

## Question 1:

Complete the `houcelisting2.py` according to the comments in the file. And the output of the program should match the following:

**Besides, you need to add type hints to all the function parameters and return types.**

Company Name = Good Future Real Estate

===== The list of agents: =====

Last Name = Henderson, First Name = Dave, Phone Number = 408-777-3333, Email = dave@yahoo.com

Position = Senior Agent

===== The house listing: =====

Address = 1111 Mission Blvd, Square Feet = 1000, Number of Rooms = 2, Price = 1000000

Address = 2222 Mission Blvd, Square Feet = 2000, Number of Rooms = 3, Price = 1200000

Address = 3333 Mission Blvd, Square Feet = 3000, Number of Rooms = 4, Price = 2000000

===== The list of owners: =====

Last Name = Li, First Name = Peter, Phone Number = 510-111-2222, Email = peter@yahoo.com

Owns the following houses:

Address = 1111 Mission Blvd, Square Feet = 1000, Number of Rooms = 2, Price = 1000000

Last Name = Buck, First Name = Carl, Phone Number = 408-111-2222, Email = carl@yahoo.com

Owns the following houses:

Address = 2222 Mission Blvd, Square Feet = 2000, Number of Rooms = 3, Price = 1200000

Address = 3333 Mission Blvd, Square Feet = 3000, Number of Rooms = 4, Price = 2000000

===== The list of buyers: =====

Last Name = Buke, First Name = Tom, Phone Number = 408-555-2222, Email = tom@yahoo.com

Watching the following houses:

Address = 1111 Mission Blvd, Square Feet = 1000, Number of Rooms = 2, Price = 1000000

Address = 2222 Mission Blvd, Square Feet = 2000, Number of Rooms = 3, Price = 1200000

Address = 3333 Mission Blvd, Square Feet = 3000, Number of Rooms = 4, Price = 2000000

Last Name = Go, First Name = Lily, Phone Number = 510-222-3333, Email = lily@yahoo.com

Watching the following houses:

Address = 2222 Mission Blvd, Square Feet = 2000, Number of Rooms = 3, Price = 1200000

Address = 3333 Mission Blvd, Square Feet = 3000, Number of Rooms = 4, Price = 2000000

After one house was sold .....

Company Name = Good Future Real Estate

===== The list of agents: =====

Last Name = Henderson, First Name = Dave, Phone Number = 408-777-3333, Email = dave@yahoo.com

Position = Senior Agent

===== The house listing: =====

Address = 1111 Mission Blvd, Square Feet = 1000, Number of Rooms = 2, Price = 1000000

Address = 2222 Mission Blvd, Square Feet = 2000, Number of Rooms = 3, Price = 1200000

===== The list of owners: =====

Last Name = Li, First Name = Peter, Phone Number = 510-111-2222, Email = peter@yahoo.com

Owns the following houses:

Address = 1111 Mission Blvd, Square Feet = 1000, Number of Rooms = 2, Price = 1000000

Last Name = Buck, First Name = Carl, Phone Number = 408-111-2222, Email = carl@yahoo.com

Owns the following houses:

Address = 2222 Mission Blvd, Square Feet = 2000, Number of Rooms = 3, Price = 1200000  
Address = 3333 Mission Blvd, Square Feet = 3000, Number of Rooms = 4, Price = 2000000  
===== The list of buyers: =====  
Last Name = Buke, First Name = Tom, Phone Number = 408-555-2222, Email = tom@yahoo.com  
Watching the following houses:  
Address = 1111 Mission Blvd, Square Feet = 1000, Number of Rooms = 2, Price = 1000000  
Address = 2222 Mission Blvd, Square Feet = 2000, Number of Rooms = 3, Price = 1200000  
Last Name = Go, First Name = Lily, Phone Number = 510-222-3333, Email = lily@yahoo.com  
Watching the following houses:  
Address = 2222 Mission Blvd, Square Feet = 2000, Number of Rooms = 3, Price = 1200000

Displaying potential buyers for house 1 .....  
Last Name = Buke, First Name = Tom, Phone Number = 408-555-2222, Email = tom@yahoo.com  
Watching the following houses:  
Address = 1111 Mission Blvd, Square Feet = 1000, Number of Rooms = 2, Price = 1000000  
Address = 2222 Mission Blvd, Square Feet = 2000, Number of Rooms = 3, Price = 1200000

## Question 2:

Enhance the above program by supporting the Observer Pattern. The requirements of the program will include:

- The Company is the Subject
- The Owner, Buyer and Agent are Observers.
- All agents, the owner of the house, and all prospective buyers who are interested in buying this house will be informed, at the time it is sold or its price is updated.
- All agents, the owner of the house, and all buyers will be notified, when a house is added to the listing
- All agents and the owner of the house will be notified, when a house is removed from the listing