Lab 5
Rooms in a House

Object-oriented Programming

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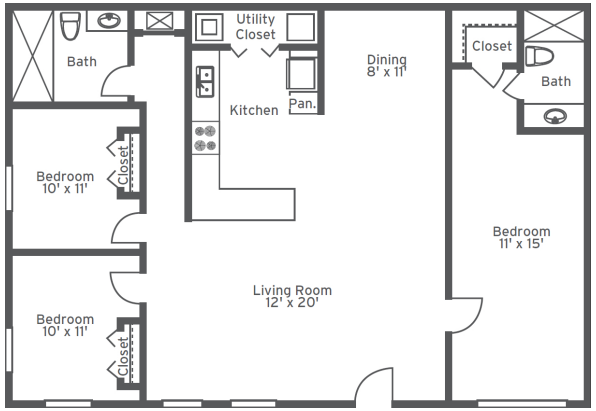
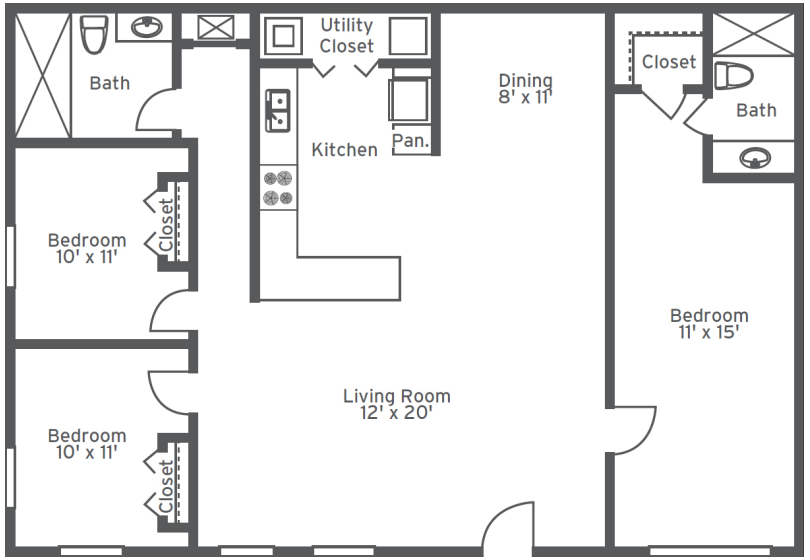
Sample Program Output

```
Enter the number of rooms in the house: 3

Enter room 1 information
Enter room type (sitting room, bedroom, kitchen, balcony): bedroom
Enter room width: 4
Enter room height: 5

Enter room 2 information
Enter room type (sitting room, bedroom, kitchen, balcony): sitting room
Enter room width: 6
Enter room height: 7

Enter room 3 information
Enter room type (sitting room, bedroom, kitchen, balcony): kitchen
Enter room width: 2
Enter room height: 5

House Information
[roomType=bedroom, width=4, height=5, area=20]
[roomType=sitting room, width=6, height=7, area=42]
[roomType=kitchen, width=2, height=5, area=10]
House Total Area: 72
```



House Class

- A house contains many rooms
- You have two classes: House and Room
- House stores rooms in a Room array (see the UML diagram)
  - House constructor should create an empty room array
  - You can add a room to the house array location by using: **house.rooms[i] = myRoom** where myRoom is an arbitrary room.
- Rooms have
  - Room type: Bedroom, sitting room, kitchen etc.
  - Room width
  - Room height



UML Diagrams

Room	
-roomType: String -width: int -height: int	Room type (bedroom, sitting room, kitchen etc.) Room width Room height
+Room(roomType: String) +toString(): String // getter and setter methods	Constructor Returns room information as a string: [roomType=bedroom, width=4, height=5, area=20]

House	
+numberOfRooms: int +rooms: Room[]	Number of rooms in the house Array to store room objects
+House(numberOfRooms: int) +calculateArea(): int +printHouse(): void	Constructor Calculates the total area of the house. Total area is the sum of all rooms' areas. Prints all house information (see sample output)

Sample Main Code

```
public static void main(String[] args) {

    Scanner input = new Scanner(System.in);
    System.out.print("Enter the number of rooms in the house: ");
    // get the number of rooms
    House house = . . . // create a house

    for ( each room ) {
        // get room type, width, and height from the user
        // add the room to the house
    }
    house.printHouse();
}
```