	06/15/2011	327,918
2011-06-17 17.10.41.jpg	06/17/2011	245,998
2011-06-17 17.10.56.jpg	06/17/2011	213,230
Affection.mp3	09/27/2010	6,147,597
Bruch_Piano_no3.mp3	07/07/2014	5,151,946
Bughound Validation2019-2.ppt	03/25/2019	167,936
Cap2.jpg	01/20/2019	100,492
Cap3.jpg	01/20/2019	79,308
Cap4.jpg	04/05/2021	0

Figure 5 - Popup Menu

The code that does 1 can be used to do 2 and vice versa. An action listener can be written to respond to the commands. For Rename and Copy FM will need a small dialog box to get information. For Delete FM will use a JOptionPane to comfirm the deletion.

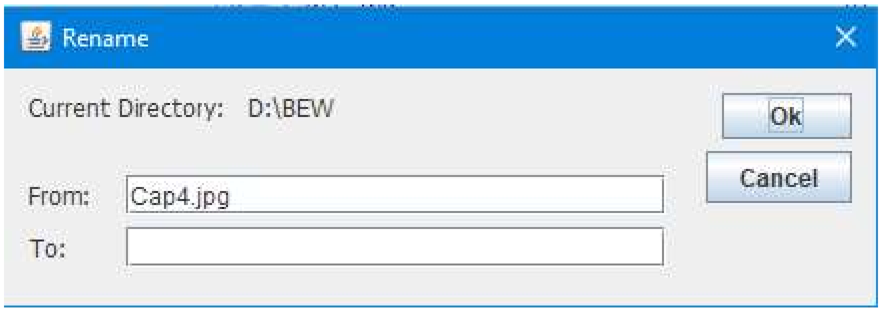
A small dialog can be reused for Rename and Copy because both require the same information. We can just change the dialog title to reflect the purpose of each.


Copying

Current Directory: C:\javaMP

From: 08 When the Levee Breaks.mp3

To:


Rename

Current Directory: D:\BEW

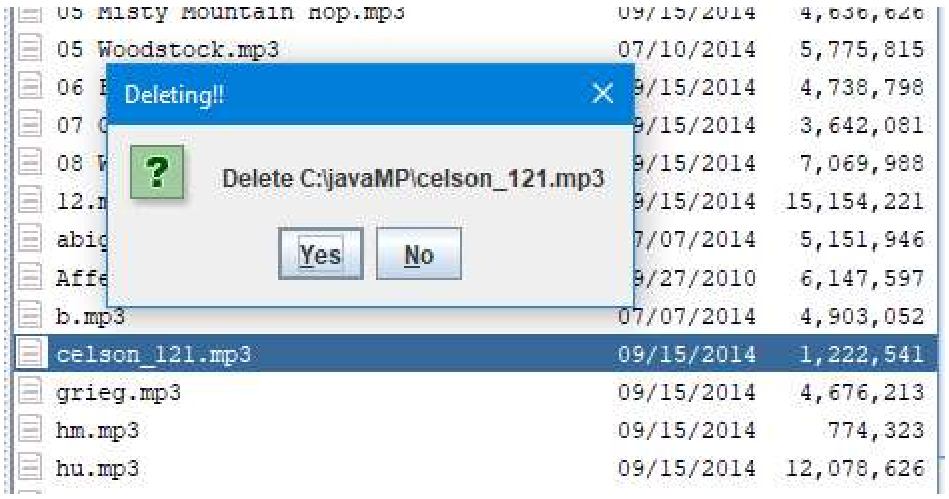
From: Cap4.jpg

To:

Same dialog, different names. Copying or renaming requires the user (in a very 1990's sort of way) to provide the complete path and file name for the "To:" textbox.

The result is that the "From:" file is renamed to the current directory or copied as it is named to the new directory name provided by the user.

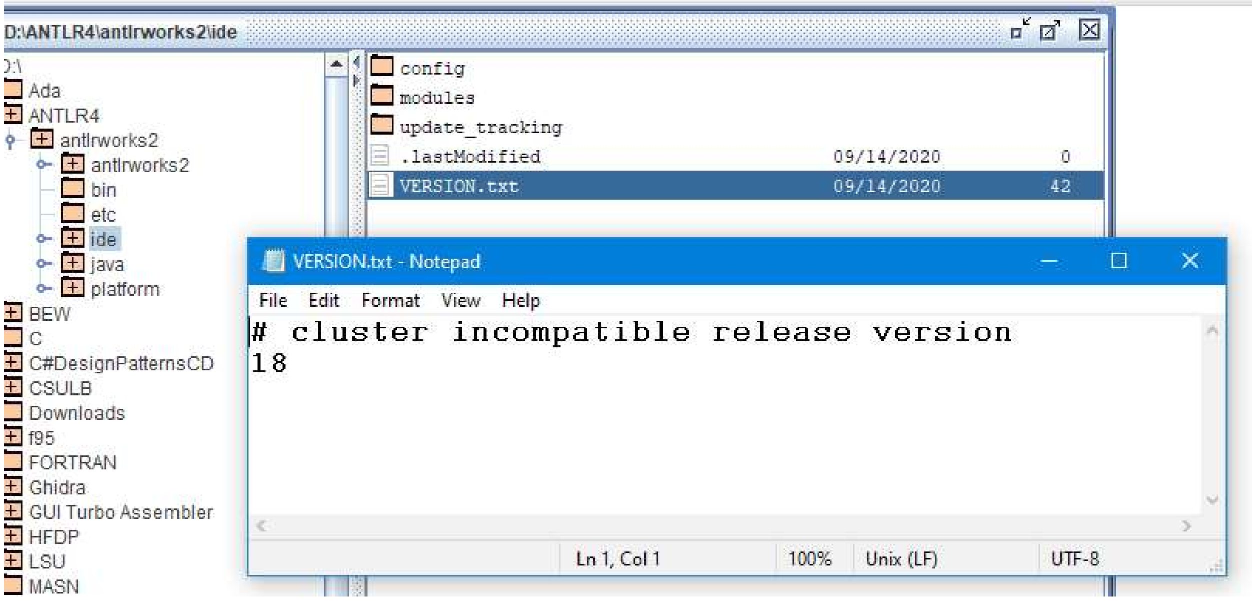
Deleting is a little different. Starts the same way by clicking a file and then selecting Delete, but doesn't require additional information, just confirmation.


Deleting!!

Delete C:\javaMP\celson_121.mp3

```
05 Misty Mountain Hop.mp3        09/15/2014   4,636,626
05 Woodstock.mp3                 07/10/2014   5,775,815
06 I                             9/15/2014    4,738,798
07 C                             9/15/2014    3,642,081
08 W                             9/15/2014    7,069,988
12.m                             9/15/2014   15,154,221
abig                             7/07/2014    5,151,946
Affe                             9/27/2010    6,147,597
b.mp3                            07/07/2014   4,903,052
celson_121.mp3                   09/15/2014   1,222,541
grieg.mp3                        09/15/2014   4,676,213
hm.mp3                           09/15/2014     774,323
hu.mp3                           09/15/2014  12,078,626
```

Double clicking a file will cause it to execute or cause the OS registered default program for that file type to be launched and the file opened in it. If there is no default program, the OS will ask the user what to use. Here's an example for .txt files.


D:\ANTLR4\antlrworks2\ide

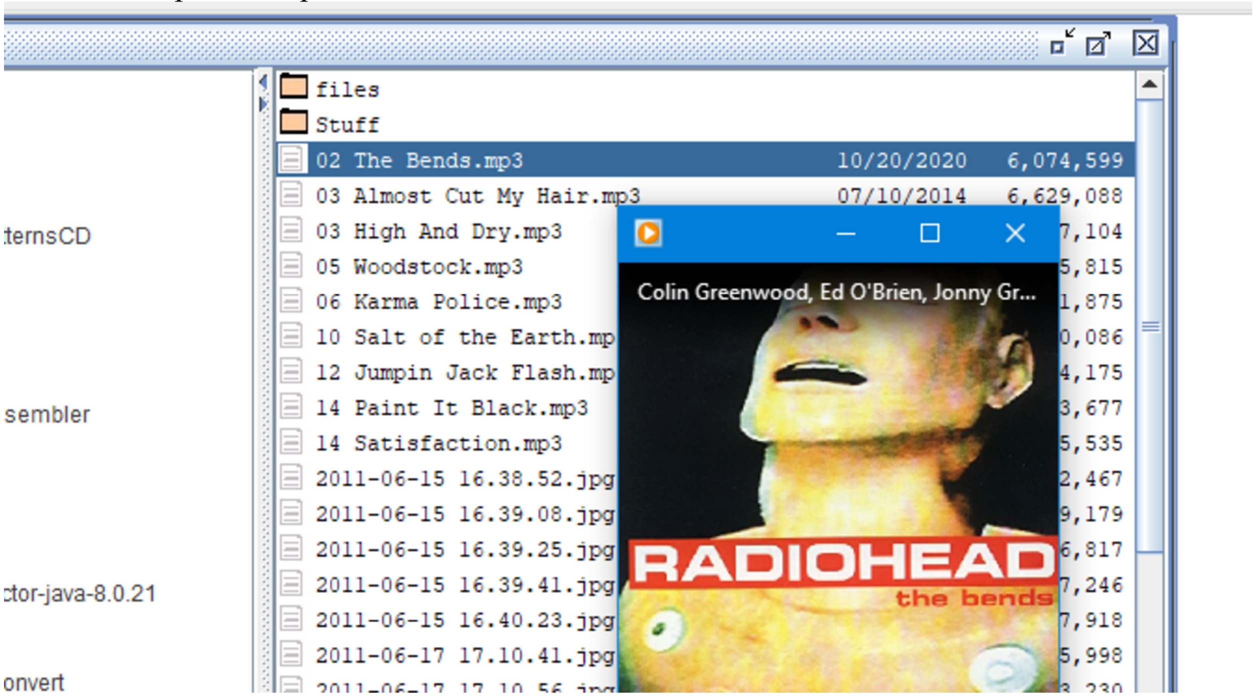
```
D:\
  Ada
  ANTLR4
    antlrworks2
      antlrworks2
      bin
      etc
      ide
      java
      platform
  BEW
  C
  C#DesignPatternsCD
  CSULB
  Downloads
  f95
  FORTRAN
  Ghidra
  GUI Turbo Assembler
  HFDP
  LSU
  MASN
```

```
config
modules
update_tracking
.lastModified                09/14/2020     0
VERSION.txt                  09/14/2020    42
```

VERSION.txt - Notepad

```
# cluster incompatible release version
18
```

And an example for .mp3 files.


```
ternsCD
sembler
ctor-java-8.0.21
onvert
```

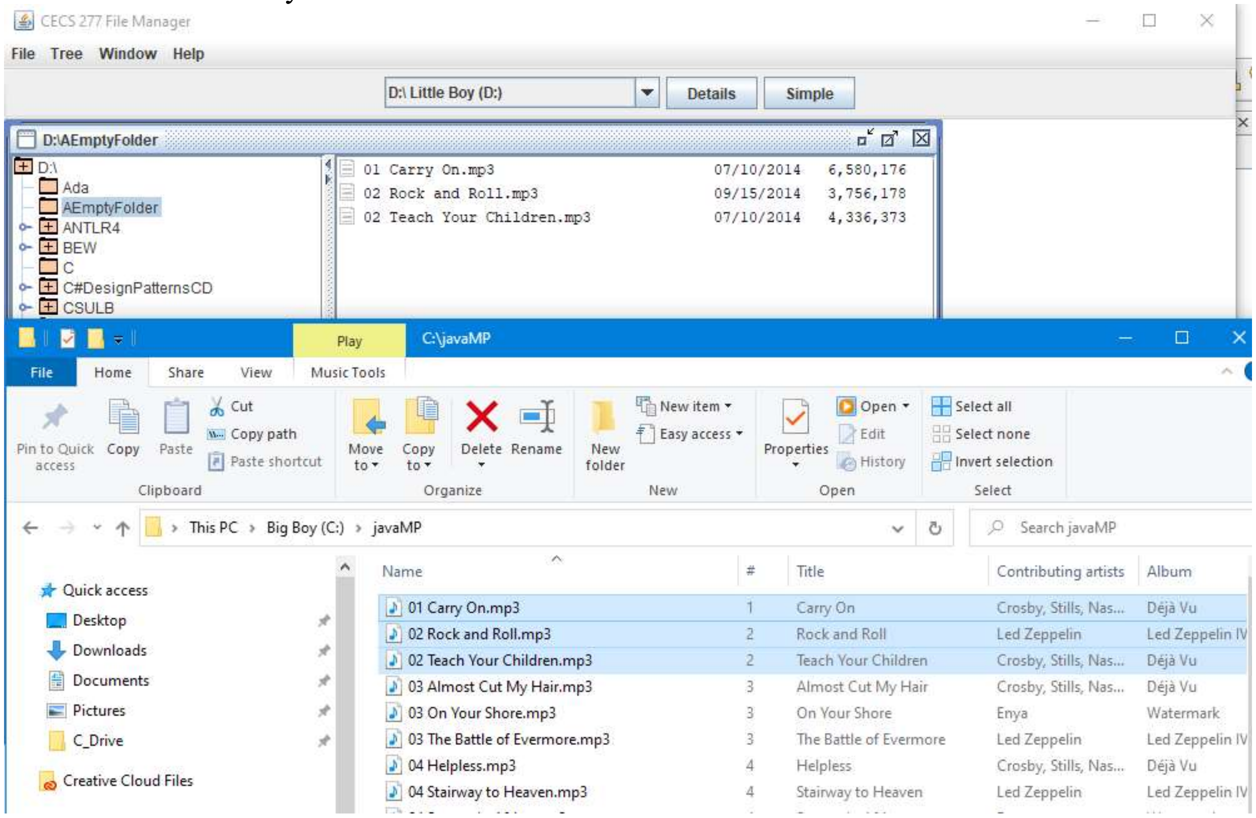
```
files
Stuff
02 The Bends.mp3              10/20/2020   6,074,599
03 Almost Cut My Hair.mp3     07/10/2014   6,629,088
03 High And Dry.mp3                              7,104
05 Woodstock.mp3                                 5,815
06 Karma Police.mp3                              1,875
10 Salt of the Earth.mp                          0,086
12 Jumpin Jack Flash.mp                          4,175
14 Paint It Black.mp3                            3,677
14 Satisfaction.mp3                              5,535
2011-06-15 16.38.52.jpg                          2,467
2011-06-15 16.39.08.jpg                          9,179
2011-06-15 16.39.25.jpg                          6,817
2011-06-15 16.39.41.jpg                          7,246
2011-06-15 16.40.23.jpg                          7,918
2011-06-17 17.10.41.jpg                          5,998
```

It takes one line of code to execute any file. I will show you later.

Copying by Drag and Drop. Another secondary feature of FM is copying by Drag and Drop. This is another one of those things that sound impossbile a novice programmer to do but is not really difficult.

FM must be capable of receiving files from other sources such the current default Windows folder manager thing is called. FM must also be capable of copying by DnD from one of its frames to another of its frame. That is, internally.

Here is DnD externally.



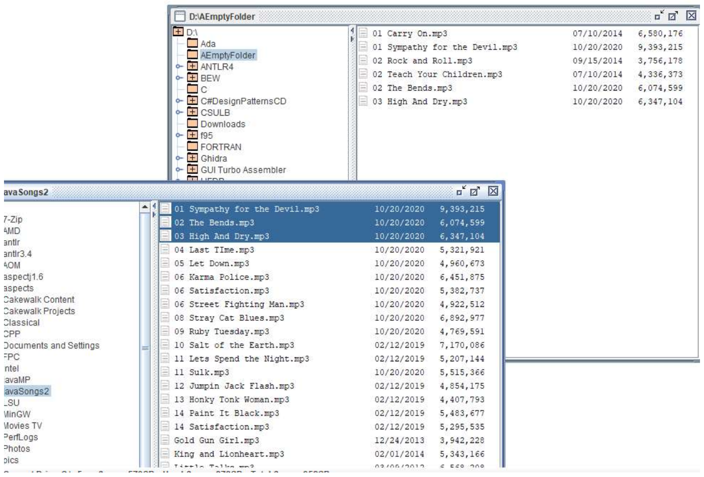
```
D:\
  Ada
  AEmptyFolder
  ANTLR4
  BEW
  C
  C#DesignPatternsCD
  CSULB
```

```
01 Carry On.mp3              07/10/2014   6,580,176
02 Rock and Roll.mp3         09/15/2014   3,756,178
02 Teach Your Children.mp3   07/10/2014   4,336,373
```

Name	#	Title	Contributing artists	Album
01 Carry On.mp3	1	Carry On	Crosby, Stills, Nas...	Déjà Vu
02 Rock and Roll.mp3	2	Rock and Roll	Led Zeppelin	Led Zeppelin IV
02 Teach Your Children.mp3	2	Teach Your Children	Crosby, Stills, Nas...	Déjà Vu
03 Almost Cut My Hair.mp3	3	Almost Cut My Hair	Crosby, Stills, Nas...	Déjà Vu
03 On Your Shore.mp3	3	On Your Shore	Enya	Watermark
03 The Battle of Evermore.mp3	3	The Battle of Evermore	Led Zeppelin	Led Zeppelin IV
04 Helpless.mp3	4	Helpless	Crosby, Stills, Nas...	Déjà Vu
04 Stairway to Heaven.mp3	4	Stairway to Heaven	Led Zeppelin	Led Zeppelin IV

The three highlighted files in Windows Explorer have been dragged on to the right scrollpane and added to that directory. All this operation requires is a DropTarget class in your project.

To do internal DnD, the project must add additional classes for drag gesture recognition and transfer file preparation. Here is an example:



```
D:\AEmptyFolder
D:\
  Ada
  AEmptyFolder
  ANTLR4
  BEW
  C
  C#DesignPatternsCD
  CSULB
  Downloads
  f95
  FORTRAN
  Ghidra
  GUI Turbo Assembler

01 Carry On.mp3                  07/10/2014   6,580,176
01 Sympathy for the Devil.mp3    10/20/2020   9,393,215
02 Rock and Roll.mp3             09/15/2014   3,756,178
02 Teach Your Children.mp3       07/10/2014   4,336,373
02 The Bends.mp3                 10/20/2020   6,074,599
03 High And Dry.mp3              10/20/2020   6,347,104
```

```
avaSongs2
7-Zip
AMD
antlr
antlr3.4
AOM
aspectj1.6
aspects
Cakewalk Content
Cakewalk Projects
Classical
CPP
Documents and Settings
FPC
ntel
avaMP
avaSongs2
LSU
MinGW
Movies TV
PerfLogs
Photos
pics

01 Sympathy for the Devil.mp3    10/20/2020   9,393,215
02 The Bends.mp3                 10/20/2020   6,074,599
03 High And Dry.mp3              10/20/2020   6,347,104
04 Last TIme.mp3                 10/20/2020   5,321,921
05 Let Down.mp3                  10/20/2020   4,960,673
06 Karma Police.mp3              10/20/2020   6,451,875
06 Satisfaction.mp3              10/20/2020   5,382,737
06 Street Fighting Man.mp3       10/20/2020   4,922,512
08 Stray Cat Blues.mp3           10/20/2020   6,892,977
09 Ruby Tuesday.mp3              10/20/2020   4,769,591
10 Salt of the Earth.mp3         02/12/2019   7,170,086
11 Lets Spend the Night.mp3      02/12/2019   5,207,144
11 Sulk.mp3                      10/20/2020   5,515,366
12 Jumpin Jack Flash.mp3         02/12/2019   4,854,175
13 Honky Tonk Woman.mp3          02/12/2019   4,407,793
14 Paint It Black.mp3            02/12/2019   5,483,677
14 Satisfaction.mp3              02/12/2019   5,295,535
Gold Gun Girl.mp3                12/24/2013   3,942,228
King and Lionheart.mp3           02/01/2014   5,343,166
```

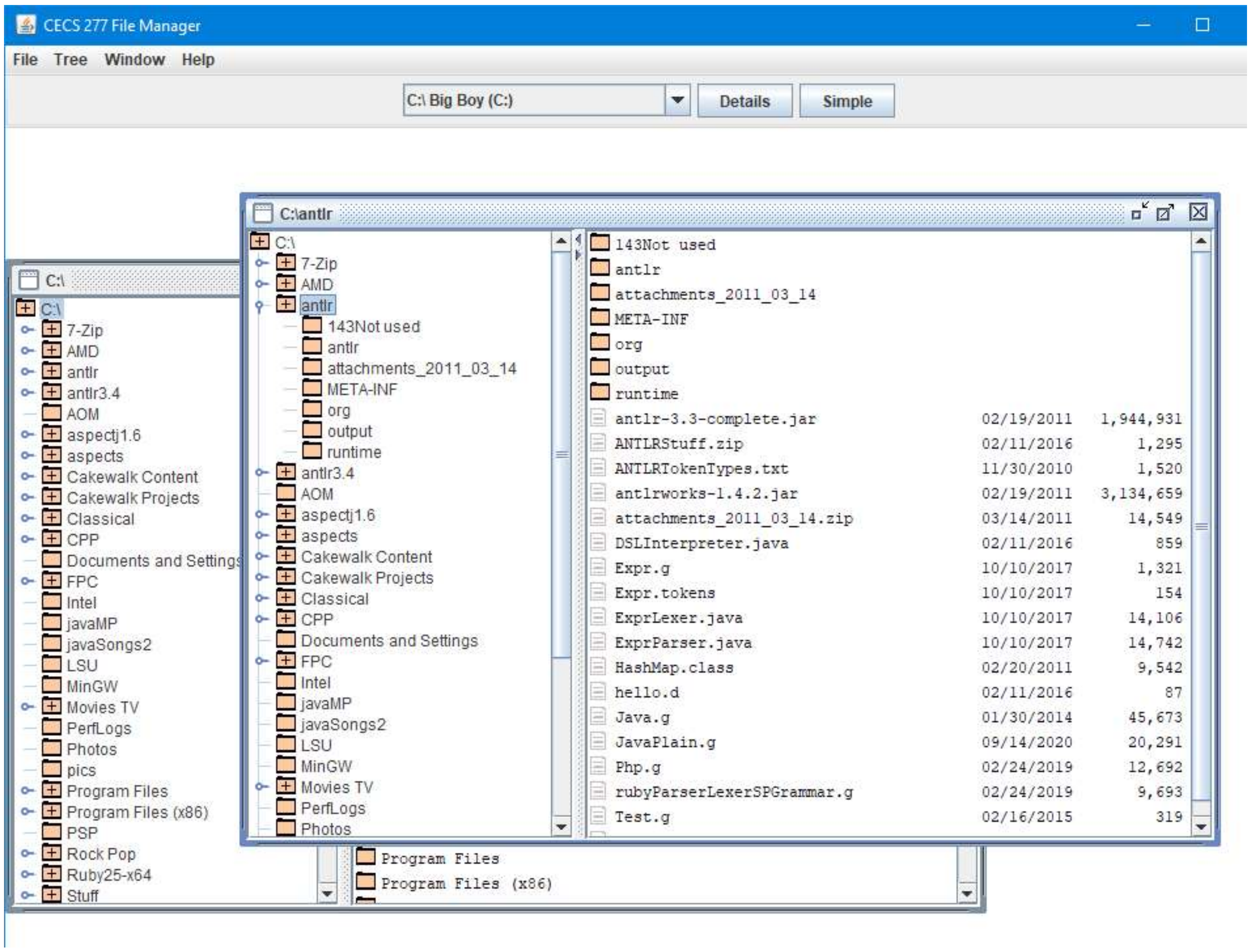
The top three songs from C:\JavaSongs2 have been copied to the now inappropriately name D:\AEmptyFolder.

4. Miscellaneous Features.
Let's start at the top. In the menu system there are these choices:
File: Rename, Copy, Delete, Run, Exit
Tree: Expand Branch, Collapse Branch
Window: New, Cascade
Help: Help, About

Rename, copy, delete and run can all share the code from the popup menu.

Tree: Expand Branch and Tree: Collapse Branch do as they say: if a branch in the directory tree is selected and it as subdirectories and Expand Branch is clicked, that one branch is exapnded one level only. If a branch is expanded and Collapse is clicked, that branch is collapsed. Note that if subbranched of the collapsed branch are expanded, then upon expanding the collapsed branch the subbranches are expanded, too.

Window: New creates a new internal frame and places it at location 0,100 within the desktop pane. It defaults to C:. Any number of new frames can be created.



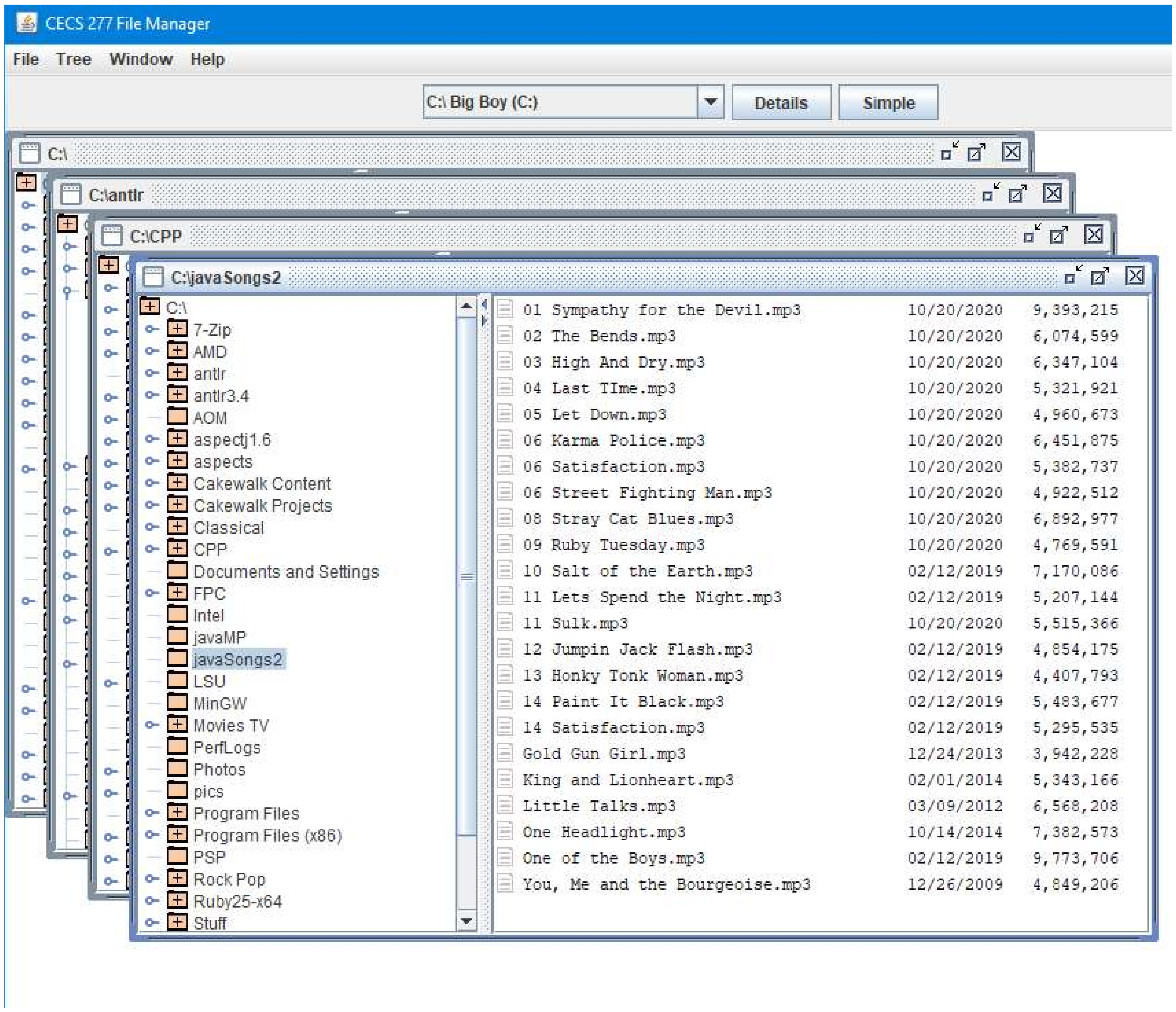
```
C:\
C:\
  7-Zip
  AMD
  antlr
  antlr3.4
  AOM
  aspectj1.6
  aspects
  Cakewalk Content
  Cakewalk Projects
  Classical
  CPP
  Documents and Settings
  FPC
  Intel
  javaMP
  javaSongs2
  LSU
  MinGW
  Movies TV
  PerfLogs
  Photos
  pics
  Program Files
  Program Files (x86)
  PSP
  Rock Pop
  Ruby25-x64
  Stuff
```

```
Program Files
Program Files (x86)
```

```
C:\antlr
C:\
  7-Zip
  AMD
  antlr
    143Not used
    antlr
    attachments_2011_03_14
    META-INF
    org
    output
    runtime
  antlr3.4
  AOM
  aspectj1.6
  aspects
  Cakewalk Content
  Cakewalk Projects
  Classical
  CPP
  Documents and Settings
  FPC
  Intel
  javaMP
  javaSongs2
  LSU
  MinGW
  Movies TV
  PerfLogs
  Photos
```

```
143Not used
antlr
attachments_2011_03_14
META-INF
org
output
runtime
antlr-3.3-complete.jar                  02/19/2011   1,944,931
ANTLRStuff.zip                          02/11/2016       1,295
ANTLRTokenTypes.txt                     11/30/2010       1,520
antlrworks-1.4.2.jar                    02/19/2011   3,134,659
attachments_2011_03_14.zip              03/14/2011      14,549
DSLInterpreter.java                     02/11/2016         859
Expr.g                                  10/10/2017       1,321
Expr.tokens                             10/10/2017         154
ExprLexer.java                          10/10/2017      14,106
ExprParser.java                         10/10/2017      14,742
HashMap.class                           02/20/2011       9,542
hello.d                                 02/11/2016          87
Java.g                                  01/30/2014      45,673
JavaPlain.g                             09/14/2020      20,291
Php.g                                   02/24/2019      12,692
rubyParserLexerSPGrammar.g              02/24/2019       9,693
Test.g                                  02/16/2015         319
```

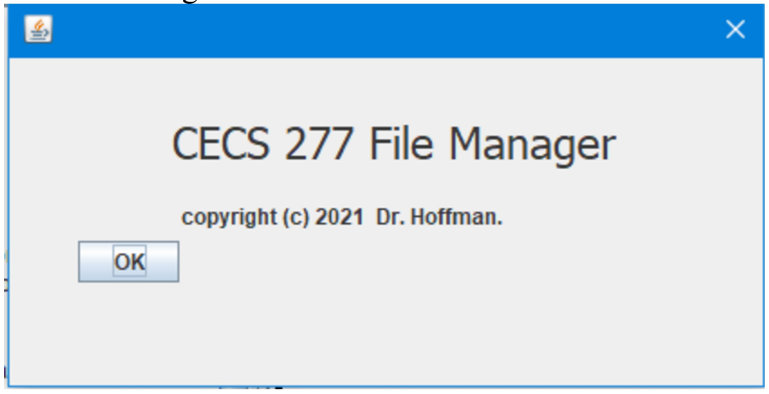
Window: Cascade does what cascading windows do everywhere. It stacks the open frames in a nice, neat overlapping style.



```
C:\
  7-Zip
  AMD
  antlr
  antlr3.4
  AOM
  aspectj1.6
  aspects
  Cakewalk Content
  Cakewalk Projects
  Classical
  CPP
  Documents and Settings
  FPC
  Intel
  javaMP
  javaSongs2
  LSU
  MinGW
  Movies TV
  PerfLogs
  Photos
  pics
  Program Files
  Program Files (x86)
  PSP
  Rock Pop
  Ruby25-x64
  Stuff
```

```
01 Sympathy for the Devil.mp3       10/20/2020   9,393,215
02 The Bends.mp3                    10/20/2020   6,074,599
03 High And Dry.mp3                 10/20/2020   6,347,104
04 Last TIme.mp3                    10/20/2020   5,321,921
05 Let Down.mp3                     10/20/2020   4,960,673
06 Karma Police.mp3                 10/20/2020   6,451,875
06 Satisfaction.mp3                 10/20/2020   5,382,737
06 Street Fighting Man.mp3          10/20/2020   4,922,512
08 Stray Cat Blues.mp3              10/20/2020   6,892,977
09 Ruby Tuesday.mp3                 10/20/2020   4,769,591
10 Salt of the Earth.mp3            02/12/2019   7,170,086
11 Lets Spend the Night.mp3         02/12/2019   5,207,144
11 Sulk.mp3                         10/20/2020   5,515,366
12 Jumpin Jack Flash.mp3            02/12/2019   4,854,175
13 Honky Tonk Woman.mp3             02/12/2019   4,407,793
14 Paint It Black.mp3               02/12/2019   5,483,677
14 Satisfaction.mp3                 02/12/2019   5,295,535
Gold Gun Girl.mp3                   12/24/2013   3,942,228
King and Lionheart.mp3              02/01/2014   5,343,166
Little Talks.mp3                    03/09/2012   6,568,208
One Headlight.mp3                   10/14/2014   7,382,573
One of the Boys.mp3                 02/12/2019   9,773,706
You, Me and the Bourgeoise.mp3      12/26/2009   4,849,206
```

Continuing in the menu system, Help: Help is left to your imagination. Help: About show this is no news dialog:



CECS 277 File Manager

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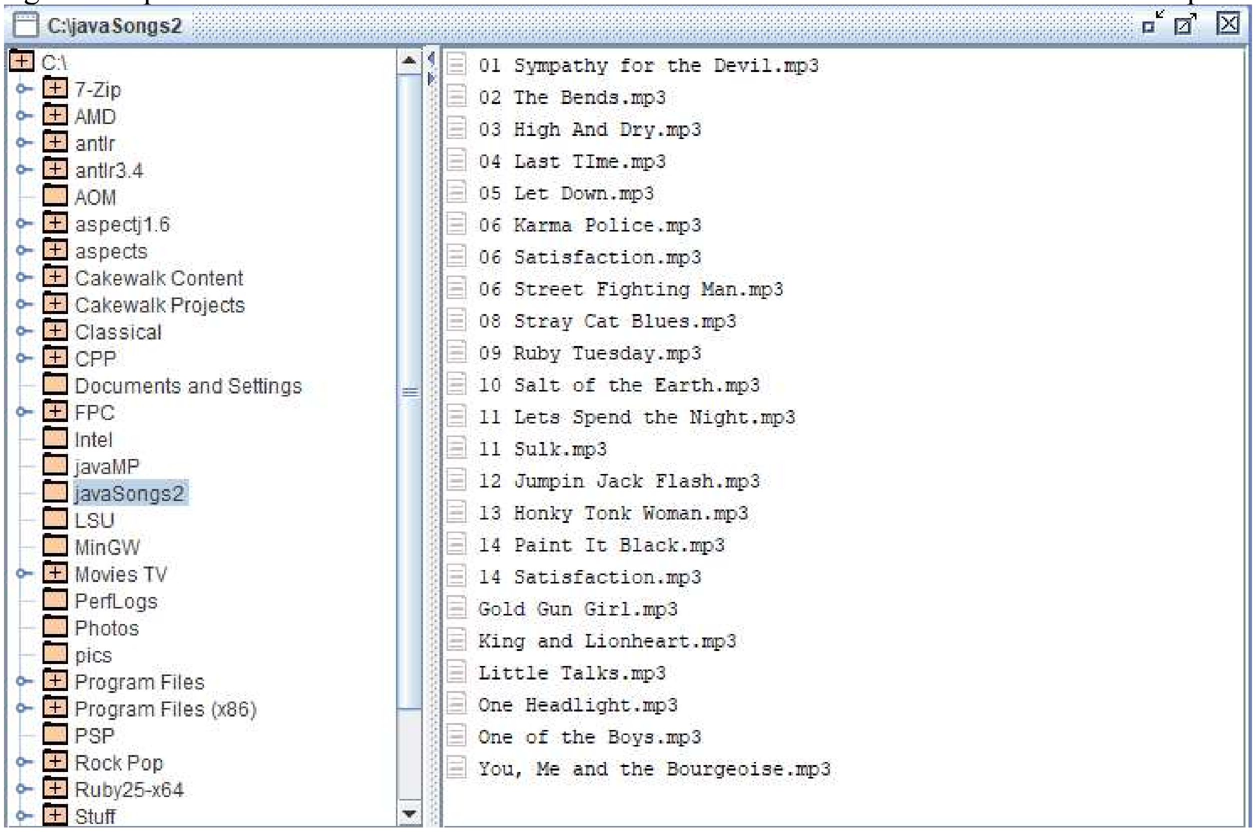
4.1 The Toolbar

At the top of FM just under the menu but above the desktop is the toolbar. The toolbar has at a minimum a combobox for drive selection. Every drive on the computer must be found and listed, even USB drives that can be disconnected, jump drives, cd-rom/dvd-rom drives, fixed hard drives. Every drive. FM does not have to recognize drive changes dynamically. If a drive is added or removed while FM is running it does not need to respond (but would be nice if it did).

The next required toolbar components are Simple and Details. Clicking Simple will redraw the right scrollpane without file sizes and dates. Details restores file sizes and dates. Here is Simple:



C:\javaSongs2

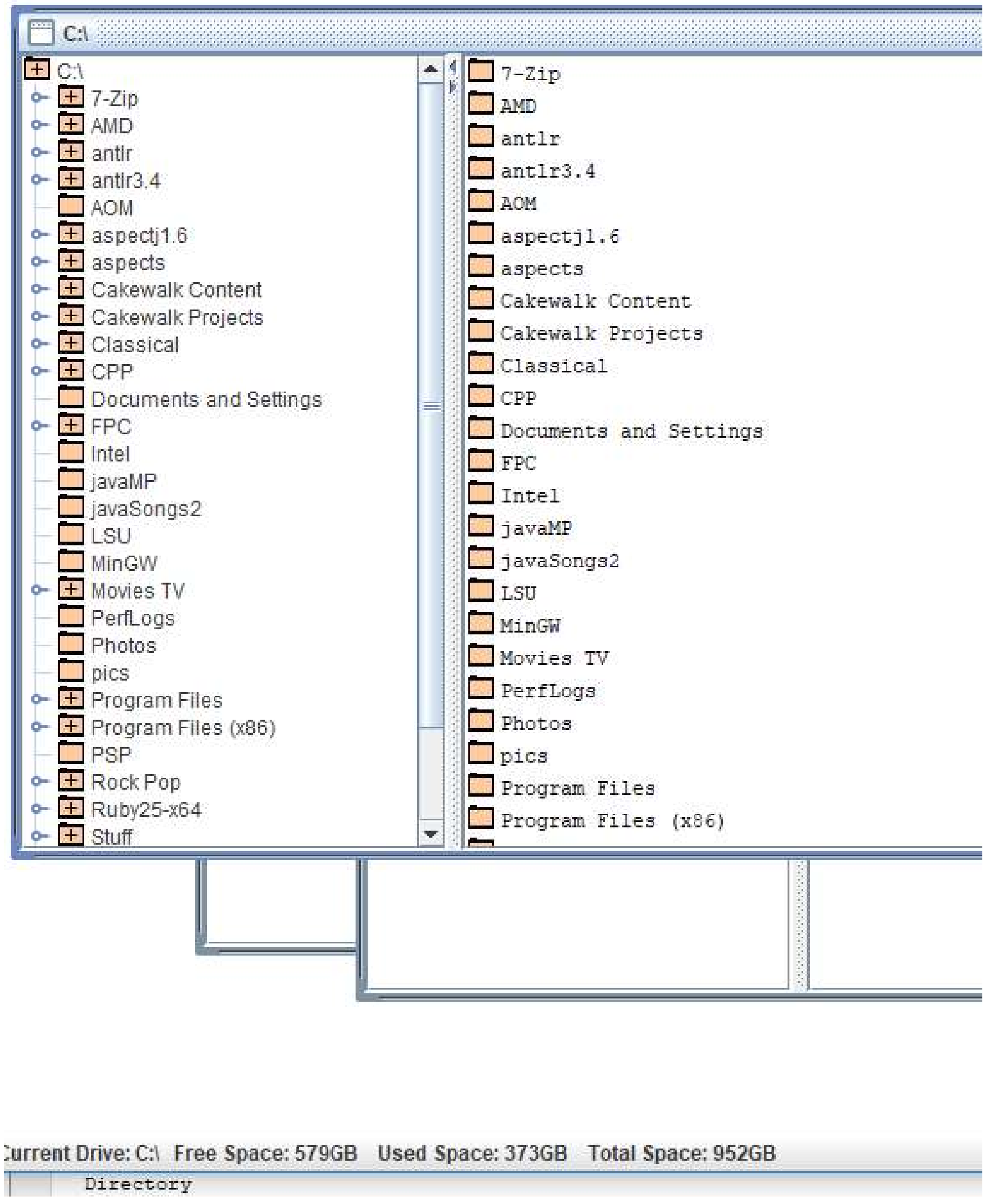
```
C:\
  7-Zip
  AMD
  antlr
  antlr3.4
  AOM
  aspectj1.6
  aspects
  Cakewalk Content
  Cakewalk Projects
  Classical
  CPP
  Documents and Settings
  FPC
  Intel
  javaMP
  javaSongs2
  LSU
  MinGW
  Movies TV
  PerfLogs
  Photos
  pics
  Program Files
  Program Files (x86)
  PSP
  Rock Pop
  Ruby25-x64
  Stuff
```

```
01 Sympathy for the Devil.mp3
02 The Bends.mp3
03 High And Dry.mp3
04 Last TIme.mp3
05 Let Down.mp3
06 Karma Police.mp3
06 Satisfaction.mp3
06 Street Fighting Man.mp3
08 Stray Cat Blues.mp3
09 Ruby Tuesday.mp3
10 Salt of the Earth.mp3
11 Lets Spend the Night.mp3
11 Sulk.mp3
12 Jumpin Jack Flash.mp3
13 Honky Tonk Woman.mp3
14 Paint It Black.mp3
14 Satisfaction.mp3
Gold Gun Girl.mp3
King and Lionheart.mp3
Little Talks.mp3
One Headlight.mp3
One of the Boys.mp3
You, Me and the Bourgeoise.mp3
```

You may add other buttons to the toolbar to link to other FM features if you wish.

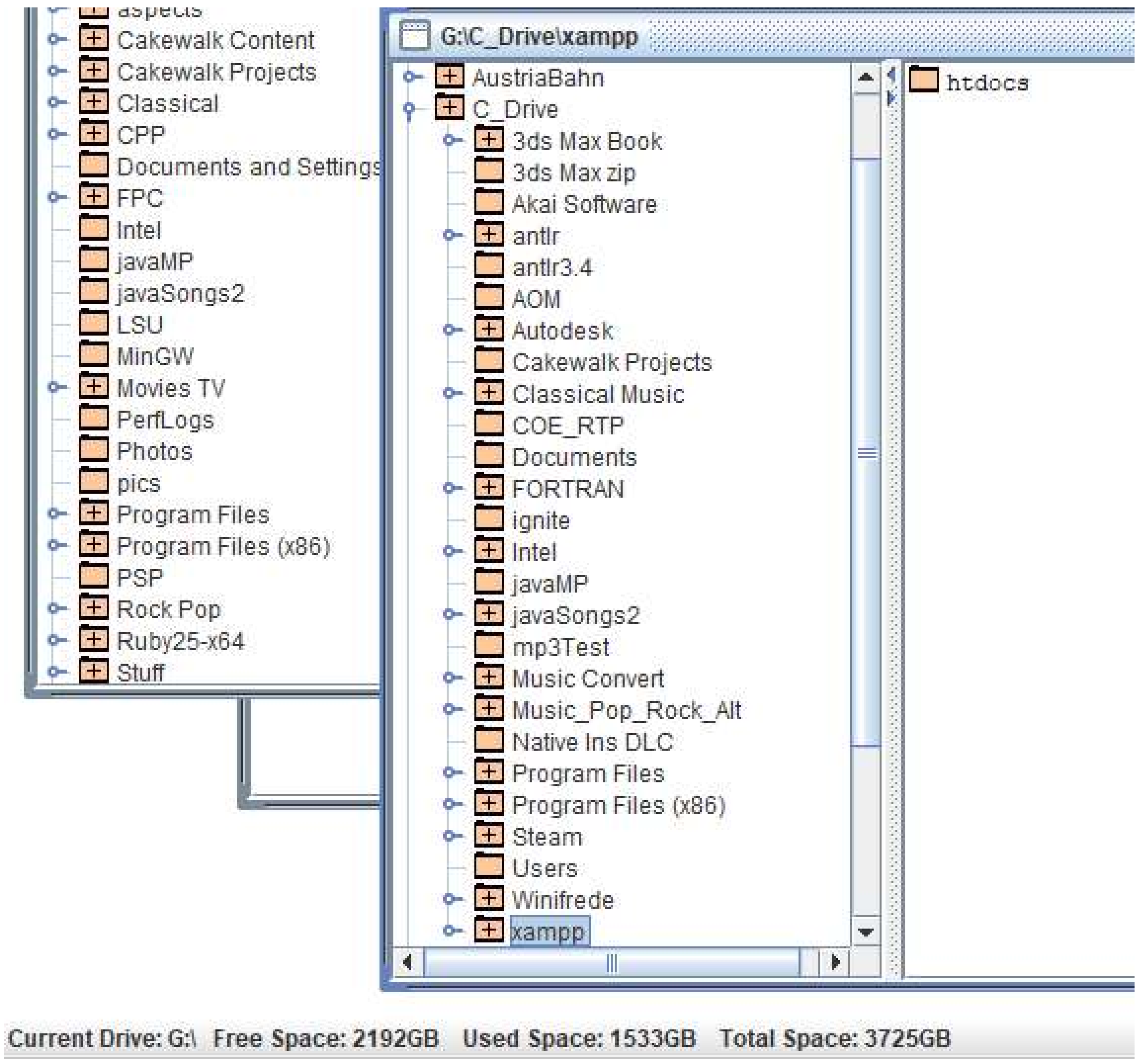
4.2 Statusbar (Information bar)

At the very bottom of the application is a smal string the provides drive information. It must reflect which drive is currently displayed in the frame that has the focus of input. That means if two windows are open and one is on drive C: and the other on F: (a jump drive maybe) then when the frame with C: is selected (has focus), C: data is shown. When F: is selected, F: data is shown. Acertaining which frame has the “focus” is trivial.



urrent Drive: C:\ Free Space: 579GB Used Space: 373GB Total Space: 952GB

Here the C: drive has the focus.



```
aspects
Cakewalk Content
Cakewalk Projects
Classical
CPP
Documents and Settings
FPC
Intel
javaMP
javaSongs2
LSU
MinGW
Movies TV
PerfLogs
Photos
pics
Program Files
Program Files (x86)
PSP
Rock Pop
Ruby25-x64
Stuff
```

```
G:\C_Drive\xampp
AustriaBahn
C_Drive
    3ds Max Book
    3ds Max zip
    Akai Software
    antlr
    antlr3.4
    AOM
    Autodesk
    Cakewalk Projects
    Classical Music
    COE_RTP
    Documents
    FORTRAN
    ignite
    Intel
    javaMP
    javaSongs2
    mp3Test
    Music Convert
    Music_Pop_Rock_Alt
    Native Ins DLC
    Program Files
    Program Files (x86)
    Steam
    Users
    Winifrede
    xampp

htdocs
```

```
Current Drive: G:\   Free Space: 2192GB   Used Space: 1533GB   Total Space: 3725GB
```

G: is in focus and its information is displayed. Wow! 3725GBs!

That’s it for features.

How to start.
1. Start with the main frame. I will provide some videos on how to use Java Swing classes.
2. Add the menu system (with no operations linked), the toolbar, statusbar.
3. Develop the desktop pane. I will do a video.
4. Develop the tree side first (left). Then do the file list(right).
5. Figure out the multiple frame concepts. I will do a video.
6. Add the popup menu. Code the separate functions in their own handler classes.
7. Link the handler classes to the menu system.
8. Finish off with expand/collapse, cascading.

You need to scratch write this. You can use the Swing UI builder for dialogs, but that’s it.