BIL 141 Coursework 1

Deadline: 28th of February 2014 22:00

Objective

Implementing a calculator for complex numbers in java.

To Do

1. Create a new java source file and name it ***<YourInitials>_Karmasik***, e.g., if your name is Mehmet KAYA, it should be ***MK_Karmasik.java***. In this file, implement a class for complex numbers and 4 basic operations between them such that the following java code using your class should be valid and producing the output next to it. Note that you should prefix the word `Karmasik` with your initials in the code below, e.g., with prefix MK_ it turns out to be `MK_Karmasik`.

```
public static void main(String [] args)
{
  Karmasik k1 = new Karmasik(-1.1,0.0);
  Karmasik k2 = new Karmasik(0,-1);
  Karmasik k3 = new Karmasik(-1,1);
  Karmasik k4 = new Karmasik(1,-1);
  Karmasik sonuc;

  sonuc = k1.Arti(k2); // sonuc = k1 + k2
  System.out.println("(" + k1 + ") + " + "(" + k2 + ") = " + sonuc);
  sonuc = k3.Arti(k4); // sonuc = k3 + k4
  System.out.println("(" + k3 + ") + " + "(" + k4 + ") = " + sonuc);

  sonuc = k1.Eksi(k2); // sonuc = k1 - k2
  System.out.println("(" + k1 + ") - " + "(" + k2 + ") = " + sonuc);
  sonuc = k3.Eksi(k4); // sonuc = k3 - k4
  System.out.println("(" + k3 + ") - " + "(" + k4 + ") = " + sonuc);

  sonuc = k1.Carpi(k2); // sonuc = k1 * k2
  System.out.println("(" + k1 + ") * " + "(" + k2 + ") = " + sonuc);
  sonuc = k3.Carpi(k4); // sonuc = k3 * k4
  System.out.println("(" + k3 + ") * " + "(" + k4 + ") = " + sonuc);

  sonuc = k1.Bolu(k2); // sonuc = k1 / k2
  System.out.println("(" + k1 + ") / " + "(" + k2 + ") = " + sonuc);
  sonuc = k3.Bolu(k4); // sonuc = k3 / k4
  System.out.println("(" + k3 + ") / " + "(" + k4 + ") = " + sonuc);
}
```

```
(-1.1) + (-i) = -1.1 - i
(-1.0 + i) + (1.0 - i) = 0.0
(-1.1) - (-i) = -1.1 + i
(-1.0 + i) - (1.0 - i) = -2.0 + 2.0i
(-1.1) * (-i) = 1.1i
(-1.0 + i) * (1.0 - i) = 2.0i
(-1.1) / (-i) = -1.1i
(-1.0 + i) / (1.0 - i) = -1.0
```

2. Create another java source file and name it ***st<YourStudentNumber>***, e.g., if your student number is 111117705, it should be ***st111117705.java***.
3. Enter your name, surname and student id as comment at the beginning of the file.
4. Insert the `main` method to this file and write a program such that it works as shown in the output below:

```
****************************************
**    B I L - 1 4 1   O D E V   1     **
**    K a r m a s i k     S a y i     **
**    H e s a p   M a k i n e s i     **
****************************************

          M  E  N  U
      ==================
      1.   T O P L A M A
      2.   C I K A R M A
      3.   C A R P M A
      4.   B O L M E

      5.   C I K I S

Islem turunu seciniz (1,2,3,4,5) : 8
Lutfen 1 ile 5 arasinda bir sayi giriniz (1,2,3,4,5) : 11
Lutfen 1 ile 5 arasinda bir sayi giriniz (1,2,3,4,5) : -2
Lutfen 1 ile 5 arasinda bir sayi giriniz (1,2,3,4,5) : 1


************************************************
1. karmasik sayinin reel ve sanal degerleri : 1 0.0
2. karmasik sayinin reel ve sanal degerleri : -2 -1
(1.0) + (-2.0 - i) = -1.0 - i
************************************************

Lutfen devam etmek icin <Enter> tusuna basiniz!


****************************************
**    B I L - 1 4 1   O D E V   1     **
**    K a r m a s i k     S a y i     **
**    H e s a p   M a k i n e s i     **
****************************************

          M  E  N  U
      ==================
      1.   T O P L A M A
      2.   C I K A R M A
      3.   C A R P M A
      4.   B O L M E

      5.   C I K I S

Islem turunu seciniz (1,2,3,4,5) : 1


************************************************
1. karmasik sayinin reel ve sanal degerleri : 1.0 0.0
2. karmasik sayinin reel ve sanal degerleri : -1 -1
(1.0) + (-1.0 - i) = -i
************************************************

Lutfen devam etmek icin <Enter> tusuna basiniz!


****************************************
**    B I L - 1 4 1   O D E V   1     **
**    K a r m a s i k     S a y i     **
**    H e s a p   M a k i n e s i     **
****************************************
```

```
          M  E  N  U
       ==================
       1.   T O P L A M A
       2.   C I K A R M A
       3.   C A R P M A
       4.   B O L M E

       5.   C I K I S

Islem turunu seciniz (1,2,3,4,5) : 2


************************************************
1. karmasik sayinin reel ve sanal degerleri : 5 -1.1
2. karmasik sayinin reel ve sanal degerleri : 1.1 -1.1
(5.0 - 1.1i) - (1.1 - 1.1i) = 3.9
************************************************

Lutfen devam etmek icin <Enter> tusuna basiniz!


****************************************
**    B I L - 1 4 1   O D E V   1     **
**    K a r m a s i k     S a y i     **
**    H e s a p   M a k i n e s i     **
****************************************

          M  E  N  U
       ==================
       1.   T O P L A M A
       2.   C I K A R M A
       3.   C A R P M A
       4.   B O L M E

       5.   C I K I S

Islem turunu seciniz (1,2,3,4,5) : 3


************************************************
1. karmasik sayinin reel ve sanal degerleri : -1 1
2. karmasik sayinin reel ve sanal degerleri : 0 -1
(-1.0 + i) * (-i) = 1.0 + i
************************************************

Lutfen devam etmek icin <Enter> tusuna basiniz!


****************************************
**    B I L - 1 4 1   O D E V   1     **
**    K a r m a s i k     S a y i     **
**    H e s a p   M a k i n e s i     **
****************************************

          M  E  N  U
       ==================
       1.   T O P L A M A
       2.   C I K A R M A
       3.   C A R P M A
       4.   B O L M E

       5.   C I K I S

Islem turunu seciniz (1,2,3,4,5) : 4
```

```
**********************************************
1. karmasik sayinin reel ve sanal degerleri : 1 -1.0
2. karmasik sayinin reel ve sanal degerleri : -1 1
(1.0 - i) / (-1.0 + i) = -1.0
**********************************************

Lutfen devam etmek icin <Enter> tusuna basiniz!


**************************************
**    B I L - 1 4 1   O D E V   1     **
**    K a r m a s i k     S a y i     **
**    H e s a p   M a k i n e s i     **
**************************************

          M  E  N  U
       ==================
       1.   T O P L A M A
       2.   C I K A R M A
       3.   C A R P M A
       4.   B O L M E

       5.   C I K I S

Islem turunu seciniz (1,2,3,4,5) : 6
Lutfen 1 ile 5 arasinda bir sayi giriniz (1,2,3,4,5) : 5

Program sona erdi, lutfen <Enter> tusuna basiniz!
```

Deadline & Submission Rules

The deadline of the coursework is 28th of February 2014 22:00. Send your *.java* files to bil141etu@gmail.com. The subject of the mail should be like ***BIL 141 Coursework 1 – Name Surname***.

Example Filenames: *st111117705.java* and *MK_Karmasik.java*
Example Subject: *BIL 141 Coursework 1 – Mehmet KAYA*

Cautions

- No coursework will be accepted after the deadline, **definitely**.
- Not observing submission rules may make your coursework **invalid**.
- Shared or not-done-by-yourself coursework will make not only your mark for this coursework but your **overall** coursework mark 0.