Exercises

Ex 1.

Write a program that:

1. Asks user to enter the price of a bus ticket
2. Asks user to enter the price of a taxi trip
3. Asks user to enter how much money he/she has
4. If user has not enough money for either type tells user to walk and then the program stops
5. Asks user to choose taxi or bus (use numbers for selection)
6. Checks if user has enough money for the selected trip type
   - If User has enough money reduce the money by the selected trip's price and print how much money is left, and go back to step 4
   - If user has not enough money for the selected trip type then tell that to user and go back to step 4

For example:

```
Enter price of bus ticket: 3.50
Enter price of taxi: 25.70
How much money you have: 30
You have 30.00 euros left.
Do you want to take
 1) bus (3.50 euros)
 2) taxi (25.70 euros)
Enter your selection: 2
You chose taxi.
You have 4.30 euros left.
Do you want to take
 1) bus (3.50 euros)
 2) taxi (25.70 euros)
Enter your selection: 2
You chose taxi.
You don't have enough money for taxi.
You have 4.30 euros left.
Do you want to take
 1) bus (3.50 euros)
 2) taxi (25.70 euros)
Enter your selection: 1
You chose bus.
You have 0.80 euros left.
You need to walk. Bye
```

Ex 2.

Write a program that defines two floating-point arrays of 12 elements each. The program then asks user to enter tax percentage and yearly income limit up to which the percentage applies to and the (greater) tax percentage that will be applied to income that is over the limit. Then program asks user to enter salary of each month and stores the values in the array. After user has entered all monthly salaries, the program calculates tax for each month.

The program prints all salaries with two decimal precision and the amount of tax for each month.

Example: (three dots indicates rows not shown in this example):

```
Enter tax rate: 18.0
Enter income limit: 10000
Enter tax rate for income over the limit: 36.0
Enter income for month 1: 998
...
Enter income for month 6: 1489.51
...
Enter income for month 12: 998
month     income      tax
    1      998.00    179.64
    2      998.00    179.64
...
    6     1489.51    268.11
...
   12      998.00    359.28
```

You need to get familiar with printf field width specifiers to complete this!

Note that decimal points must be aligned as shown above!

The tricky part is the month where (if) the total income goes over the limit. That month part of salary is taxed with lower rate and part of the salary with higher rate.

Ex 3.

That asks number of students and creates an array of that many integers.

Program then initializes the array elements to -1.

Then the program asks user to enter student number in range 1 – nr of students or zero to stop. If valid non zero number is given the program asks user to enter grade in the range 0-5 or -1 to not enter a grade for the student.

When user stops by entering 0 then program prints student numbers followed by grade or N/A if grade is -1.

For example:

```
How many students: 4

Enter student number (1 – 4) or 0 to stop: 1
Enter grade (0 – 5) for student 1 or -1 to cancel: 2

Enter student number (1 – 4) or 0 to stop: 6
Invalid student number!

Enter student number (1 – 4) or 0 to stop: 3
Enter grade (0 – 5) for student 3 or -1 to cancel: 7
Invalid grade!
Enter grade (0 – 5) for student 3 or -1 to cancel: 5


Enter student number (1 – 4) or 0 to stop: 2
Enter grade (0 – 5) for student 2 or -1 to cancel: -1

Enter student number (1 – 4) or 0 to stop: 0

Student    Grade
1          2
2          N/A
3          5
4          N/A
```