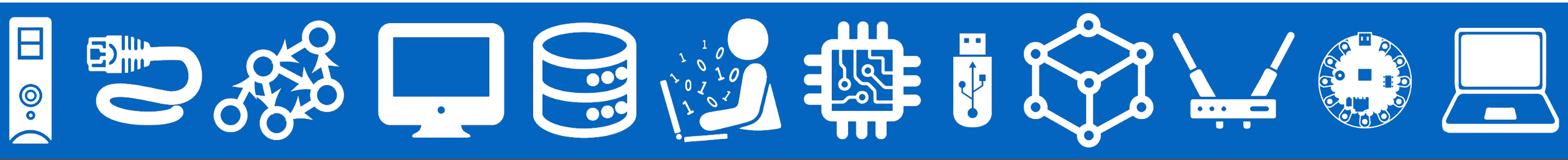
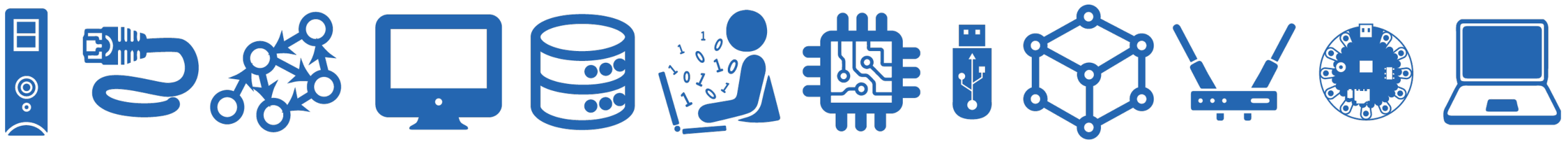
CS134:
Lab 3



Lab 3: Goals

- In this lab, you will accomplish three tasks:
  - Construct a **module** of tools for examining `strings` (in `madlibs.py`)
  - Test your toolbox using simple test cases in `runtests.py`
  - Reuse parts of our toolbox to solve various Madlibs.
- You will gain experience with the following:
  - **Sequences** (**strings**, **lists,** and **ranges**), and associated **operators**
  - Writing simple and nested **for loops**

Madlibs Algorithm



sample.story

```
Uh-oh, I forgot to
<verb1> for the
<schoolsubject1> exam!
```

sample.answerkey

```
<verb1>=study
<schoolsubject1>=CS134
```

sample.story

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Uh-oh, I forgot to
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<schoolsubject1> exam!
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sample.answerkey

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>>> storylist = read_stringlist_from_file("sample.story")
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>>> answerkey
['<verb1>=study', '<schoolsubject1>=CS134']
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>>> answerkey
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>>> solution = ...
>>> solution
['Uh', '-', 'oh', ',', 'I', 'forgot', 'to', 'study', 'for', 'the', 'CS134', 'exam', '!']
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sample.story

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>>> answerkey
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>>> solution = ...
>>> solution
['Uh', '-', 'oh', ',', 'I', 'forgot', 'to', 'study', 'for', 'the', 'CS134', 'exam', '!']
```

How do we fill in our puzzle? We need to walk through our storylist and substitute a swap-value for each placeholder we encounter.

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>>> solution = ...
>>> solution
['Uh', '-', 'oh', ',', 'I', 'forgot', 'to', 'study', 'for', 'the', 'CS134', 'exam', '!']
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>>> solution = ...
>>> solution
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>>> solution = ...
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>>> solution = ...
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>>> solution = ...
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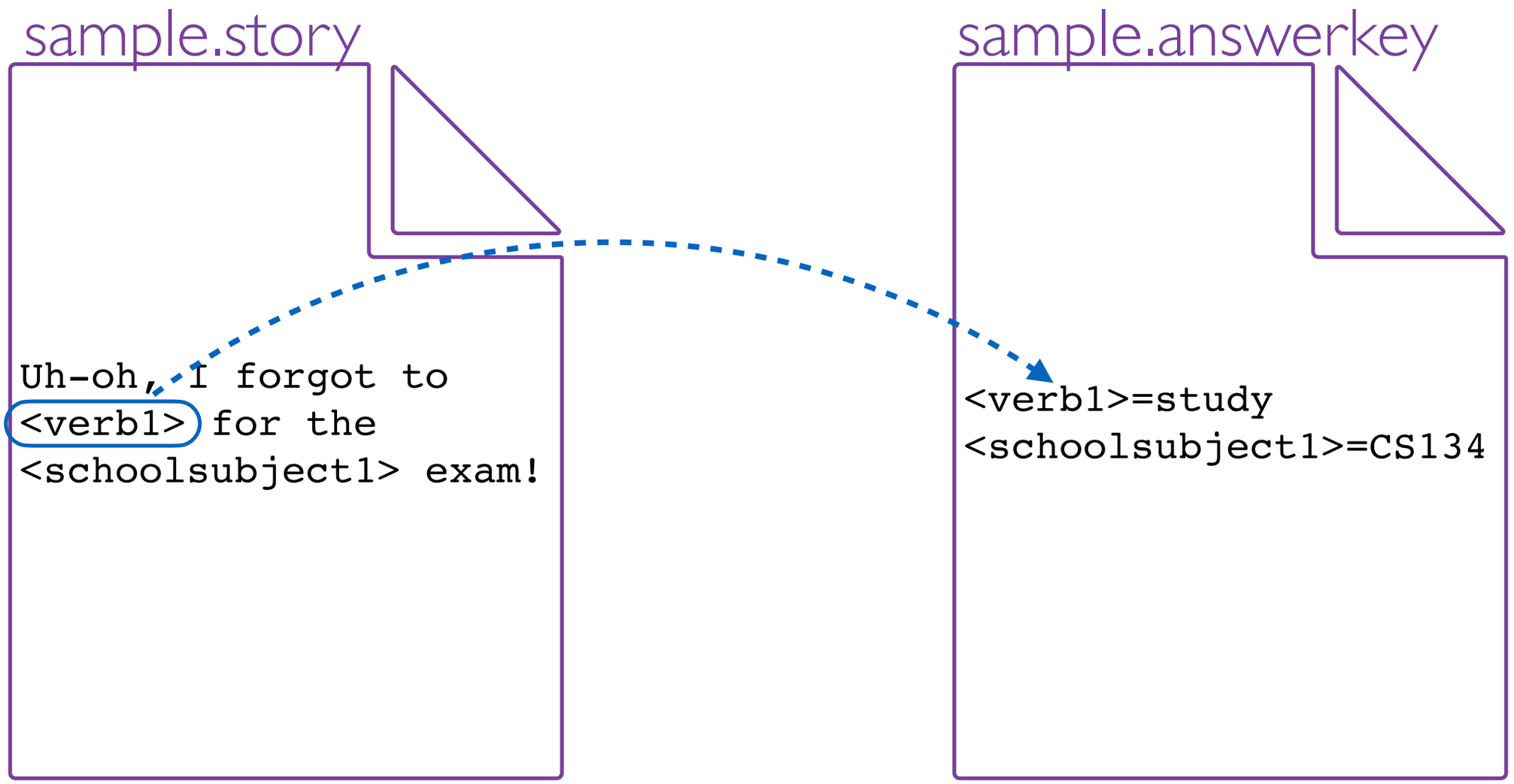


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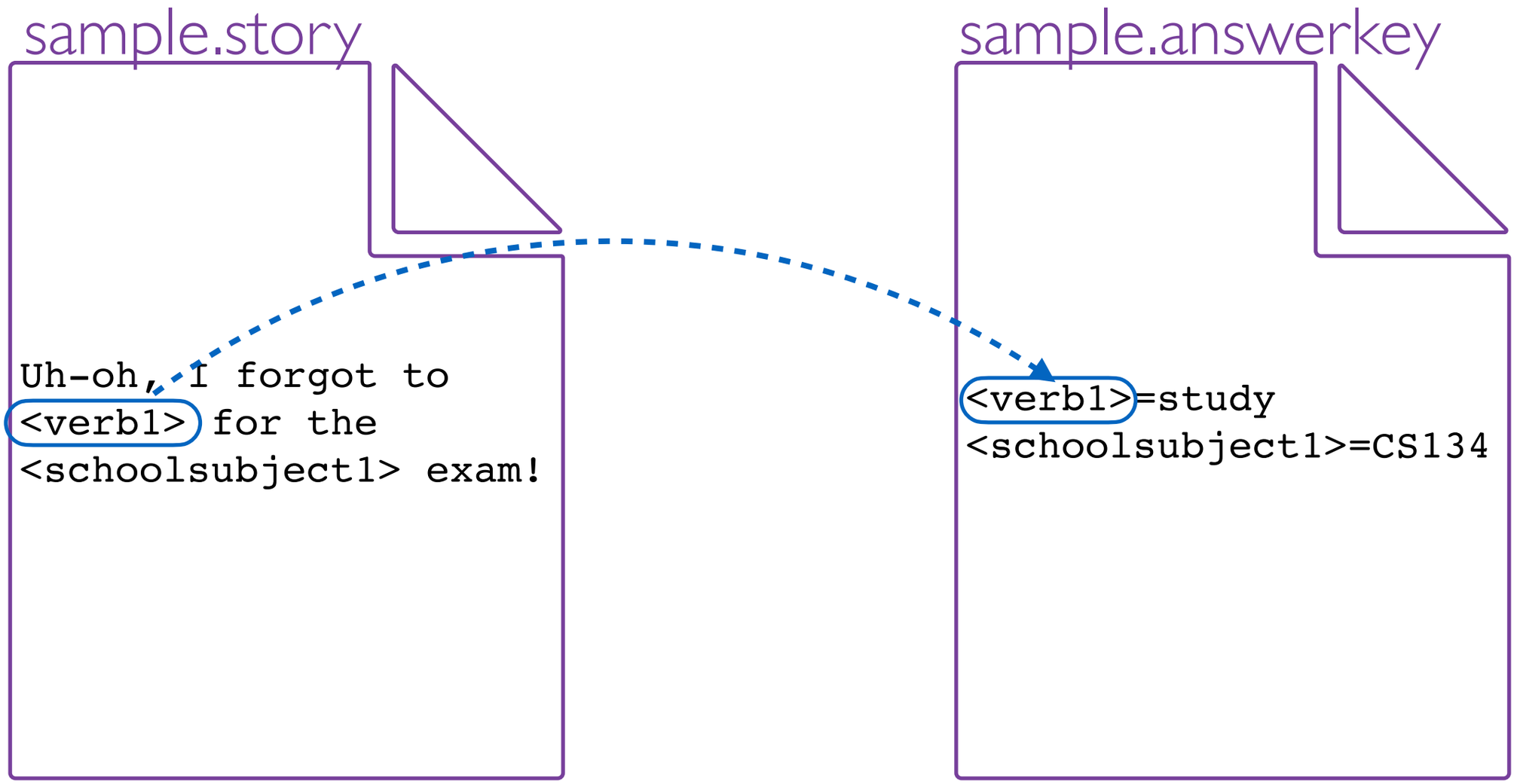


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```
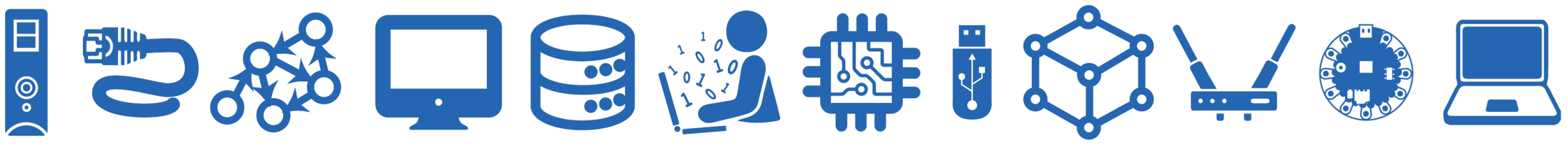

Example Interactions for the Last Two Functions



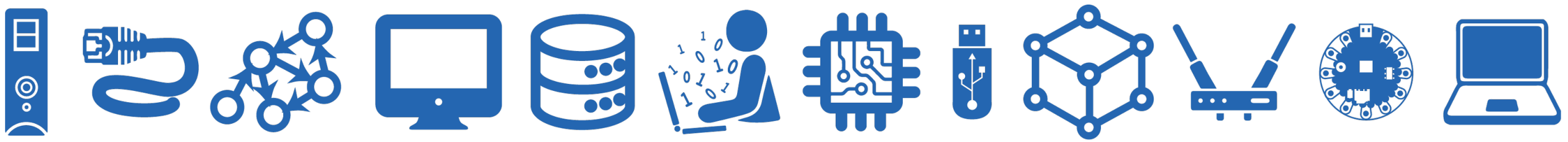
get_madlibs_replacement(..)

```
>>> get_madlibs_replacement('<noun1>', ['<adjective1>=little', '<noun1>=fleece'])
'fleece'
```

solved_madlibs(..)

```
>>> psl = ['Mary', 'had', 'a', '<adjective1>', 'lamb', '.', 'Its', '<noun1>', 'was', '<adjective2>', 'as', '<noun2>', '.' ]
>>> pkl = ['<adjective1>=little', '<noun1>=fleece', '<adjective2>=white', '<noun2>=snow']
>>> solved_madlibs(psl, pkl)
'Mary had a little lamb. Its fleece was white as snow.'
```

runtests.py



Testing Functions: `runtests.py`

- We have already seen two ways to test a function
  - You can run your code 1) interactively or 2) as a script
- Last week, we started using a separate file, `runtests.py`, to test our code as a script
    - To do this, `runtests.py` has to import our functions that we implemented in our main lab file
    - Then, we define functions in `runtests.py` to call the functions we implemented in the lab, such as `is_prefix()`
    - Remember: We must *call* functions for them to be executed!
- To ensure that the tests are not run in interactive Python, we place this command within a "guarded" if block:

```
if __name__ == '__main__':
```

Testing Functions: `runtests.py`

```
from text_utils import read_stringlist_from_file, format_madlib
from madlibs import is_prefix, is_suffix, all_text_after, \
    get_madlibs_replacement, solved_madlibs
```

Imports your functions from `madlibs.py`

```
def is_prefix_test1() :
    result = is_prefix("pre", "prefix")
    print('is_prefix("pre", "prefix")')
    print("  should return:  True")
    print("  yours returned: " + str(result))
```

Calls the functions you implemented with test inputs

Prints expected vs. actual outputs

Only runs when runtests.py is run as a script, not imported!

```
if __name__ == "__main__":
    args = get_command_line_args()
    if len(args) == 0:  # if there are no command-line arguments
        print("Please specify the test suite: pre, suf, after, replace, solve")
    else:
        which_question = args[0]  # reads the first command-line argument
        if which_question == "pre
            is_prefix_test1()
```

The rest of this code handles the command line arguments, e.g., `python3 runtests.py` **`pre`** and determines which functions are called