1. Import databases from the data folder to brightway

Depending on the accessibility to the ecoinvent database, this notebook offers two ways of reproducing the environmental profiles in the paper.

- Option 1: Evaluation of the agggregated processes
- Option 2: Evaluation of the complete LCA system models

Option 1: Import aggregated processes based on the LCIs calculated for the reference flows

This option uses the backup file in the folder <cwd>/data/results. This file was created based on the LCIs generated for the combinations of reference flows and versions of the ecoinvent database detailed in the accompanying paper.

```
from pathlib import Path
import brightway2 as bw

filepath = Path.cwd()/(
    'data/results/'
    'brightway2-project-REM_aggregatedLCIs-backup.02-February
       -2022-07-01AM.tar.gz')
bw.restore_project_directory(filepath)
```

The project REM_aggregatedLCIs should now appear in the list of brightway projects when running the cell below.

```
sorted(bw.projects)
```

The aggregated database can also be imported by using the Database Import Wizard from the Activity Browser by selecting 'Import local data'>'Local Excel file'. The file to import is LCIsAsAggregatedProcesses.xlsx, which is located at <cwd>/data/bw-harmonised.

The advantage of using the script in the first code cell of this notebook is that it already contains a setup with the CML-IA method baseline. Therefore, the LCIA methods don't have to be selected from a list. The caveat is that the GZ file to be loaded could have compatibility issues with some packages. The correct functioning of the Jupyter notebooks and related scripts was tested with the versions detailed in the next table.

Package	Version
python	3.7.10

Package	Version
bw2io	0.7.12

Option 2: Link the foreground of the LCA system models to versions of the ecoinvent database.

Select or create the brightway project in which the database will be loaded. The project should have the **biosphere3** database and the target **ecoinvent databases preloaded** before running the cell below. In the accompanying paper, the target versions are ecoinvent 2.2 and the cut-off alternatives from versions 3.1 to 3.6. The next table shows the strings used to name each version of the ecoinvent database.

ecoinvent version	String
2.2	ei22
3.1 cut-off	cutoff31
3.2 cut-off	cutoff32
3.3 cut-off	cutoff33
3.4 cut-off	cutoff34
3.5 cut-off	cutoff35
3.6 cut-off	cutoff36

This option uses the files at `<cwd>/data/bw-harmonised` generated according to the Harmonise Conventions notebook.

```
from IO_XLtoBw import import_from_ExcelFile
project = 'REM_interoperable' #Should be an existing project with the
    biosphere3 database and the target ecoinvent databases.

def get_data(variable):
    return 'REM'+ variable + '.xlsx'

variables = [
             ('_replicated_2_2', 'ei22'),
             ('_unlinked_2_2', 'ei22'),
             ('2_2', 'ei22'),
             ('3_1', 'cutoff31'),
             ('3_2', 'cutoff32'),
             ('3_3', 'cutoff33'),
```

```
                ('3_4', 'cutoff34'),
                ('3_5', 'cutoff35'),
                ('3_6', 'cutoff36')]

for v in variables:
    import_from_ExcelFile(project, v[1], get_data(v[0]), save=True,
        newXL=True)
```