RECITATION 2

Q11. Write a program that asks the user to enter an amount of money (e.g. 13578) in euro and prints the corresponding number of notes (500, 200, 100, 50, 20, 10, 5) and coins (2, 1). Always use the minimal number of notes and coins possible.

Q12. Rewrite the previous program such that cents (50, 20, 10, 5, 2, 1) are also included (e.g. 13578,78). Be aware that the % operator can only be used with integer operands!

Q13. Consider an electrical circuit consisting of two series resistors R1 and R2. If a voltage U is applied to this circuit, the current flowing in this circuit will be $I = \frac{U}{R1+R2}$ according to Ohm's law. The voltage (V2) across the resistor R2 will then be defined by $V2 = I \,.\, R2$. Write a program that asks the user to enter the values for U, R1 and R2 and prints the values of I and V2 to the screen.

Q14. Write a program that reads 6 integer numbers and prints them in a table format with 3 rows and 2 columns such that lines are placed around the table and in between the numbers. The screen dialogue should look like:

```
Enter 6 integer numbers: 1 22 33 4 5 6

-------------
|   1 |  22 |
|-----------|
|  33 |   4 |
|-----------|
|   5 |   6 |
-------------
```

Q15. Write a program that asks the user to enter the invoice number, the number of products ordered and the price per unit. Calculate the total amount to be paid and print it to the screen. The screen should look like:

```
Enter invoice number: 12
Enter the number of products ordered: 50
Enter the price per unit: 599

INVOICE       NUMBER       PRICE/UNIT          TOTAL
12            50           599                 29950
```

Q16. Write a program that asks the user to enter an integer number with 3 digits and prints the number backwards.

Q17. Write a program that prints the date of Easter for a year entered by the user. Easter is held on the first Sunday after the first full moon of the spring. Easter is delayed by 1 week if the full moon is on Sunday. According to Jean Meeus, Spencer Jones and Butcher, the Easter date in year J can be calculated as follows (all divisions are integer divisions):

$$a = remainder\ of\ the\ division\ of\ J\ by\ 19$$
$$b = \frac{J}{100}$$
$$c = remainder\ of\ the\ division\ of\ J\ by\ 100$$
$$d = \frac{b}{4}$$
$$e = remainder\ of\ the\ division\ of\ b\ by\ 4$$
$$f = \frac{b+8}{25}$$
$$g = \frac{(b-f+1)}{3}$$
$$h = the\ remainder\ of\ the\ division\ of\ (19*a+b-d-g+15)\ by\ 30$$
$$i = \frac{c}{4}$$
$$k = the\ remainder\ of\ the\ division\ of\ c\ by\ 4$$
$$l = the\ remainder\ of\ the\ division\ of\ (32+2*e+2*i-h-k)\ by\ 7$$
$$m = \frac{(a+11*h+22*l)}{451}$$
$$month = \frac{h+l-7*m+114}{31}$$
$$day = 1 + the\ remainder\ of\ the\ division\ of\ (h+l-7*m+114)\ by\ 31$$

This formula is valid for the Gregorian calendar and as such only after 1582.

Some test values:

Year	Easter date
2005	March 27
2006	April 16
2007	April 8
2008	March 23
2009	April 12
2010	April 4
2011	April 24
2012	April 8
2013	March 31
2014	April 20