```
mf98604@ares:~$ pwd
/home/students/mf98604
mf98604@ares:~$ cat floor.info

Name:        Philip May'r
Class:       CSC121-001

Activity:    Floor Determining Program

Options:     Add (Level 1) credit for placing your suffix-determining function
             in a library.
             Add another (Level 0.5) to re-use the suffix library you created
             in the analogous lab.
             Add (Level 1.5) credit for allowing the user to type
             the word 'yes' or the word 'no.'

Level:       7 (4 + 1 + 0.5 + 1.5)

Description: Tells the user which floor the room they are seeking is on.

mf98604@ares:~$ show-code floor.cpp


floor.cpp:
```

```cpp
 1  #include "findsuffix.h"
 2  #include <iostream>
 3  #include <cmath>
 4
 5  using namespace std;
 6
 7  pair<char, short> get_input();
 8
 9  short find_floor_number(short room_number);
10  short count_digits(short number);
11
12  constexpr streamsize INF_FLAG{numeric_limits<streamsize>::max()};
13
14  int main()
15  {
16      char y_n;
17
18      cout << "\n\t\tWelcome to the Floor Determining Program.\n";
19
20      while (tolower(y_n) != 'n')
21      {
22          cout << "\nWhich room are you looking for? ";
23
24          auto [building_letter, room_number] = get_input();
25
26          short floor_number;
27          string suffix;
28
29          floor_number = find_floor_number(room_number);
30          suffix = find_suffix(floor_number);
31
32          cout << "\nThank you!! Calculating... ";
33
34          cout << "Done.\n";
35
36          cout << "\nYour room is on the "
37              << floor_number << suffix << " floor of building "
38              << building_letter << ".\n";
39
40          cout << "\nWould you like to find another room? Enter y/n: ";
41
42          cin >> y_n;
43          cin.ignore(INF_FLAG, '\n');
44      }
45
46      cout << "\nThanks for using the FDP.\n\n";
47  }
48
49  pair<char, short> get_input()
50  {
51      char building_letter;
52      short room_number;
53
54      cin >> building_letter >> room_number;
55      building_letter = static_cast<char>(toupper(building_letter));
56
57      return {building_letter, room_number};
58  }
59
60  short find_floor_number(short room_number)
61  {
62      short digit_count, floor_number, multiplier;
63
64      digit_count = count_digits(room_number);
65      multiplier = static_cast<short>(pow(10, digit_count - 1));
66      floor_number = static_cast<short>(room_number / multiplier % 10);
67
68      return floor_number;
69  }
70
71  short count_digits(short number)
72  {
73      short digit_count = 0;
74
75      while (number > 0)
76      {
77          number /= 10;
78          digit_count++;
79      }
80
81      return digit_count;
```

```
    82  }
mf98604@ares:~$ show-code findsuffix.cpp


findsuffix.cpp:


     1  #include "findsuffix.h"
     2  #include <string>
     3
     4  std::string find_suffix(short value)
     5  {
     6      short last_digit, second_to_last_digit;
     7      std::string suffix = "th";
     8
     9      last_digit = value % 10;
    10
    11      second_to_last_digit = value / 10 % 10;
    12
    13      if (second_to_last_digit != 1)
    14      {
    15          if (last_digit == 1)
    16          {
    17              suffix = "st";
    18          }
    19          else if (last_digit == 2)
    20          {
    21              suffix = "nd";
    22          }
    23          else if (last_digit == 3)
    24          {
    25              suffix = "rd";
    26          }
    27          else
    28          {
    29              suffix = "th";
    30          }
    31      }
    32
    33      return suffix;
    34  }
mf98604@ares:~$ show-code findsuffix.h


findsuffix.h:


     1  #include <string>
     2
     3  #ifndef FINDSUFFIX_H_INC
     4  #define FINDSUFFIX_H_INC
     5
     6  std::string find_suffix(short value);
     7
```

```
     8  #endif
mf98604@ares:~$ CPP floor findsuffix
findsuffix.cpp...
floor.cpp***


mf98604@ares:~$ ./floor.out

              Welcome to the Floor Determining Program.

Which room are you looking for? D221

Thank you!! Calculating... Done.

Your room is on the 2nd floor of building D.

Would you like to find another room? Enter y/n: y

Which room are you looking for? J109

Thank you!! Calculating... Done.

Your room is on the 1st floor of building J.

Would you like to find another room? Enter y/n: y

Which room are you looking for? N390

Thank you!! Calculating... Done.

Your room is on the 3rd floor of building N.

Would you like to find another room? Enter y/n: y

Which room are you looking for? M412

Thank you!! Calculating... Done.

Your room is on the 4th floor of building M.

Would you like to find another room? Enter y/n: y

Which room are you looking for? R515

Thank you!! Calculating... Done.

Your room is on the 5th floor of building R.

Would you like to find another room? Enter y/n: n

Thanks for using the FDP.

mf98604@ares:~$ exit
exit
```

Script done on 2023-10-31 20:30:56-05:00 [COMMAND_EXIT_CODE="0"]