## Sheet 2: Class, Object, Constructor

1. Write a program in Java represent a bank account class with
   a) the following attributes:
      - õ account number
      - õ account name
      - õ balance
   b) the following methods:
      - õ constructor that take account name & number and setup balance by zero
      - õ deposit: which increment account balance by amount
      - õ withdraw: which decrease account balance by amount
      - õ get account balance: which return account balance
      - õ get account number: which return account number
      - õ get account name: which return the account name

   1.2. Write a Test Class which perform the following:
   a) create three bank accounts objects called savingAccount, currentAccount, loanAccount and
   b) deposit amounts 5000 , 2000 into 1st and 2nd account
   c) withdraw amount 1000 from 3rd account
   d) finally display updated info for each account as following:
      - õ account name/account number => balance
2. Write a program in Java represent rectangle class with
   a) the following attribute
      - õ length
      - õ height
   b) the following method:
      - õ User defined constructor (without parameters) which will set length & height by zero
      - õ user defined constructor which will take length & height as parameters
      - õ getArea: which return the rectangle area
      - õ getPerimeter: which return the rectangle perimeter

   2.2. Write a Test Class which perform the following:
   a) create rectangle objects rec1 using first default constructor
   b) create rectangle objects rec2 using second user defined constructor with 3,4 as length & height
   c) setup length & height of rec1 by 20, 30
   d) display the following for each rectangle :
      - õ rectangle 1or 1 followed by Area – Perimeter
   e) Assign rec1 to rec2

f) display the following for each rectangle :
   - rectangle 1or 1 followed by Area – Perimeter

g) change rec1 height to 40

h) change rec2 height to 50

i) display the following for each rectangle :
   - rectangle 1or 1 followed by Area – Perimeter

2.3. Draw UML for rectangle class

3. Compile the following program, and correct it if you found error:

```
public Class Computer{
        private int storage, used;
        public boolean checkStorage (int fileSize){
                int freeSpace= storage - used;
                if ( freeSpace >= fileSize)
                        return true;
                else
                        return false;
        }
        public void storeFile(int fileSize) {
                if(freeSpace > fileSize )
                        used += fileSize;
                else
                        System.out.println("Out of memory");
        }
}
```

4. Homework (to be delivered as report)

4.1. for the project you selected please start implement it as following:

a) Create your project classes with define
   - instance variables
   - instance methods
   - default and/or user defined constructor

b) Draw UML for your project classes