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Exercise 1: Installer Eclipse og Java.

Dette kan f.eks. gøres ved at følge instruktionerne i dokumentet `eclipse_intro.pdf` som ligger under 'Fildeling' på CampusNet (i kataloget Uge 01).

Tidligere kursusansvarlig Paul Fischer har lavet denne side med ekstramateriale:

<http://www2.imm.dtu.dk/~paf/Courses/IP-02101/>

Bemærk, der er tale om ældre versioner af softwaren, men fremgangsmåden er uændret.

_____ End of Exercise 1 _____

Exercise 2: Write a complete Java program that prints the following output:

The words "class" and "main" are Java keywords.

_____ End of Exercise 2 _____

Exercise 3: Hvor mange skråstreger skriver følgende program?

```
1      public class Slashes {
2          public static void main(String[] args) {
3              System.out.println("\\\\");
4          }
5      }
```

_____ End of Exercise 3 _____

Exercise 4: Løs nedenstående opgave. Det er *Exercise 1* fra bogens kapitel 1.

Write a complete Java program that prints the following output:

```
////////////////////
|| Victory is mine! ||
\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\
```

_____ End of Exercise 4 _____

Exercise 5: Løs nedenstående opgave. Det er *Exercise 5* fra bogens kapitel 1.

Write a complete Java program that prints the following output. Use at least one static method besides main to help you.

```
////////////////////
|| Victory is mine! ||
\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\
|| Victory is mine! ||
\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\
|| Victory is mine! ||
\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\
|| Victory is mine! ||
\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\
|| Victory is mine! ||
\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\
```

_____ End of Exercise 5 _____

Exercise 6: Tegn strukturdiagrammet for følgende program. Hvor mange linier outputter programmet?

```

public class Tricky {
    public static void main(String[] args) {
        besked1();
        besked2();
        System.out.println("Skrevet af main");
    }

    private static void besked1() {
        System.out.println("Dette er forste besked");
    }

    private static void besked2() {
        System.out.println("Dette er anden besked");
        besked1();
        System.out.println("Skrevet af besked2");
    }
}

```

End of Exercise 6

Exercise 7: Løs nedenstående opgave. Det er *Exercise 8* fra bogens kapitel 1.

Skriv et javaprogram, der genererer følgende output. Benyt statiske metoder til at eliminere redundans. Hvilken redundans kan du eliminere ved hjælp af statiske metoder? Bemærk at der er two raketter ved siden af hinanden. Hvilken redundans kan du *ikke* eliminere, når dine muligheder for at skrive er begrænset til `System.out.println`?

```

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     /\      /\
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    I        I I        I
    I        I I        I
    +-----+ +-----+
      /\      /\
     /\      /\

```

End of Exercise 7

Fortsættes næste side.

Exercise 8: Skriv et Java program, der printer 100 linjer med 10 stjerner på hver linje, dvs. 100 linjer som denne:

Brug procedural dekomposition med statiske metoder for at eliminere redundans.

Gør det nemt at ændre indholdet af linjen, så den i stedet fx printer 5 plustegn:

+++++

Forsøg at (også) løse opgaven uden brug af løkker, tællere, eller lignende.

Bonusopgave: Hvis linien med de 10 stjerner kun må stå *et* sted og hver funktion kun må lave *to* funktionskald, hvor mange funktioner er da nødvendige for at printe 128 linier med stjerner på?

End of Exercise 8

Exercise 9: Løs nedenstående opgave. Det er *Programming Project 2* fra bogens kapitel 1.

Sometimes we want to write similar letters to different people. For example, you might write to your parents to tell them about your classes and your friends, and to ask for money; you might write to a friend about your love life, your classes, and your hobbies; and you might write to your brother about your hobbies and your friends and to ask for money. Write a program that prints similar letters such as these to three people of your choice. Each letter should have at least one paragraph in common with each of the other. Your main program should have three method calls: one for each of the people to whom you are writing. Try to isolate repeated tasks into methods.

End of Exercise 9

Exercise 10: Analyse the following four programs, remove the mistakes and make them run.

```
a) public class NotRunning {
    public static void main(String[] args) {
    }
    public static void printOutput(){
        System.out.println("Why is no output shown?");
    }
}

b) public class Errors01 {
    public static void main(String[] args) {
        System.out.println(first line);
        System.out.println(second line);
    }
}
```

```

c) public class Errors02 {
    public static void main(String[] args) {
        printSomething();
    }

    private void static printSomething() {
        System.out.println("Something");
    }
}

d) public class Errors03 {
    public static void main(String[] args) {
        printSomething();
    }

    private static printSomething() {
        System.out.println("Something");
    }
}

```

End of Exercise 10

Exercise 11: Run the following program, analyse it and explain its behavior.

```

public class PingPong {
    public static void main(String[] args) {
        ping();
    }

    private static void ping() {
        System.out.println("ping");
        pong();
        System.out.println("done ping");
    }

    private static void pong() {
        System.out.println("pong");
        ping();
        System.out.println("done pong");
    }
}

```

End of Exercise 11

Exercise 12: Hvad udskriver følgende program? Hvor mange linier skriver den?

```
public class Udskriver {
    public static void main(String[] args) {
        System.out.print("Dette ");
        del1();
        System.out.print(" hvad dette ");
        del2();
        del1();
        System.out.println(".");
    }
    public static void del1(){
        System.out.print("program ");
        del2();
    }
    public static void del2(){
        System.out.print("skriver");
    }
}
```

_____ End of Exercise 12 _____

Exercise 13: Hvad outputter følgende program?

```
public class HelloWorldII {
    public static void main(String[] args) {
        myPrinter("Hello World!");
    }
    public static void myPrinter(String s){
        System.out.println(s);
        System.out.println(s);
    }
}
```

_____ End of Exercise 13 _____

Exercise 14: (*) Benyt elementer fra de forrige to opgaver til yderligere at fjerne redundans i opgave 7. Nu kan du nemmere ændre antallet af rumskibe fra 2 til 3.

```

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     /  \    /  \    /  \
+-----+ +-----+ +-----+
I       I I       I I       I
I       I I       I I       I
+-----+ +-----+ +-----+
I D T UI I D T UI I D T UI
ILyngbyI ILyngbyI ILyngbyI
+-----+ +-----+ +-----+
I       I I       I I       I
I       I I       I I       I
+-----+ +-----+ +-----+
      /\      /\      /\
     /  \    /  \    /  \

```

End of Exercise 14
