String → sequence of characters

System.out.print ("Hello world");

data types → int , long, float , double , boolean, char

what are characters ?

A - Z → uppercase character

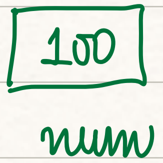
a - z → lowercase characters

;, , (, { , & . %, @ , *, # → special character

0 – 9 → numeric characters

" Hello 012 " → space is also a character

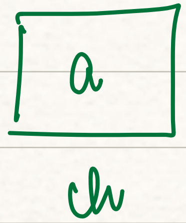
```
int num = 100;
```



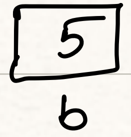
```
char ch = 'a';
```

char ↓ datatype

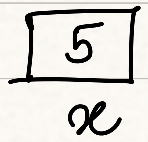
ch ↓ name

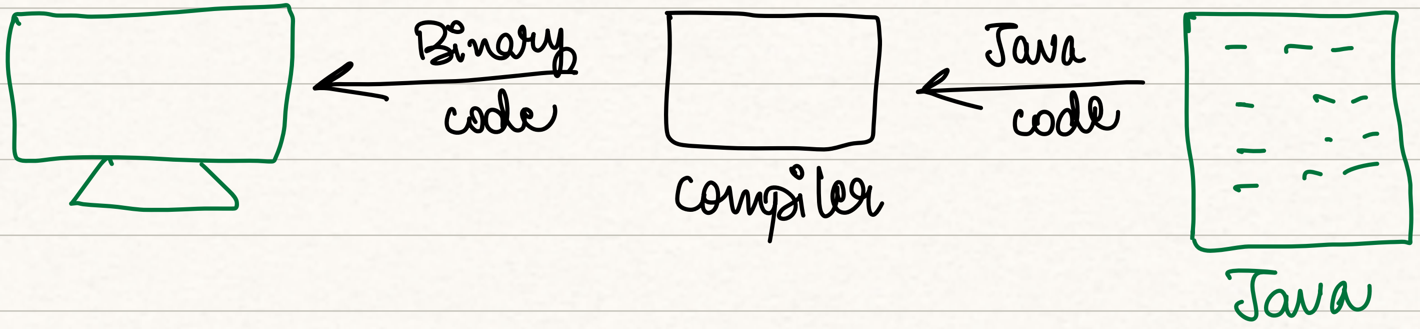


```
int b = 5;
```



```
int x = b;
```





```
int num = 100 ;
```

100 → Binary

0	→ 000
1	→ 001
2	→ 010
3	→ 011

$$\begin{tikzcd}
\text{Char} \arrow[rr] \arrow[dr] & & \text{Binary} \\
& \text{number} \arrow[ur] &
\end{tikzcd}$$

Sundar	Nakul	Debjit
a → 0	a → 1	a → 2
b → 1	b → 2	b → 4
c → 2	c → 3	c → 6
⋮	⋮	⋮ ⋮
z → 25	z → 26	

ASCII codes → American standard code for information interchange

char → integer value associated

↓

ASCII code

'A' → 65	'a' → 97	'0' → 48
'B' → 66	'b' → 98	'1' → 49
'C' → 67	'c' → 99	'2' → 50
⋮	⋮	⋮
		'9' → 57
'Z' → 90	'z' → 122	

```
String str = " Hello World ";
               0 1 2 3 4 5 6 7 8 9 10

S.OP. (str. length ( )); → 11
```

length = n

indexes → 0 to n-1

// find a character at any index

```
str. charAt ( 6 ); → W
                ↳ index
```

Note → we cannot change the char present at any index

Error

```
str. char At (-1); → Index Out of Bound
```

Ques. Given a string, count the total no. of uppercase characters and return the count.

String	Output
JaVA CodE	5
PrIyanShI	4

i → 0 to 5

i	ch	count
0	C ✓	1
1	o	1
2	D	2
3	i	2
4	N	3
5	G	4

6 → break

str → CoDiNG
0 1 2 3 4 5

$[\overset{65}{A} - \overset{90}{Z}]$

$'A' \le ch \le 'Z'$

ch >= 'A' && ch <= 'Z'

```
int  countCAPS (String str) {

        int  count = 0 ;
        int  n =  str.length () ;

    for ( int  i = 0  ;  i < n ;   i++  )  {
            char  ch =   str.charAt (i);

        if ( ch ≥ 'A'  &&  ch <= 'Z' ) {
               count ++ ;
        }
    }
    return  count ;
}
```

Ques. Given a string, reverse the string and return it.

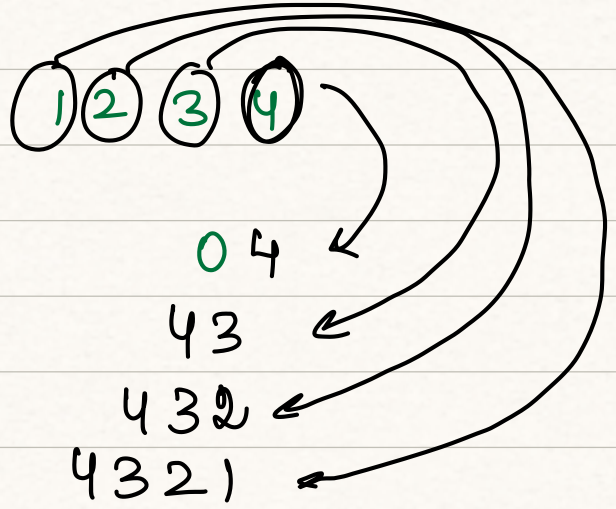
String	ans
lcap	pacl
java	avaj
nun	nun
abcd	dcba

str = " a b c d "
0 1 2 3

rev = " ";

i → n-1 to 0

reverse a number



i	ch	rev
3	'd'	" "+d = "d"
2	'c'	"d"+'c' = "dc"
1	'b'	"dc"+b="dcb"
0	'a'	"dcb"+'a'="dcba"
-1	→	break

```
String reverse (String str){

        int n = str.length();

        String rev = " ";
      for( int i= n-1 ;   i>=0;   i--) {

                char ch = str.charAt(i);
                  rev = rev + ch;
      }
        return rev;

}
```

      01234
str = "Hello"

n = 5

rev = " "

i	ch	rev
4	o	" "+"o" = "o"
3	l	"o"+'l' = "ol"
2	l	"ol"+'l' = "oll"
1	e	"oll"+'e' = "olle"
0	H	"olle"+'H' = "olleH"

"Hey"
0 1 2

" " + y → "y"
y + e → ye
ye + H → yeH

rev = "";

i=2 ch = y rev = rev + 'y' = " " + 'y' = "y"
i=1 ch = e rev = "y" + 'e' = "ye"
i=0 ch = H rev = "ye" + 'H' = "yeH"

Doubts

frequency count

5	2	5	1	4	2

ans =

2	2	2	1	1	2

5	2	5	1	4	2
0	1	2	3	4	5

i = ~~0~~ ~~1~~ ~~2~~ ~~3~~ ~~4~~ 5

count = ~~1~~ 2

check at every index if the element is equal to 5

```
    ArrayList<Integer> ans = new ArrayList<>();
  for (int i=0; i< A.size(); i++) {
          int count=0;
        for (int j=0; j< A.size(); j++) {
                if (A.get(i).equals(A.get(j))) {
                   count++;
                }
        }
        ans.add (count);
}
return ans;
```

list . add (1);	list : [1]
list . add (2) ;	list : [1 , 2]
list . add (3);	list : [1 , 2 , 3]
	0 1 2
list . add (i , 47);	list : [1 , 47 , 2 , 3]
↓ index ↓ element	0 1 2 3
list . add (4 , 48);	list : [1 , 47 , 2 , 3 , 48]

1	2	3	4
0	1	2	3

1 * 2 * 3 * 4

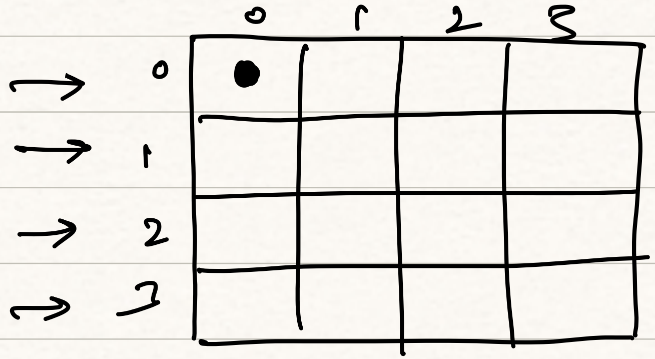
```
prod*arr.get(i);
```

```
S.O.P (al);
```

[1, 2, 3, 4]

```
for ( int i = 0; i<al.size();i++)

    S.O.P ( al.get(i) );
```



```
for( int i = 0; i < A .size(); i++){
                  A [i][0]
         int max = A.get(i).get(0);


}
```