Type Casting :- converting one data type into another

Implicit :- which converts automatically

Ex:-

```
int val = 'd' + 1;
val = 101
```

Explicit :- which we have to perform forcefully

Ex:-

```
char val = 'd' + 1;
char val = (char) 101;
char val = 'e'
```

Ques Input will be a character type of digit from 0 to 9, which we have to convert to int

char ch = '2' ;

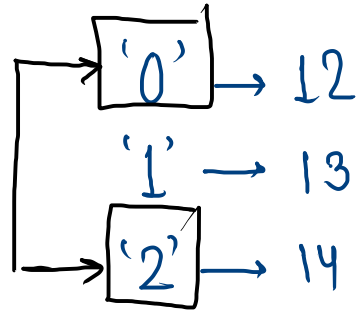
int ans = 2

$$ans = ch - '0'$$

$$= '2' - '0'$$

$$= 2$$

assuming



'3' → 15
'4' → 16
'5' → 17
'6' → 18
'7' → 19
'8' → 20
'9' → 21

Print character at 3rd index

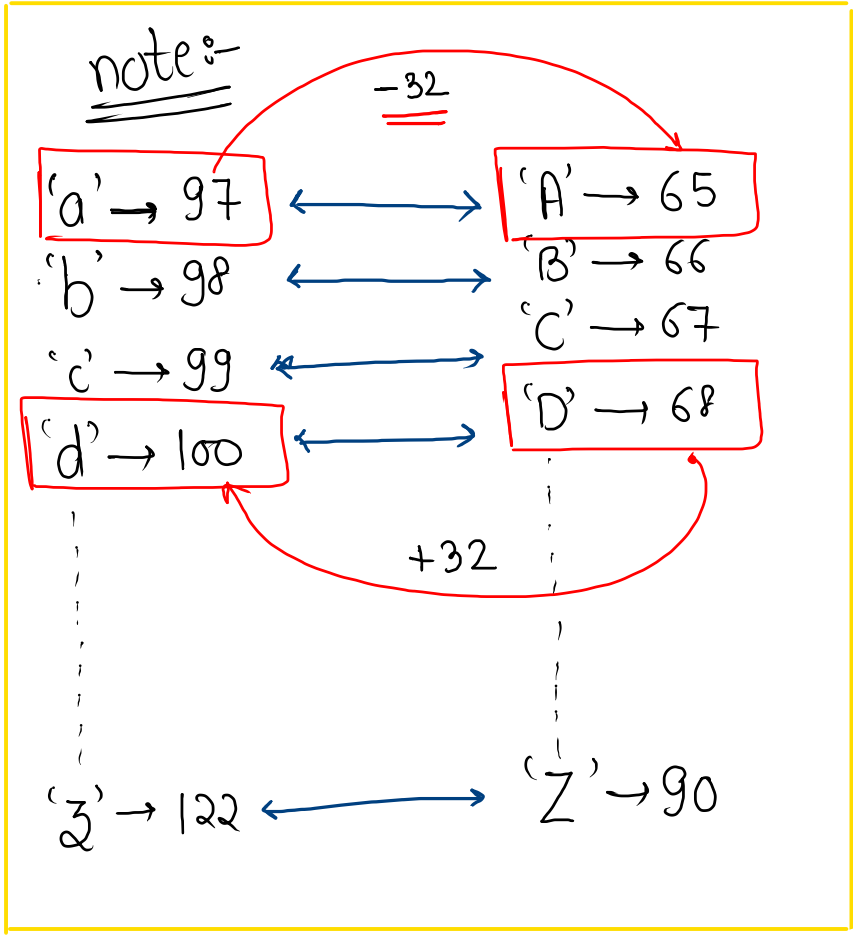
```
public static void main(String[] args) {
    Scanner scn = new Scanner(System.in);
    String str = scn.nextLine();

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

Toggle the character

ch = 'a' ⟶ 'A'

psudo code (Blueprint of actual code)

1) take input a char
2) check if ch is lower case
   2.1) convert to upper case
3) check if ch is upper case
   3.1) convert to lower case



Code

```java
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 {
        char ans = (char)(ch + 32);
        System.out.println(ans);
    }
}
```

⇒ Concatenation (+)

```
String str1 = "abc";
String str2 = "ABC";

String ans1 = str1 + str2;   // "abcABC"

String ans2 = str2 + str1;   // "ABCabc"

String ans3 = str1 + "XYZ" + str2;   // "abcXYZABC"

String ans4 = str1 + 45;   // "abc45"
                           // 0 1 2 3 4

String ans5 = str1 + " " + str2;   // "abc ABC"
                                   // 0 1 2 3 4 5 6
```

Concatenate_Two_Strings

str1 = "abc_ABC"

str2 = "efg"

str1 + str2 = "abc ABCefg"

code

```
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

str1 = "abc" ; // 3

str2 = "ef" ; // 2

psudo code

1) take 2 strings as input (str1 & str2)
2) find length of both strings (len1 & len2)
3) compare len for bigger and smaller string
4) len1 > len2
   4.1) print (str2 + str1 + str2)
5) len2 > len
   5.1) print (str1 + str2 + str1)

code

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

    int len1 = str1.length();
    int len2 = str2.length();

    if (len1 > len2) {
        String ans = str2 + str1 + str2;
        System.out.println(ans);
    } else if ( len1 < len2 ) {
        String ans = str1 + str2 + str1;
        System.out.println(ans);
    }
}
```

⇒ Loops (M. Imp)

↳ used to execute a piece of code multiple times

Types of loop :-

- for loop ✡
- while loop
- do while loop
- for each loop

⇒ for loop

Syntax:-

```
for ( initialization ; condition ; upgradation ) {
    // statement
}
```

Initialization :- from where to start

Condition :- when to stop

Upgradation :- by how much to move

(Note:- all 3 are optional)

Ex:-

```
for ( int i = 0 ; i < 10 ; i++ ) {
        Syso(i);
}
```

i = 0 , (0 < 10)
i = 1 , (1 < 10)
i = 2 , (2 < 10)
.....
i = 8 , (8 < 10)
i = 9 , (9 < 10)
i = 10 , (10 < 10) X

console

0
1
2
3
4
5
6
7
8
9

Print 2,9,16...

n = 30 , series = 2, 9, 16, 23, 30, 37, 44, ...

Ex:-

```
for( int i=2 ; i<=n ; i+=7){
    Syso(i);
}
```

one liner :- from 2 to n by +7

Code

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

    for (int i = 2; i <= n; i += 7) {
        System.out.println(i);
    }
}
```

Print 3 7 11 15...

n = 30 , series :- 3, 7, 11, 15, 19, 23, 27

Code

```
for( int i=3; i < n ; i+=4 ){
        Syso(i);
}
```

Note:- from 3 to (n-1) by +4

Print n to 1

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

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

Note:- from n to 1 by -1

Print n to 0

Note:- from n to 0 by -1

```
for ( int i=n ; i >= 0 ; i--){
        Syso (i);
}
```