

HW 2: A Primitive Chemical Database

For this assignment we will be reading and writing `.chem` files, which will hold some basic chemistry information on different compounds.

A `.chem` file will contain three lines. The first line contains the name of the compound. The second line contains its chemical formula. The third holds its molecular weight (in grams per mole). So the contents of the file `water.chem` might look like this:

```
water
H2O
18.02
```

Your notebook will have two active program cells. The first one will *read* an existing `.chem` file. It will ask the user for the name of the chemical compound. It will take the user's input, remove all spaces, change all letters to lower case, and concatenate `".chem"` onto the end, and then open the file with that name. It will then print the contents. The output should look much like this:

```
Please enter a compound name: benzene
benzene:
Chemical formula C6H6.
Molecular weight is 78.11 g/mol.
```

(It is okay if you get an error when you try to read a compound not in the record.)

The other program will *write* new chemicals. It will start by asking for the compound name, and perform the same transformations to find the file name. It will create a new file (overwriting anything that was there). It will then ask the user for the chemical formula and molecular weight, and create the entire file in such a format that it can be read by the other cell.

```
Please enter a compound name: sodium chloride
Enter the chemical formula: NaCl
Enter the molecular weight in g/mol: 58.44

Thank you. The file "sodiumchloride.chem" has been created.
```

Your notebook should be called `chem.database.ipynb`. Be sure to add plenty of comments and documentation to make its contents clear!