Programming exercise:

Speeding Ticket

Write a program that asks the user for an integer and prints the string "Speeding ticket!" if the input is greater than 120.

Sample output

```
Give speed:
15
```

Sample output

```
Give speed:
135
Speeding ticket!
```

Programming exercise:

Positivity

Write a program that prompts the user for an integer and informs the user whether or not it is positive (greater than zero).

Sample output

```
Give a number:
5
The number is positive.
```

Sample output

```
Give a number:
-2
The number is not positive.
```

Programming exercise:

Larger Than or Equal To

Write a program that prompts the user for two integers and prints the larger of the two. If the numbers are the same, then the program informs us about this as well.

Sample outputs:

Sample output

```
Give the first number:
5
Give the second number:
3
Greater number is: 5
```

Sample output

```
Give the first number:
5
Give the second number:
8
Greater number is: 8
```

Sample output

```
Give the first number; 5
Give the second number: 5
The numbers are equal!
```

Programming exercise:

Grades and Points

The table below describes how the grade for a particular course is determined. Write a program that gives a course grade according to the provided table.

points	grade
< 0	impossible!
0-49	failed
50-59	1
60-69	2
70-79	3
80-89	4
90-100	5
> 100	incredible!

Sample outputs:

Sample output

```
Give points [0-100]:
37
Grade: failed
```

Sample output

```
Give points [0-100]:
76
Grade: 3
```

Sample output

```
Give points [0-100]:
95
Grade: 5
```

Sample output

```
Give points [0-100]:
-3
Grade: impossible!
```

Programming exercise:

Odd or even

Write a program that prompts the user for a number and informs us whether it is even or odd.

Sample output

```
Give a number:
2
Number 2 is even.
```

Sample output

```
Give a number:
7
Number 7 is odd.
```

Hint: The remainder when dividing by 2 tells us whether the number is even or not. We get the remainder using the `%`-operator. The exercise template contains additional instructions on how to do the checking using the remainder.

Programming exercise:

Password

Write a program that prompts the user for a password. If the password is "Caput Draconis" the program prints "Welcome!". Otherwise, the program prints "Off with you!"

Sample output

```
Password?
Wattlebird
Off with you!
```

Sample output

```
Password?
Caput Draconis
Welcome!
```

Programming exercise:

Same

Write a program that prompts the user for two strings. If the strings are the same, then the program prints "Same". Otherwise, it prints "Different".

Sample output

```
Enter the first string:
hello
Enter the second string:
hello
Same
```

Sample output

```
Enter the first string:
hello
Enter the second string:
world
Different
```

Programming exercise:

Checking the age

Write a program that prompts the user to input their age and checks whether or not it is possible (at least 0 and at most 120). Only use a single `if`-command in your program.

Sample output

```
How old are you? 10
OK
```

Sample output

```
How old are you? 55
OK
```

Sample output

```
How old are you? -3
Impossible!
```

Sample output

```
How old are you? 150
Impossible!
```

Programming exercise:

Leap year

A year is a leap year if it is divisible by 4. However, if the year is divisible by 100, then it is a leap year only when it is also divisible by 400.

Write a program that reads a year from the user, and checks whether or not it is a leap year.

Sample output

```
Give a year: 2011
The year is not a leap year.
```

Sample output

```
Give a year: 2012
The year is a leap year.
```

Sample output

```
Give a year: 1800
The year is not a leap year.
```

Sample output

```
Give a year: 2000
The year is a leap year.
```

Programming exercise:

Gift tax

A gift is a transfer of property to another person against no compensation or payment. If the total value of the gifts you receive from the same donor in the course of 3 years is €5,000 or more, you must pay gift tax.

When a gift is given by a close relative or a family member, the amount of gift tax is determined by the following table (source vero.fi):

Value of gift	Tax at the lower limit	Tax rate(%) for exceeding part
5 000 — 25 000	100	8
25 000 — 55 000	1 700	10
55 000 — 200 000	4 700	12
200 000 — 1 000 000	22 100	15
1 000 000 —	142 100	17

For example 6000€ gift implies 180€ of gift tax (100 + (6000-5000)_0.08), and 75000€ gift implies 7100€ of gift tax (4700 + (75000-55000) _ 0.12).

Write a program that calculates the gift tax for a gift from a close relative or a family member. This is how the program should work:

Sample output

```
Value of the gift?
3500
No tax!
```

Sample output

```
Value of the gift?
5000
Tax: 100.0
```

Sample output

Value of the gift?
27500
Tax: 1950.0