THE UNIVERSITY OF MEMPHIS
CENTER FOR EARTHQUAKE RESEARCH
AND INFORMATION

DATA ANALYSIS IN GEOPHYSICS
CERI 8104
FALL SEMESTER - 2025

HOMEWORK 3
Batch Processing: How to automate the analysis of many files

Adonay Martinez-Coto

INSTRUCTIONS

1. Create a new variable: `$class_dir=<path_to_class_files>`

2. Download the file ranNum.zip

3. Create a new subdirectory in `$class_dir` called `/data`

4. Move the .zip archive to your new data directory new directory

5. Unpack the compressed files with unzip

6. Create a new directory (mkdir) called `$class_dir/plots`

7. Move all .png files to a the directory `$class_dir/plots/`

8. Move all .txt files to a new directory called `$class_dir/txt/`

9. Combine all text files in a single

10. Move only image files showing the number two to a new directory called `$class_dir/plots/two`

11. Reduce the size of these images by 50 percent.

PROCEDURE DESCRIPTION

For creating the variable with the path of the class files, fist I move to the directory where I want to work, which is:

```
/home/pequenojn/gdrive/AdoMarti/01_Projects/DataAnalysis-Fall2025/homeworks/hmwk1_bash
```

I create the variable with the command:

```
class_dir=$(pwd)
```

which assign the output of `pwd` to the variable `$class_dir`. I can check the value of the variable with:

```
echo $class_dir
```

Then, I download the file `ranNum.zip` from the link provided in Canvas. After this, I create the new subdirectory `data` in the directory pointed by `$class_dir` with the command:

```
mkdir $class_dir/data
```

After this, I move to the new directory:

`cd $class_dir/data`

and unpack the compressed files with

`unzip $class_dir/ranNum.zip -d $class_dir/data`

After unzipping the files, I create a new directory called `plots` with:

`mkdir $class_dir/plots`

following the instructions. After this, I move all .png files to the directory `$class_dir/plots/` with the command:

`mv *.png $class_dir/plots/`

Then, with the command

`mkdir $class_dir/txt/`

I create a new directory called `txt` and I move all . txt files to this directory doing

`mv *.txt $class_dir/txt/`

To combine all text files in a single one, I move to the directory `$class_dir/txt/` with

`cd $class_dir/txt/`

and I use the command

`cat *.txt > combined.txt`

which concatenate all the text files and redirect the output to a new file called `combined.txt`. For inspecting the content of the new file, I use

`head combined.txt`

which shows the first 10 lines of the file.
Finally, I move to the directory `$class_dir/plots/` with

`cd $class_dir/plots/`

and I create a new directory called `two` with

`mkdir two`

Then, I move only image files showing the number two to this new directory with

`mv *2.png two/`

To reduce the size of these images by 50 percent, I move to the new directory with

`cd two/`

and I use the command

```
for i in *.png; do convert "$i" -resize 50% "${i%.png}_small.png"; done
```

which resize all .png files in the current directory by 50 percent.
The screenshot below shows all the steps described above.

```
pequenojn@pequenoepg:~
$ cd /home/pequenojn/gdrive/AdoMarti/01_Projects/DataAnalysis-Fall2025/homeworks/hmwk1_bash
pequenojn@pequenoepg:~/gdrive/AdoMarti/01_Projects/DataAnalysis-Fall2025/homeworks/hmwk1_bash
$ ls
Activity1_files.pdf  activity1.txt  ranNum.zip
pequenojn@pequenoepg:~/gdrive/AdoMarti/01_Projects/DataAnalysis-Fall2025/homeworks/hmwk1_bash
$ class_dir=$(pwd)
pequenojn@pequenoepg:~/gdrive/AdoMarti/01_Projects/DataAnalysis-Fall2025/homeworks/hmwk1_bash
$ echo $class_dir
/home/pequenojn/gdrive/AdoMarti/01_Projects/DataAnalysis-Fall2025/homeworks/hmwk1_bash
pequenojn@pequenoepg:~/gdrive/AdoMarti/01_Projects/DataAnalysis-Fall2025/homeworks/hmwk1_bash
$ mkdir $class_dir/data
pequenojn@pequenoepg:~/gdrive/AdoMarti/01_Projects/DataAnalysis-Fall2025/homeworks/hmwk1_bash
$ ls
Activity1_files.pdf  activity1.txt  data  ranNum.zip
pequenojn@pequenoepg:~/gdrive/AdoMarti/01_Projects/DataAnalysis-Fall2025/homeworks/hmwk1_bash
$ cd data/
pequenojn@pequenoepg:~/gdrive/AdoMarti/01_Projects/DataAnalysis-Fall2025/homeworks/hmwk1_bash/data
$ unzip $class_dir/ranNum.zip -d $class_dir/data
Archive:  /home/pequenojn/gdrive/AdoMarti/01_Projects/DataAnalysis-Fall2025/homeworks/hmwk1_bash/ranNum.zip
 inflating: /home/pequenojn/gdrive/AdoMarti/01_Projects/DataAnalysis-Fall2025/homeworks/hmwk1_bash/data/1597792871.4463518_3.txt
 inflating: /home/pequenojn/gdrive/AdoMarti/01_Projects/DataAnalysis-Fall2025/homeworks/hmwk1_bash/data/1597792871.261415_7.txt
 inflating: /home/pequenojn/gdrive/AdoMarti/01_Projects/DataAnalysis-Fall2025/homeworks/hmwk1_bash/data/1597792871.918752_6.png
 inflating: /home/pequenojn/gdrive/AdoMarti/01_Projects/DataAnalysis-Fall2025/homeworks/hmwk1_bash/data/1597792870.364057_9.txt
 inflating: /home/pequenojn/gdrive/AdoMarti/01_Projects/DataAnalysis-Fall2025/homeworks/hmwk1_bash/data/1597792870.417356_5.png
 inflating: /home/pequenojn/gdrive/AdoMarti/01_Projects/DataAnalysis-Fall2025/homeworks/hmwk1_bash/data/1597792869.866144_2.txt
 inflating: /home/pequenojn/gdrive/AdoMarti/01_Projects/DataAnalysis-Fall2025/homeworks/hmwk1_bash/data/1597792871.4859068_2.png
 inflating: /home/pequenojn/gdrive/AdoMarti/01_Projects/DataAnalysis-Fall2025/homeworks/hmwk1_bash/data/1597792872.044308_1.png
 inflating: /home/pequenojn/gdrive/AdoMarti/01_Projects/DataAnalysis-Fall2025/homeworks/hmwk1_bash/data/1597792872.359537_7.txt
 inflating: /home/pequenojn/gdrive/AdoMarti/01_Projects/DataAnalysis-Fall2025/homeworks/hmwk1_bash/data/1597792870.104015_9.txt
 inflating: /home/pequenojn/gdrive/AdoMarti/01_Projects/DataAnalysis-Fall2025/homeworks/hmwk1_bash/data/1597792872.419096_0.txt
 inflating: /home/pequenojn/gdrive/AdoMarti/01_Projects/DataAnalysis-Fall2025/homeworks/hmwk1_bash/data/1597792872.0669692_1.txt
 inflating: /home/pequenojn/gdrive/AdoMarti/01_Projects/DataAnalysis-Fall2025/homeworks/hmwk1_bash/data/1597792869.43563_1.txt
```

```
 inflating: /home/pequenojn/gdrive/AdoMarti/01_Projects/DataAnalysis-Fall2025/homeworks/hmwk1_bash/data/1597792870.3341272_9.png
 inflating: /home/pequenojn/gdrive/AdoMarti/01_Projects/DataAnalysis-Fall2025/homeworks/hmwk1_bash/data/1597792871.863772_6.png
 inflating: /home/pequenojn/gdrive/AdoMarti/01_Projects/DataAnalysis-Fall2025/homeworks/hmwk1_bash/data/1597792871.6252139_9.png
 inflating: /home/pequenojn/gdrive/AdoMarti/01_Projects/DataAnalysis-Fall2025/homeworks/hmwk1_bash/data/1597792869.670397_8.png
 inflating: /home/pequenojn/gdrive/AdoMarti/01_Projects/DataAnalysis-Fall2025/homeworks/hmwk1_bash/data/1597792870.162175_3.txt
 inflating: /home/pequenojn/gdrive/AdoMarti/01_Projects/DataAnalysis-Fall2025/homeworks/hmwk1_bash/data/1597792869.376395_9.txt
 inflating: /home/pequenojn/gdrive/AdoMarti/01_Projects/DataAnalysis-Fall2025/homeworks/hmwk1_bash/data/1597792869.963416_8.png
 inflating: /home/pequenojn/gdrive/AdoMarti/01_Projects/DataAnalysis-Fall2025/homeworks/hmwk1_bash/data/1597792869.2992141_2.txt
 inflating: /home/pequenojn/gdrive/AdoMarti/01_Projects/DataAnalysis-Fall2025/homeworks/hmwk1_bash/data/1597792869.691529_8.txt
 inflating: /home/pequenojn/gdrive/AdoMarti/01_Projects/DataAnalysis-Fall2025/homeworks/hmwk1_bash/data/1597792871.0015569_6.png
 inflating: /home/pequenojn/gdrive/AdoMarti/01_Projects/DataAnalysis-Fall2025/homeworks/hmwk1_bash/data/1597792872.2178822_3.png
pequenojn@pequenoepg:~/gdrive/AdoMarti/01_Projects/DataAnalysis-Fall2025/homeworks/hmwk1_bash/data
$ ls
1597792869.2743402_2.png  1597792869.926383_9.txt   1597792870.626776_2.png   1597792871.261415_7.txt   1597792871.978302_6.png
1597792869.2992141_2.txt  1597792869.963416_8.png   1597792870.647276_2.txt   1597792871.300511_8.png   1597792872.000913_6.txt
1597792869.3545542_9.png  1597792869.9838238_8.txt  1597792870.6860118_1.png  1597792871.322759_8.txt   1597792872.044308_1.png
1597792869.376395_9.txt   1597792870.023592_2.png   1597792870.7077792_1.txt  1597792871.3613381_9.png  1597792872.0669692_1.txt
1597792869.414876_1.png   1597792870.045183_2.txt   1597792870.74504_5.png    1597792871.383604_9.txt   1597792872.1031191_2.png
1597792869.43563_1.txt    1597792870.0830002_9.png  1597792870.767712_5.txt   1597792871.424099_3.png   1597792872.122821_2.txt
1597792869.473057_3.png   1597792870.104015_9.txt   1597792870.8034408_1.png  1597792871.4463518_3.txt  1597792872.157347_4.png
1597792869.4942982_3.txt  1597792870.140909_3.png   1597792870.822999_1.txt   1597792871.4859068_2.png  1597792872.177929_4.png
1597792869.546473_5.png   1597792870.162175_3.txt   1597792870.858973_9.png   1597792871.508808_2.txt   1597792872.2178822_3.png
1597792869.571575_5.txt   1597792870.199074_7.png   1597792870.881373_9.txt   1597792871.554105_6.png   1597792872.239617_3.txt
1597792869.6088471_0.png  1597792870.220742_7.txt   1597792870.939893_0.png   1597792871.576171_6.txt   1597792872.2795498_4.png
1597792869.631501_0.txt   1597792870.2745569_5.png  1597792870.964604_0.txt   1597792871.6252139_9.png  1597792872.3006961_4.txt
1597792869.670397_8.png   1597792870.296291_5.txt   1597792871.0015569_6.png  1597792871.657235_9.txt   1597792872.3381069_7.png
1597792869.691529_8.txt   1597792870.3341272_9.png  1597792871.022526_6.txt   1597792871.717807_2.png   1597792872.359537_7.txt
1597792869.7266_9.png     1597792870.364057_9.txt   1597792871.0603871_9.png  1597792871.7428238_2.txt  1597792872.3971531_0.png
1597792869.7468941_9.txt  1597792870.417356_5.png   1597792871.082177_9.txt   1597792871.785565_5.png   1597792872.419096_0.txt
1597792869.783605_1.png   1597792870.437922_5.txt   1597792871.119096_1.png   1597792871.816216_5.txt   dummy_0.01.png
1597792869.803904_1.txt   1597792870.4923499_3.png  1597792871.141684_1.txt   1597792871.863772_6.png
1597792869.8432891_2.png  1597792870.5234408_3.txt  1597792871.181679_5.png   1597792871.8837981_6.txt
1597792869.866144_2.txt   1597792870.5689878_6.png  1597792871.201945_5.txt   1597792871.918752_6.png
1597792869.9054809_9.png  1597792870.5912478_6.txt  1597792871.239867_7.png   1597792871.938643_6.txt
pequenojn@pequenoepg:~/gdrive/AdoMarti/01_Projects/DataAnalysis-Fall2025/homeworks/hmwk1_bash/data
```

```
pequenojn@pequenoepg:~/gdrive/AdoMarti/01_Projects/DataAnalysis-Fall2025/homeworks/hmwk1_bash/data
$ mkdir $class_dir/plots
pequenojn@pequenoepg:~/gdrive/AdoMarti/01_Projects/DataAnalysis-Fall2025/homeworks/hmwk1_bash/data
$ mv *.png $class_dir/plots/
pequenojn@pequenoepg:~/gdrive/AdoMarti/01_Projects/DataAnalysis-Fall2025/homeworks/hmwk1_bash/data
$ ls
1597792869.2992141_2.txt  1597792869.926383_9.txt   1597792870.5912478_6.txt  1597792871.201945_5.txt   1597792871.8837981_6.txt
1597792869.376395_9.txt   1597792869.9838238_8.txt  1597792870.647276_2.txt   1597792871.261415_7.txt   1597792871.938643_6.txt
1597792869.43563_1.txt    1597792870.045183_2.txt   1597792870.7077792_1.txt  1597792871.322759_8.txt   1597792872.000913_6.txt
1597792869.4942982_3.txt  1597792870.104015_9.txt   1597792870.767712_5.txt   1597792871.383604_9.txt   1597792872.0669692_1.txt
1597792869.571575_5.txt   1597792870.162175_3.txt   1597792870.822999_1.txt   1597792871.4463518_3.txt  1597792872.122821_2.txt
1597792869.631501_0.txt   1597792870.220742_7.txt   1597792870.881373_9.txt   1597792871.508808_2.txt   1597792872.177929_4.txt
1597792869.691529_8.txt   1597792870.296291_5.txt   1597792870.964604_0.txt   1597792871.576171_6.txt   1597792872.239617_3.txt
1597792869.7468941_9.txt  1597792870.364057_9.txt   1597792871.022526_6.txt   1597792871.657235_9.txt   1597792872.3006961_4.txt
1597792869.803904_1.txt   1597792870.437922_5.txt   1597792871.082177_9.txt   1597792871.7428238_2.txt  1597792872.359537_7.txt
1597792869.866144_2.txt   1597792870.5234408_3.txt  1597792871.141684_1.txt   1597792871.816216_5.txt   1597792872.419096_0.txt
pequenojn@pequenoepg:~/gdrive/AdoMarti/01_Projects/DataAnalysis-Fall2025/homeworks/hmwk1_bash/data
$ ls $class_dir/plots/
1597792869.2743402_2.png  1597792869.963416_8.png   1597792870.6860118_1.png  1597792871.3613381_9.png  1597792872.1031191_2.png
1597792869.3545542_9.png  1597792870.023592_2.png   1597792870.74504_5.png    1597792871.424099_3.png   1597792872.157347_4.png
1597792869.414876_1.png   1597792870.0830002_9.png  1597792870.8034408_1.png  1597792871.4859068_2.png  1597792872.2178822_3.png
1597792869.473057_3.png   1597792870.140909_3.png   1597792870.858973_9.png   1597792871.554105_6.png   1597792872.2795498_4.png
1597792869.546473_5.png   1597792870.199074_7.png   1597792870.939893_0.png   1597792871.6252139_9.png  1597792872.3381069_7.png
1597792869.6088471_0.png  1597792870.2745569_5.png  1597792871.0015569_6.png  1597792871.717807_2.png   1597792872.3971531_0.png
1597792869.670397_8.png   1597792870.3341272_9.png  1597792871.0603871_9.png  1597792871.785565_5.png   dummy_0.01.png
1597792869.7266_9.png     1597792870.417356_5.png   1597792871.119096_1.png   1597792871.863772_6.png
1597792869.783605_1.png   1597792870.4923499_3.png  1597792871.181679_5.png   1597792871.918752_6.png
1597792869.8432891_2.png  1597792870.5689878_6.png  1597792871.239867_7.png   1597792871.978302_6.png
1597792869.9054809_9.png  1597792870.626776_2.png   1597792871.300511_8.png   1597792872.044308_1.png
pequenojn@pequenoepg:~/gdrive/AdoMarti/01_Projects/DataAnalysis-Fall2025/homeworks/hmwk1_bash/data
```

```
pequenojn@pequenoepg:~/gdrive/AdoMarti/01_Projects/DataAnalysis-Fall2025/homeworks/hmwk1_bash/data
$ mkdir $class_dir/txt/
pequenojn@pequenoepg:~/gdrive/AdoMarti/01_Projects/DataAnalysis-Fall2025/homeworks/hmwk1_bash/data
$ mv *.txt $class_dir/txt/
pequenojn@pequenoepg:~/gdrive/AdoMarti/01_Projects/DataAnalysis-Fall2025/homeworks/hmwk1_bash/data
$ ls $class_dir/txt/
1597792870.220742_7.txt    1597792870.7077792_1.txt  1597792871.141684_1.txt    1597792871.576171_6.txt    1597792872.0669692_1.txt
1597792870.296291_5.txt    1597792870.767712_5.txt    1597792871.201945_5.txt    1597792871.657235_9.txt    1597792872.122821_2.txt
1597792870.364057_9.txt    1597792870.822999_1.txt    1597792871.261415_7.txt    1597792871.7428238_2.txt  1597792872.177929_4.txt
1597792870.437922_5.txt    1597792870.881373_9.txt    1597792871.322759_8.txt    1597792871.816216_5.txt    1597792872.239617_3.txt
1597792870.5234408_3.txt  1597792870.964604_0.txt    1597792871.383604_9.txt    1597792871.8837981_6.txt  1597792872.3006961_4.txt
1597792870.5912478_6.txt  1597792871.022526_6.txt    1597792871.4463518_3.txt  1597792871.938643_6.txt    1597792872.359537_7.txt
1597792870.647276_2.txt    1597792871.082177_9.txt    1597792871.508808_2.txt    1597792872.000913_6.txt    1597792872.419096_0.txt
pequenojn@pequenoepg:~/gdrive/AdoMarti/01_Projects/DataAnalysis-Fall2025/homeworks/hmwk1_bash/data
$ ls
pequenojn@pequenoepg:~/gdrive/AdoMarti/01_Projects/DataAnalysis-Fall2025/homeworks/hmwk1_bash/data
$ cd $class_dir/txt/
pequenojn@pequenoepg:~/gdrive/AdoMarti/01_Projects/DataAnalysis-Fall2025/homeworks/hmwk1_bash/txt
$ cat *.txt > combined.txt
pequenojn@pequenoepg:~/gdrive/AdoMarti/01_Projects/DataAnalysis-Fall2025/homeworks/hmwk1_bash/txt
$ ls
1597792870.220742_7.txt    1597792870.767712_5.txt    1597792871.261415_7.txt    1597792871.816216_5.txt    1597792872.3006961_4.txt
1597792870.296291_5.txt    1597792870.822999_1.txt    1597792871.322759_8.txt    1597792871.8837981_6.txt  1597792872.359537_7.txt
1597792870.364057_9.txt    1597792870.881373_9.txt    1597792871.383604_9.txt    1597792871.938643_6.txt    1597792872.419096_0.txt
1597792870.437922_5.txt    1597792870.964604_0.txt    1597792871.4463518_3.txt  1597792872.000913_6.txt    combined.txt
1597792870.5234408_3.txt  1597792871.022526_6.txt    1597792871.508808_2.txt    1597792872.0669692_1.txt
1597792870.5912478_6.txt  1597792871.082177_9.txt    1597792871.576171_6.txt    1597792872.122821_2.txt
1597792870.647276_2.txt    1597792871.141684_1.txt    1597792871.657235_9.txt    1597792872.177929_4.txt
1597792870.7077792_1.txt  1597792871.201945_5.txt    1597792871.7428238_2.txt  1597792872.239617_3.txt
pequenojn@pequenoepg:~/gdrive/AdoMarti/01_Projects/DataAnalysis-Fall2025/homeworks/hmwk1_bash/txt
$
```

```
pequenojn@pequenoepg:~/gdrive/AdoMarti/01_Projects/DataAnalysis-Fall2025/homeworks/hmwk1_bash/txt
$ cd $class_dir/plots/
pequenojn@pequenoepg:~/gdrive/AdoMarti/01_Projects/DataAnalysis-Fall2025/homeworks/hmwk1_bash/plots
$ mkdir two
pequenojn@pequenoepg:~/gdrive/AdoMarti/01_Projects/DataAnalysis-Fall2025/homeworks/hmwk1_bash/plots
$ ls
1597792869.2743402_2.png  1597792869.963416_8.png    1597792870.6860118_1.png  1597792871.3613381_9.png  1597792872.1031191_2.png
1597792869.3545542_9.png  1597792870.023592_2.png    1597792870.74504_5.png    1597792871.424099_3.png    1597792872.157347_4.png
1597792869.414876_1.png    1597792870.0830002_9.png  1597792870.8034408_1.png  1597792871.4859068_2.png  1597792872.2178822_3.png
1597792869.473057_3.png    1597792870.140909_3.png    1597792870.858973_9.png    1597792871.554105_6.png    1597792872.2795498_4.png
1597792869.546473_5.png    1597792870.199074_7.png    1597792870.939893_0.png    1597792871.6252139_9.png  1597792872.3381069_7.png
1597792869.6088471_0.png  1597792870.2745569_5.png  1597792871.0015569_6.png  1597792871.717807_2.png    1597792872.3971531_0.png
1597792869.670397_8.png    1597792870.3341272_9.png  1597792871.0603871_9.png  1597792871.785565_5.png    dummy_0.01.png
1597792869.7266_9.png      1597792870.417356_5.png    1597792871.119096_1.png    1597792871.863772_6.png    two
1597792869.783605_1.png    1597792870.4923499_3.png  1597792871.181679_5.png    1597792871.918752_6.png
1597792869.8432891_2.png  1597792870.5689878_6.png  1597792871.239867_7.png    1597792871.978302_6.png
1597792869.9054809_9.png  1597792870.626776_2.png    1597792871.300511_8.png    1597792872.044308_1.png
pequenojn@pequenoepg:~/gdrive/AdoMarti/01_Projects/DataAnalysis-Fall2025/homeworks/hmwk1_bash/plots
$ mv *2.png two/
pequenojn@pequenoepg:~/gdrive/AdoMarti/01_Projects/DataAnalysis-Fall2025/homeworks/hmwk1_bash/plots
$ ls
1597792869.3545542_9.png  1597792869.963416_8.png    1597792870.6860118_1.png  1597792871.239867_7.png    1597792871.978302_6.png
1597792869.414876_1.png    1597792870.0830002_9.png  1597792870.74504_5.png    1597792871.300511_8.png    1597792872.044308_1.png
1597792869.473057_3.png    1597792870.140909_3.png    1597792870.8034408_1.png  1597792871.3613381_9.png  1597792872.157347_4.png
1597792869.546473_5.png    1597792870.199074_7.png    1597792870.858973_9.png    1597792871.424099_3.png    1597792872.2178822_3.png
1597792869.6088471_0.png  1597792870.2745569_5.png  1597792870.939893_0.png    1597792871.554105_6.png    1597792872.2795498_4.png
1597792869.670397_8.png    1597792870.3341272_9.png  1597792871.0015569_6.png  1597792871.6252139_9.png  1597792872.3381069_7.png
1597792869.7266_9.png      1597792870.417356_5.png    1597792871.0603871_9.png  1597792871.785565_5.png    1597792872.3971531_0.png
1597792869.783605_1.png    1597792870.4923499_3.png  1597792871.119096_1.png    1597792871.863772_6.png    dummy_0.01.png
1597792869.9054809_9.png  1597792870.5689878_6.png  1597792871.181679_5.png    1597792871.918752_6.png    two
pequenojn@pequenoepg:~/gdrive/AdoMarti/01_Projects/DataAnalysis-Fall2025/homeworks/hmwk1_bash/plots
$ cd two/
pequenojn@pequenoepg:~/gdrive/AdoMarti/01_Projects/DataAnalysis-Fall2025/homeworks/hmwk1_bash/plots/two
$ ls
1597792869.2743402_2.png  1597792870.023592_2.png    1597792871.4859068_2.png  1597792872.1031191_2.png
1597792869.8432891_2.png  1597792870.626776_2.png    1597792871.717807_2.png
pequenojn@pequenoepg:~/gdrive/AdoMarti/01_Projects/DataAnalysis-Fall2025/homeworks/hmwk1_bash/plots/two
$
```

```
pequenojn@pequenoepg:~/gdrive/AdoMarti/01_Projects/DataAnalysis-Fall2025/homeworks/hmwk1_bash/txt
$ cd $class_dir/plots/
pequenojn@pequenoepg:~/gdrive/AdoMarti/01_Projects/DataAnalysis-Fall2025/homeworks/hmwk1_bash/plots
$ mkdir two
pequenojn@pequenoepg:~/gdrive/AdoMarti/01_Projects/DataAnalysis-Fall2025/homeworks/hmwk1_bash/plots
$ ls
1597792869.2743402_2.png  1597792869.963416_8.png    1597792870.6860118_1.png  1597792871.3613381_9.png  1597792872.1031191_2.png
1597792869.3545542_9.png  1597792870.023592_2.png    1597792870.74504_5.png    1597792871.424099_3.png    1597792872.157347_4.png
1597792869.414876_1.png    1597792870.0830002_9.png  1597792870.8034408_1.png  1597792871.4859068_2.png  1597792872.2178822_3.png
1597792869.473057_3.png    1597792870.140909_3.png    1597792870.858973_9.png    1597792871.554105_6.png    1597792872.2795498_4.png
1597792869.546473_5.png    1597792870.199074_7.png    1597792870.939893_0.png    1597792871.6252139_9.png  1597792872.3381069_7.png
1597792869.6088471_0.png  1597792870.2745569_5.png  1597792871.0015569_6.png  1597792871.717807_2.png    1597792872.3971531_0.png
1597792869.670397_8.png    1597792870.3341272_9.png  1597792871.0603871_9.png  1597792871.785565_5.png    dummy_0.01.png
1597792869.7266_9.png      1597792870.417356_5.png    1597792871.119096_1.png    1597792871.863772_6.png    two
1597792869.783605_1.png    1597792870.4923499_3.png  1597792871.181679_5.png    1597792871.918752_6.png
1597792869.8432891_2.png  1597792870.5689878_6.png  1597792871.239867_7.png    1597792871.978302_6.png
1597792869.9054809_9.png  1597792870.626776_2.png    1597792871.300511_8.png    1597792872.044308_1.png
pequenojn@pequenoepg:~/gdrive/AdoMarti/01_Projects/DataAnalysis-Fall2025/homeworks/hmwk1_bash/plots
$ mv *2.png two/
pequenojn@pequenoepg:~/gdrive/AdoMarti/01_Projects/DataAnalysis-Fall2025/homeworks/hmwk1_bash/plots
$ cd two
pequenojn@pequenoepg:~/gdrive/AdoMarti/01_Projects/DataAnalysis-Fall2025/homeworks/hmwk1_bash/plots/two
$ ls
1597792869.2743402_2.png  1597792870.023592_2.png    1597792871.4859068_2.png  1597792872.1031191_2.png
1597792869.8432891_2.png  1597792870.626776_2.png    1597792871.717807_2.png
pequenojn@pequenoepg:~/gdrive/AdoMarti/01_Projects/DataAnalysis-Fall2025/homeworks/hmwk1_bash/plots/two
$ du -h
14K      .
pequenojn@pequenoepg:~/gdrive/AdoMarti/01_Projects/DataAnalysis-Fall2025/homeworks/hmwk1_bash/plots/two
$ for i in *.png; do convert "$i" -resize 50% "${i%.png}_small.png"; done
pequenojn@pequenoepg:~/gdrive/AdoMarti/01_Projects/DataAnalysis-Fall2025/homeworks/hmwk1_bash/plots/two
$ ls
1597792869.2743402_2.png          1597792870.023592_2.png          1597792871.4859068_2.png          1597792872.1031191_2.png
1597792869.2743402_2_small.png  1597792870.023592_2_small.png  1597792871.4859068_2_small.png  1597792872.1031191_2_small.png
1597792869.8432891_2.png          1597792870.626776_2.png          1597792871.717807_2.png
1597792869.8432891_2_small.png  1597792870.626776_2_small.png  1597792871.717807_2_small.png
pequenojn@pequenoepg:~/gdrive/AdoMarti/01_Projects/DataAnalysis-Fall2025/homeworks/hmwk1_bash/plots/two
$
```

In addition, this could be done in a single script file, for instance `hmwk1_script.sh`:

```bash
#!/bin/bash
# Move to the working directory
cd /home/pequenojn/gdrive/AdoMarti/01_Projects/DataAnalysis-Fall2025/homeworks/hmwk1_bash

# Create the variable with the path of the class files
class_dir=$(pwd)
echo $class_dir

# create the new subdirectory data and place the data file there
mkdir $class_dir/data

# Move to the new directory and unzip the data file
cd $class_dir/data
unzip $class_dir/ranNum.zip -d $class_dir/data

# Create the plots directory and move all .png files there
mkdir $class_dir/plots
mv *.png $class_dir/plots/

# Create the txt directory and move all .txt files there
mkdir $class_dir/txt/
mv *.txt $class_dir/txt/

# Combine all text files in a single one
cd $class_dir/txt/
cat *.txt > combined.txt
head combined.txt

# Move only image files showing the number two to a new directory called two
cd $class_dir/plots/
mkdir two
mv *2.png two/
cd two/

# Reduce the size of these images by 50 percent.
for i in *.png; do convert "$i" -resize 50% "${i%.png}_small.png"; done
```

This script can be run in the terminal, first making it executable with

`chmod +x hmwk1_script.sh`

and then executing it with

`./hmwk1_script.sh`

which will perform all the steps described above automatically.