

## Opgave 1

Metoden kaldet print(4) udskriver

```
****  
_***  
--**  
---*
```

## Opgave 2

De fire kald udskriver:

```
Peter: 8 [passed]  
Paul: 3 [not passed]  
Mary: 1 [not a grade]  
Joe: 6 [just passed]
```

## Opgave 3

Klassen Car bliver:

```
class Car {  
    private static final int MAX_CARS = 100;  
    private static int noOfCars = 0;  
    private static Car[] car = new Car[MAX_CARS];  
    private int carNo;  
    private String cartype;  
  
    public Car(String cartype) {  
        this.cartype = cartype;  
        this.carNo = noOfCars;  
        car[noOfCars] = this;  
        noOfCars++;  
    }  
  
    public static void clear() {  
        noOfCars = 0;  
    }  
  
    public String toString() {  
        return "Car no " + carNo + ": " + cartype;  
    }  
  
    public static void printList() {  
        for (int i = 0; i < noOfCars; i++)
```

```

        System.out.println( car[i].toString() );
    }
}

```

## Opgave 4

Der udskrives:

out1: Id = John, Id = Bob, Id = Ed

out2: Id = Bill, Id = Jackie, Id = Jackie

## Opgave 5

Klassen CounterWindow bliver:

```

import javax.swing.*;
import java.awt.*;
import java.awt.event.*;

public class CounterWindow extends JFrame implements ActionListener{

    private Container pane;
    private CenterPanel centerPanel = new CenterPanel(3);
    private JButton increment = new JButton("Increment");

    public CounterWindow() {
        super("Vindue 1");
        pane = getContentPane();

        pane.add(centerPanel, "Center");
        pane.add(increment, "South");
        increment.addActionListener( this );
        setBounds(100, 50, 200, 100);
        setVisible(true);
    }

    public void actionPerformed(ActionEvent e){
        centerPanel.inc();
        centerPanel.repaint();
    }
}

```

Bemærk i forbindelse med delopgave 1 at der skal stå "South" i add kaldet.

I forbindelse med delopgave 2, skal der

- laves en actionPerformed metode
- laves et addActionListener kald med this som argument
- laves et implementsActionListener i klasse hovedet
- importeres java.awt.event.\* (mindre væsentligt)

- kaldes repaint i actionPerformed metoden (det forventer vi ikke at der er nogen der får med).

## Opgave 6

Delopgave 1 og 2 giver følgende to klasse erklæringer:

```
class Member1 {  
    // omdøbt fra Member til Member 1 for at holde den adskilt fra besvarelse af opgave 6.3
```

```
    private String name;  
    private short birthYear;  
    private Team1 team;
```

```
    public Member1(String name, short birthYear) {  
        this.name = name;  
        this.birthYear = birthYear;  
        team = null;  
    }
```

```
    public void setTeam(Team1 team) {  
        this.team = team;  
        team.addMember( this );  
    }
```

```
    public String toString(){ // Nødvendig for at kunne lave besvarelsen i opgave 6.2  
        return name + " født: " + birthYear;  
    }  
}
```

```
class Team1 {  
    private Member1[] members = new Member1[18];  
    private short noOfMembers = 0;
```

```
    public void addMember(Member1 member) {  
        members[noOfMembers] = member;  
        noOfMembers++;  
    }
```

```
    public void printTeamList() {  
        for (int i = 0; i < noOfMembers; i++)  
            System.out.println( members[i].toString() );  
    }
```

```
    public static void testTeam1(){  
        Team1 theCoconuts = new Team1();  
        Member1 klaus = new Member1("Klaus Nielsen", (short)1984);  
        Member1 ali = new Member1("Ali Hussain", (short)1985 );  
    }
```

```

        klaus.setTeam( theCoconuts );
        ali.setTeam( theCoconuts );
        theCoconuts.printTeamList();
    }
}

```

### Delopgave 3:

Den eneste ændring der er lavet i Member er at der er tilføjet et next felt.

```

class Member2 {

    private String name;
    private short birthYear;
    private Team2 team;
    Member2 next; // ikke privat, skal kunne ses fra Team2

    public Member2(String name, short birthYear) {
        this.name = name;
        this.birthYear = birthYear;
        team = null;
        next = null;
    }

    public void setTeam(Team2 team) {
        this.team = team;
        team.addMember( this );
    }

    public String toString(){
        return name + " født: " + birthYear;
    }
}

class Team2 {
    private Member2 første;

    public void addMember(Member2 member) {
        member.next = første;
        første = member;
    }

    public void printTeamList() {
        Member2 m = første;
        while (m != null){
            System.out.println( m.toString() );
            m = m.next;
        }
    }
}

```

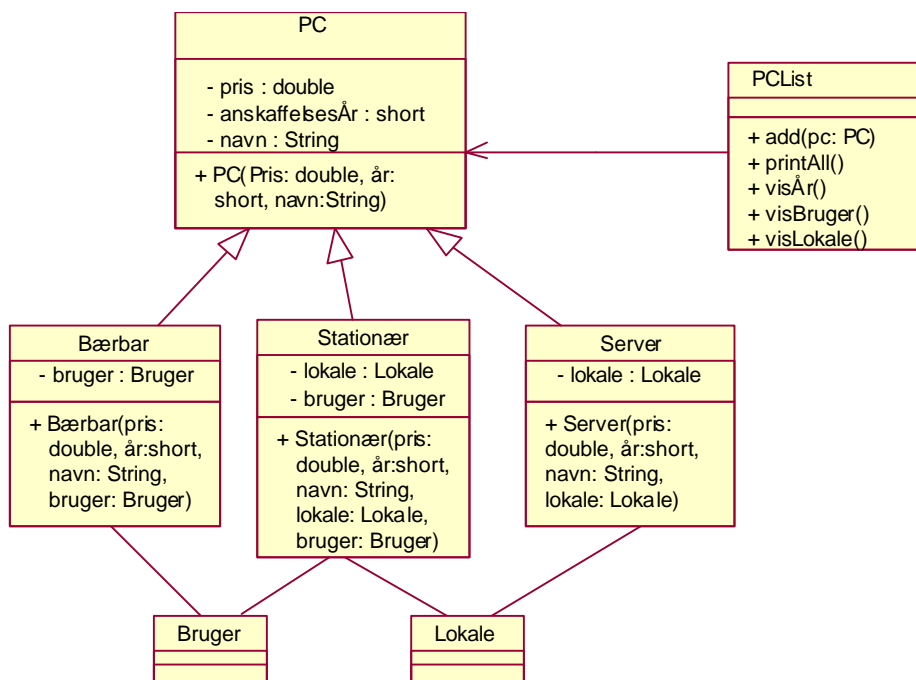
```

public static void testTeam2(){
    Team2 theCoconuts = new Team2();
    Member2 klaus = new Member2("Klaus Nielsen", (short)1984);
    Member2 ali = new Member2("Ali Hussain", (short)1985 );
    klaus.setTeam( theCoconuts );
    ali.setTeam( theCoconuts );
    theCoconuts.printTeamList();
}
}

```

## Opgave 7

Delopgave 1:



Desuden er der public get og set metoder for alle felter i de klasser hvori feltet er erklæret.

Delopgave 2

Der skal laves en række toString metoder:

For PC laves den som:

```
public String toString(){ return navn + ", " + pris: " + pris + ", anskaffet: " + anskaffet; }
```

For Server laves den som:

```
public String toString(){ return "Server: " + super.toString() + "lokale: " + lokale; }
```

For Bærbar laves den som:

```
public String toString(){ return "Bærbar: " + super.toString() + "bruger: " + bruger; }
```

For Stationær laves den som:

```
public String toString(){  
    String res = "Stationær: " + super.toString();  
    if (lokale != null )  
        res += ", lokale: " + lokale;  
    if (bruger != null )  
        res += ", bruger: " + bruger;  
}
```

Delopgave 3

```
class PCList {  
    private PC[] pclist;  
    private short noOfPC;  
    public PCList(){  
        pclist = new PC[1000];  
        noOfPC = 0;  
    }  
    public void addPC(PC pc){  
        pclist[ noOfPC ] = pc;  
        noOfPC++;  
    }  
    public void printAll(){  
        for (int i = 0; i < noOfPC ; i++)  
            System.out.println( pclist[ i ].toString() );  
    }  
}
```