PROGC Praktikum 3 – Erstes Modulares Programm in C

Aufgabe 1: Dreieck Rechtwinklig?

Schreiben Sie die drei Java Files {read.java, rectang.java, triangle.java} in drei entsprechende C Files um. Die Java Files sin im OLAT im original zu finden.

read.java:

```
public class read {
    public int getInt()
        throws java.io.IOException
    {
            int j, i, word, retval;
        byte[] inp = new byte[100];
            byte bb = 0;
        boolean flag = true;

        word = 0;
        retval = -1;
        j = 0;
        // read up to EOL (10d) or EOF (-1d)
        bb = (byte) System.in.read();
            while ((bb != 10) && (bb != -1)) {
            inp[j] = (byte)(bb);
            j++;
                    bb = (byte) System.in.read();
        }
        inp[j] = bb;    // last byte must EOL or EOF
        // check for numbers
        j = 0;
        flag = true;
        while ((inp[j] != 10) && (inp[j] != -1)) {
            if ((inp[j] < 48) || (inp[j] > 57))
                flag = false;
            j++;
        }
        // if numbers and not EOF: convert to decimal
        //  else return -2 on EOF, -1 on error
        if ((flag == true) && (inp[j] != -1)) {
            word = 0;
                    for (i = 0; i < j; i++)
                        word = 10 * word + inp[i] - 48;
            if (word > 0)
                retval = word;
            else
                retval = -1;
        }
        else {
            if (inp[j] == -1)
                retval = -2;
            else
                retval = -1;
        }
        return retval;
    }
}
```

rectang.java

```
public class rectang {

        public boolean Rectangular(int a, int b, int c) {

                boolean flag;
                int aS, bS, cS;

                aS = a*a; bS = b*b; cS = c*c;
                flag = false;
                if ((aS + bS) == cS)
                        flag = true;
                else if ((aS + cS) == bS)
                        flag = true;
                else if ((bS + cS) == aS)
                        flag = true;
        if ((a == 0) && (b == 0) && (c == 0))
            flag = false;
                return flag;
        }
}
```

triangle.java -> overleaf

```
class triangle {
    public static void main(String[] args)
        throws java.io.IOException
    {
        int word, a, b, c;
        boolean flag;

        read ReadInt = new read();
        rectang Rect = new rectang();
        a = 0; b = 0; c = 0;
        flag = true;
        word = -1;
        System.out.println("\nDreiecksbestimmung\n");
        while (flag == true) {
            do {
                System.out.print("Seite a: ");
                word = ReadInt.getInt();
            }
            while ((word < 0) && (word != -2));

            if (word >= 0)
                a = word;
            else
                break;

                        do {
                            System.out.print("Seite b: ");
                                word = ReadInt.getInt();
            }
                        while ((word < 0) && (word != -2));

                        if (word >= 0)
                                b = word;
            else
                break;

                         do {
                             System.out.print("Seite c: ");
                                 word = ReadInt.getInt();
             }
                         while ((word < 0) && (word != -2));

                         if (word >= 0)
                                 c = word;
             else
                 break;

             if (Rect.Rectangular(a, b, c) == true)
                 System.out.println("-> Dreieck rechtwinklig");
             else
                 System.out.println("-> Dreieck nicht rechtwinklig");
             System.out.println("\n");
         }
         System.out.println("\n\nbye bye\n");
    }

}
```