Session 2 – Exercises (if, boolean)

Hint: You may want to create a new version of the method in question for each exercise. E.g. you'd have isHappy1(), isHappy2(), etc. to solve the many exercises that concern isHappy.

1. We assume that we have a class, Man, which has a few attributes. Let's first define the Man class:

```
public class Man {
    private int yearOfBirth;
    private String name;
    private String address;
    private double moneyInBank;
    private double moneyUnderPillow;
    private boolean carOwner;
    private booelan homeOwner;
    private boolean inRelationship;

    //…
}
```

Go ahead and code these attributes in BlueJ (in a new project, or just add a class to an existing project.

Add a constructor and add getters and setters for all attributes.

Remember, **boolean getters start with is**- and not with get-!
e.g.:
```
        public boolean isCarOwner() {
            return carOwner;

        }
```

2. Create a Man object, set the attributes. Inspect using the object inspector and try calling a few getters/setters. Remember to try out some boolean getters.

3. Let's write a new boolean getter: isHappy(). There is no instance variable called 'happy', but we introduce the new getter anyway. The getter represents a **derived property** – something that is always computed whenever the method is invoked. Let the method always return **true**.

4. One could argue that happiness is a car. Let happiness reflect the ownership of a car.

5. Others say that happiness is the ownership of a home. Let the isHappy method reflect this view.

6. Again others say that happiness is a combination of both. Let isHappy be true if a man owns both a car and a home.

7. Let ifHappy be true if a man owns a car OR a home.

8. Let ifHappy be true if a man owns either a home or a car, AND is in a relationship.

9. What about wealth? Let a man be happy if he has a DKK 100,000 in the bank.

10. Let ifHappy be true if a man has DKK 100,000 in total (in the bank and under his pillow).

11. A woman's smile is worth a lot of money. Let it be worth DKK 50,000. Let a man be happy if he is in a relationship and has at least DKK 50,000 in the bank and/or under the pillow, OR if he has DKK 100,000 in total.

12. Happiness is complex. Car owners are happy if they are in a relationship, home owners are happy if they own a car or are in a relationship, all the others are happy if they own DKK 100,000, but those in relationships are happy if they have just DKK 50,000.

13. In Denmark, men often change their names when they get married – they add the last name of their wives to their own. Don't let the setName method change the corresponding attribute if the man is not in a relationship.

14. If you haven't got enough money, you can't afford to buy a new home. Let the setAddress only work if a person has at least DKK 100,000 in the bank for downpayment and the cost of moving.

15. You may argue that one can also move without buying a house. Let the setAddress work as in exercise 14 if the man is a home owner, otherwise if he has DKK 50,000 in total is enough to move.