Account class

The following program implements an `Account` class and two other classes that inherit from that class.

**Account.java**

```java
public class Account {
    protected double balance;
    protected String owner;

    public Account() {
        this.owner = "John Doe";
        this.balance = 100;
    }

    public Account(String owner) {
        this.owner = owner;
        balance = 0;
    }

    public Account(String owner, double balance) {
        this.owner = owner;
        this.balance = balance;
    }

    public double deposit(double value) {
        if (value >= 0) {
            balance += value;
        }
        return balance;
    }

    public double withdraw(double value) {
        if (value >= 0 && (balance - value) >= 0) {
            balance -= value;
            return value;
        } else {
            return 0;
        }
    }

    public String toString() {
        return String.format("%s, balance: %.2f", owner, balance);
    }
}
```

**CheckingAccount.java**

```java
public class CheckingAccount extends Account {
    private double overdraft = -500.00;

    public double withdraw(double value) {
        if (balance - value > overdraft) {
            balance -= value;
            return value;
        } else {
            return 0;
        }
    }
}
```

**SavingsAccount.java**

```java
public class SavingsAccount extends Account {
    private double annualRate = 0.001;

    public SavingsAccount(String owner, double balance, double interest) {
        super(owner, balance);
        if (interest > 0) {
            annualRate = interest;
        }
    }

    public void compoundMonthly() {
        double interestEarned = balance * (annualRate/12);
        balance += interestEarned;
    }
}
```
Questions:

1. List all the data fields in the Account class.

2. List all the data fields in the CheckingAccount class.

3. List all the data fields in the SavingsAccount class.

4. List all the methods that are available in the CheckingAccount class.

5. List all the methods that are available in the SavingsAccount class.

6. How many constructors are in the CheckingAccount class? How many are in the SavingsAccount class?

7. What does the line 6 in SavingsAccount class do?

8. Consider the following code lines. Determine what each line does and if there are any problems with it.

```java
Account a = new Account ("James", 2500);
SavingsAccount sa = new SavingsAccount ("Rose", 1587, 0.02);
CheckingAccount ca = new CheckingAccount ( );
CheckingAccount caf = new CheckingAccount ( "Carol", 420 );
Account al = new SavingsAccount ( "Joe", 3500, 0.01);
Account a2 = new CheckingAccount ( );
SavingsAccount sa1 = new CheckingAccount ();
SavingsAccount sa2 = new Account ("Amy", 12000);

a.deposit(200);
sa.deposit(300);
ca.deposit(100);

sa.compoundMonthly();
al.compoundMonthly();
ca.compoundMonthly();

ca.withdraw(100);
a2.withdraw(100);
```