

Assignment 4: Recursive Descent Parser Evidence Document

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Updates: You must have the word room/rooms in a floor production, as was originally intended.

Build Instructions: There is just one python file, main.py that contains the main method. So you should just have to start the python exe and then run main.py.

Compiler Version: Python 3.8

Instructions for running on a sample file: The main method prompts the user for a file. So just enter the filename then.

Screen Capture of running on the provided input from the instructions:

```
"C:\Users\harleys\Prog_Lang_Trans\Assignment
Enter a text file: sampleComplex.txt
The total usable area is 16725 square feet.

Process finished with exit code 0
.
```

Valid Test 1: Simple test. 1 floor, 1 building with 1 floor.

```
floor GAMING has room [ 100 by 5 ]
complex building GAMING with floors { GAMING }
```

Input:

```
Enter a text file: test1.txt
The total usable area is 500 square feet.
```

Output:

Valid Test 2: More complex.

```
floor BEDROOMS has rooms [ 50 by 50, 100 by 100 ]
floor BATHROOMS has room [ 20 by 20 ]
complex
building HOUSE with floors { BEDROOMS, BEDROOMS, BATHROOMS }
building OUTHOUSE with floor { BATHROOMS }
```

Input:

```
Enter a text file: test2.txt
The total usable area is 25800 square feet.
```

Output:

Error Test 1: Syntax error. Using the word 'has' instead of 'with' in a building line.

```
floor ONE has room [ 30 by 25 ]
complex building ONE has floors' [ ONE , ONE ]
```

Input:

```
Enter a text file: test3.txt
Traceback (most recent call last):
  File "C:/Users/harleys/Prog_Lang_Trans/Assignment 4/main.py", line 128, in <module>
    main()
  File "C:/Users/harleys/Prog_Lang_Trans/Assignment 4/main.py", line 125, in main
    print('The total usable area is ' + str(parse_plans(tokens)) + ' square feet.')
  File "C:/Users/harleys/Prog_Lang_Trans/Assignment 4/main.py", line 41, in parse_plans
    return parse_complex(tokens, floors)
  File "C:/Users/harleys/Prog_Lang_Trans/Assignment 4/main.py", line 46, in parse_complex
    sqft = parse_building(tokens, floors)
  File "C:/Users/harleys/Prog_Lang_Trans/Assignment 4/main.py", line 55, in parse_building
    consume_next_token('with', tokens)
  File "C:/Users/harleys/Prog_Lang_Trans/Assignment 4/main.py", line 20, in consume_next_token
    fail(token, next_token(tokens))
  File "C:/Users/harleys/Prog_Lang_Trans/Assignment 4/main.py", line 33, in fail
    raise ValueError('Expected: ' + expected + ' Given: ' + given)
ValueError: Expected: with Given: has
```

Output: Process finished with exit code 1

Error Test 2: Using a non-existent room in a building line.

```
floor MAIN has rooms [ 50 by 30, 20 by 70 ]
complex building A with floor { MAIN , BATHROOM }
```

Input:

```
Enter a text file: test4.txt
Traceback (most recent call last):
  File "C:/Users/harleys/Prog_Lang_Trans/Assignment 4/main.py", line 128, in <module>
    main()
  File "C:/Users/harleys/Prog_Lang_Trans/Assignment 4/main.py", line 125, in main
    print('The total usable area is ' + str(parse_plans(tokens)) + ' square feet.')
  File "C:/Users/harleys/Prog_Lang_Trans/Assignment 4/main.py", line 41, in parse_plans
    return parse_complex(tokens, floors)
  File "C:/Users/harleys/Prog_Lang_Trans/Assignment 4/main.py", line 46, in parse_complex
    sqft = parse_building(tokens, floors)
  File "C:/Users/harleys/Prog_Lang_Trans/Assignment 4/main.py", line 57, in parse_building
    return parse_floor_list(tokens, floors)
  File "C:/Users/harleys/Prog_Lang_Trans/Assignment 4/main.py", line 67, in parse_floor_list
    sqft = sqft + floors[name]
KeyError: 'BATHROOM'
```

Output: Process finished with exit code 1

Error Test 3: Typo

```
floor MAIN has room [ 40 by 30 ]
```

Input: `compkex` building B with floors { MAIN , MAIN }

Enter a text file: `test5.txt`

Traceback (most recent call last):

```
File "C:/Users/harleys/Prog_Lang_Trans/Assignment 4/main.py", line 128, in <module>
    main()
File "C:/Users/harleys/Prog_Lang_Trans/Assignment 4/main.py", line 125, in main
    print('The total usable area is ' + str(parse_plans(tokens)) + ' square feet.')
File "C:/Users/harleys/Prog_Lang_Trans/Assignment 4/main.py", line 41, in parse_plans
    return parse_complex(tokens, floors)
File "C:/Users/harleys/Prog_Lang_Trans/Assignment 4/main.py", line 45, in parse_complex
    consume_next_token('complex', tokens)
File "C:/Users/harleys/Prog_Lang_Trans/Assignment 4/main.py", line 20, in consume_next_token
    fail(token, next_token(tokens))
File "C:/Users/harleys/Prog_Lang_Trans/Assignment 4/main.py", line 33, in fail
    raise ValueError('Expected: ' + expected + ' Given: ' + given)
ValueError: Expected: complex Given: compkex
```

Output: `Process finished with exit code 1`

Through testing I have not found any errors in my implementation. Everything seems to work as intended.