1 Batch Files

It is possible to create maxima files with any editor and then to load them into maxima for execution.

Let us illustrate this.

First, start xmaxima and enter the following commands

```
f(x):=x^3+x+1;
roots:solve(f(x) = 0,x);
print("The roots of x^3 + x + 1 are ",float(roots));
stringout("file_1.mac",input);
```

Notice where xmaxima puts the files. Write down this file name on some paper. In my case it puts them on the Desktop (or in the Desktop folder).

```
C:/Documents and Settings/sen/Desktop/file_1.mac
```

Notice the direction of the "/". It is backward from the way Win-XP normally reports a file listing. That is the way maxima handles files.

Close the xmaxima session.

Now, start xmaxima again.

Type the line

```
load("file_1");
```

The commands that you saved in the file are now loaded and executed.

You can see that the function "f" has been created by typing

```
functions;
```

You can see the actual definition of "f(x)" using

If you create a file with maxima input commands in the same folder (in my case, the Desktop), then you can load and execute this file in the same way as above.

```
dispfun(f);
```

2 Using different folders

For now, the easiest way to do this is the following.

Create a folder called

```
Math_496
```

and inside that, create a folder called

```
Homework_1
```

In the last folder open up an editor, say "hotepad". If you use "Microsoft Word" or "Wordpad", then make sure that you save your file in "text" or "ascii" format, perhaps with line breaks.

Create a text file `file_1.mac` (actually, in this procedure, any name will do) with the lines

```
print("This is a new maxima session.");

f(x):= x^5 + 1;
roots: solve(f(x)=0,x);
r_1: float(%);
print("The roots of x^5 + 1 are ", r_1);
```

Save the file, and copy the lines to the Windows Clip Board using

```
Alt-E-> Copy
```

Now, start xmaxima.

Paste the lines into maxima using the keys

```
C-v
```

This puts the commands into the file.

When you are finished, you can save the file using the "stringout" command. This puts it in the maxima default place from which you can copy it back to the folder `Homework_1` or anywhere you want.

There is a command `file_search_maxima` which automates these things somewhat.

Start xmaxima and type

```
file_search_maxima;
```

This shows you where maxima searches for its files. It is a list of folders.

We are going to add to it. I have the folder `Homework_1` in the following location.

```
C:\Documents and Settings\sen\My Documents\Math\Math_496\Homework_1
```

So, in maxima, I would type

```
file_search_maxima:
append(file_search_maxima,
  ["C:/Documents and Settings/sen/
     My Documents/Math/Math_496/Homework_1/###.{lisp,mac}"]);
```

Note that you have to replace "b̈y "/" in the path name.

This command says to search in the added folder as well for any files with extensions "mac" or "lisp".

Once you have set this up, you may want to have this loaded, by default, with every maxima session.

For this, you use the file `maxima-init.mac` which is a list of commands that maxima executes when it starts.

In my case this is located in the following place.

```
C:\Documents and Settings\sen\Maxima
```

If it is not there, you can create it with a text editor.

Let's take a simple example `maxima-init.mac` file.

In my case, I have created a file called

```
C:\Documents and Settings\sen\Maxima\maxima-init.mac
```

with the contents

```
load("dynamicalsystems");
load("plotdf.lisp");
load("graph2d.lisp");
load("rk");

load("Work_Folder");
load("Homework_Folders");
```

The first four lines are to load some dynamical systems programs which are shipped with maxima. We will use them later.

The lines

```
load("Work_Folder");
load("Homework_Folders");
```

refer to things I am about to create now.

1. Recall that my `Homework_1` folder is located in

   `C:\Documents and Settings\sen\My Documents\Math\Math_496\Homework_1`

   So, I create the file

   `C:\Documents and Settings\sen\Maxima\Homework_Folders.mac`

   with the single line

   ```
   file_search_maxima: append(file_search_maxima, ["C:/Documents
   and Settings/sen/Math/Math_496/Homework_1/###.{lisp,mac}"]);
   ```

   Later, when I have new homework folders, I can add their paths to the file `Homework_Folders.mac` so maxima can find them.

2. I also create a folder call `Work` to contain any current maxima projects I want to work on located at

   `C:\Documents and Settings\sen\My Documents\Math\Math_496\Work`

   I add that folder to the maxima search path by

   creating the file

   `C:\Documents and Settings\sen\Maxima\Work_Folder.mac`

   with the single line

   ```
   file_search_maxima: append(file_search_maxima, ["C:/Documents
   and Settings/sen/Math/Math_496/Work/###.{lisp,mac}"]);
   ```