Sheet 2: Class, Object, Constructor

1. **Write a program in Java represent a bank account class with**
   a) **the following attributes:**
      - **account number**
      - **account name**
      - **balance**
   b) **the following methods:**
      - **constructor that take account name & number and setup balance by zero**
      - **deposit: which increment account balance by amount**
      - **withdraw: which decrease account balance by amount**
      - **get account balance: which return account balance**
      - **get account number: which return account number**
      - **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:**
      - **account name/account number => balance**
2. **Write a program in Java represent rectangle_class with**
   a) **the following attribute**
      - **length**
      - **height**
   b) **the following method:**
      - **default constructor (without parameters) which will set length & height by zero**
      - **user defined constructor which will take length & height as parameters**
      - **getArea: which return the rectangle area**
      - **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 :**

- **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**