i>   "IITK".charAt(0)

This is a perfectly legitimate expression. Here "IITK" is a string constant.

ii>   String S= new String("IITK");

If(S=="IITK")← Here this expression evaluated to false because what is being compared here are the references of the 2 objects and not their actual values.

Instead, the correct way to compare 2 strings is:
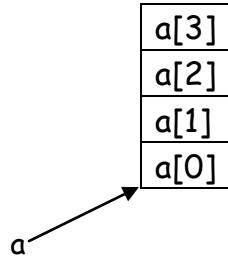
"IITK".compareTo(S); OR

S.compareTo("IITK");

Arrays

-Arrays are objects in Java.

-An integer array can be defined as **int[] a** OR **int a[]**

- 'int[] a' defines a reference to an integer type array. This reference is initialized to null implicitly.

- To define an integer array:

    int[] a = new int[4]; ← This defines an integer array of size 4.

- Index operator '[ ]' – Index operator is used to access an element of an array. For eg. a[0] will access the first element of the array 'a'.

    So here 'a' is a reference to an array and there can be any expression inside '[ ]' which evaluates to an integer.

- Lets see an example with arrays-

    Problem: Read integers from standard input, store them in an integer array and then find the maximum number from the integer array.

```
import java.util.Scanner;
public class myclass
{
        final int MAX=20;
        public static void main(String a[])
        {
            int i=0;
            int items[] = new int[MAX];
           Scanner s = new Scanner(System.in);
           while((i<MAX) && (s.hasNextInt()))
           {
                items[i] = s.nextInt();
                i++;
           }
          if(i==0)
             System.out.println("No Numbers");
          else
          {
                int maxVal=items[0];
                for(int j=1; j<i; j++)
                {
                        if(items[j]>maxVal)
                              maxVal = items[j];
                }
                System.out.println("The maximum value is:"+maxVal);
          }
       }
   }
```

In this program, we initialize the variable 'maxVal' with items[0]. The next 'for' loop starts with index 1 and goes upto i-1. In the 'for' loop if we get an items[j] which is greater than the current 'maxVal' then we assign maxVal with the corresponding items[j]. Finally after exiting the 'for' loop we print the 'maxVal'.

  Alternate Logic: we can assign the maximal possible negative int to maxVal and then run the next 'for' loop from index 0 to i-1.