# ↳ logic / concept

Goal :- to convert char of number to int of number

means '6' ⟶ 6

```
char ch = '6';

int num = ch - '0'
        = 6
```

'0' → 48
'1' → 49
'2' → 50
'3' → 51
⋮
'9' → 57

# → same logic for alphabets

## ↳ small case

```
char ch = 'd'
int idx = ch - 'a'
        = 'd' - 'a'
          (100)  (97)
        = 3
```

'a' → 97
'b' → 98
'c' → 99
'd' → 100
'e' → 101
.
.
.
'z' → 122

index

| a | b | c | d | ---------- | z |
|---|---|---|---|---|---|
| 0 | 1 | 2 | 3 | ---------- | 25 |

→ same logic for alphabets

↳ capital case

```
char ch = 'E'
int idx = ch - 'A'
        = 'E' - 'A'
          (69)  (65)
        = 4
```

table

'A' → 65
'B' → 66
'C' → 67
'D' → 68
⋮
'Z' → 90

index

| A | B | C | D | E | ------ | Z |
|---|---|---|---|---|---|---|
| 0 | 1 | 2 | 3 | 4 | ---------- | 25 |

# Toggle the character

e.g.,  i/p , ch = 'd' ⟶ 'D'

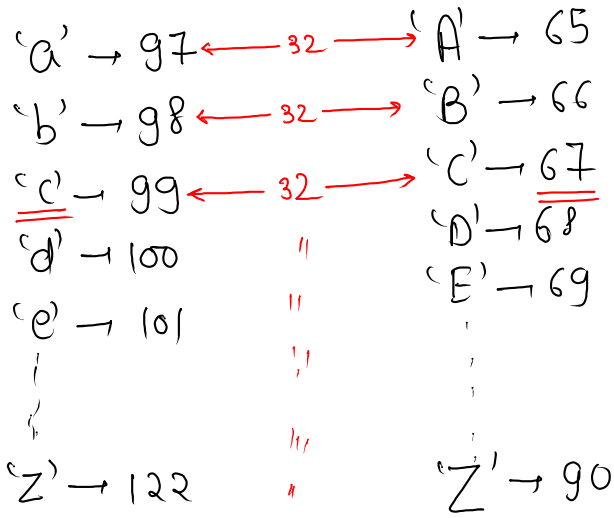
ch = 'Z' ⟶ 'z'

ch = 'i' ⟶ I

↳ using inbuilt functions

```
public static void main(String[] args) {
    Scanner scn = new Scanner(System.in);
    char ch = scn.next().charAt(0);

    if ( ch >= 'a' && ch <= 'z' ) {
        char ans = Character.toUpperCase(ch);
        System.out.println(ans);
    } else if ( ch >= 'A' && ch <= 'Z' ) {
        char ans = Character.toLowerCase(ch);
        System.out.println(ans);
    }
}
```




input

char ch = 'a'

char ans = (char)(ch - 32);

ch = 'd' , ans = (char)('d' - 32)
= (char) (68)
= 'D'

ch = 'z' , ans = (char)('z' - 32)
= (char) (122 - 32)
= (char) (90)
= 'Z'

code

```
public static void main(String[] args) {
    Scanner scn = new Scanner(System.in);
    char ch = scn.next().charAt(0);

    if ( ch >= 'a' && ch <= 'z' ) {
        char ans = (char)( ch - 32 );
        System.out.println(ans);
    } else if ( ch >= 'A' && ch <= 'Z' ) {
        char ans = (char)( ch + 32 );
        System.out.println(ans);
    }
}
```

# Print character at 3rd index

```
public static void main(String[] args) {
    Scanner scn = new Scanner(System.in);
    String str = scn.nextLine();

    int n = str.length();
    if ( n >= 4 ) {
        System.out.println( str.charAt(3) );
    } else {
        System.out.println( "Small string" );
    }
}
```

# Concatenation

String str1 = "abc";

String str2 = "ABC";

String ans1 = str1 + str2;

( ans1 = "abcABC" )

String ans2 = str2 + str1;

( ans2 = ABCabc )

Code

```
public static void main(String[] args) {
    String str1 = "abc";
    String str2 = "ABC";
    System.out.println( str1 + str2 );
    System.out.println( str2 + str1 );
    System.out.println( str1 + str1 );
    System.out.println( str1 + " , " + str2 );
}
```

# Concatenate_Two_Strings

```
public static void main(String[] args) {
    Scanner scn = new Scanner(System.in);
    String str1 = scn.nextLine();
    String str2 = scn.nextLine();

    String ans = str1 + str2;
    System.out.println(ans);
}
```

# string concatenate 2

short + long + short

```
public static void main(String[] args) {
    Scanner scn = new Scanner(System.in);
    String str1 = scn.nextLine();
    String str2 = scn.nextLine();

    if ( str1.length() < str2.length() ) {
        System.out.println( str1 + str2 + str1 );
    } else {
        System.out.println( str2 + str1 + str2 );
    }
}
```

# Loops

→ to run a particular piece of code multiple time

→ Types

- for loop
- while loop
- do while loop
- forEach loop

# ⇒ For loop

## syntex

```
for( initialisation ; condition ; increment/decrement )
```

- initialisation → initialise a starting variable
- condition → stopping condition
- increment/decrement → no. of steps

Ex!-

1
2
3
4
5
|
10

# loop

```
for ( int i = 1 ;  i <= 10 ; i++) {
        Syso( i );
}
```

100

# GKSTR09 Print_Range

```
public static void main(String[] args) {
    Scanner scn = new Scanner(System.in);
    int n = scn.nextInt();

    for (int i = 1; i <= n; i++) {
        System.out.println(i);
    }
}
```