★ Type conversion :

- To convert the datatype of value to another datatype.
- type of NaN - number
  type of null - object
- Number ("1abc234") - NaN

★ when ever performing arithmetic operations b/w a and b always ensure that a & b are numbers.

- String (1257) - "1257"
  Number ("1257") - 1257

Boolean(0)
Boolean (undefined)
Boolean (null)
Boolean (NaN)
Boolean ("")

} only these are false

★ Type Coercion:

→ "23" + 10

↓ automatic type conversion by JS

"23" + "10"

↓ simple addition of strings (concatenation)

2310

★ string + number ⇒ string + string

→ "23" + 10 + 5

↓ type coercion

"23" + "10" + 5

↓ add

"2310" + 5

↓ type coercion

"2310" + "5"

↓ add

"23105"

→ "23" - "10" - 3

type coercion

23 - 10 - 3

subtract

13 - 3

subtract

10

→ "23" / 2

23/2 = 11.5

→ "23" + 2

23 + 2

46

* subtracting two string is not possible hence auto convert by JS to numbers

**

```
224  let n = "1" + 1;
225  console.log(n, typeof n);
226  n--;
227  console.log(n, typeof n);
```

"1" + 1

"1" + "1"

"11"

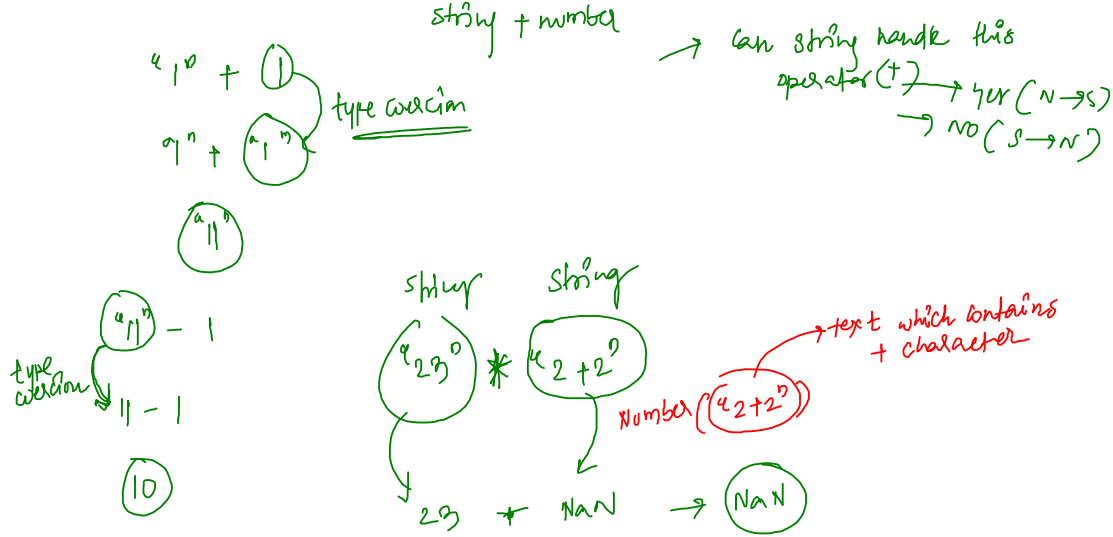
11 string

10 number

"11" - - ("11" - 1)

11 - 1

10


string + number
can string handle this operator (+)
yes (N → S)
no (S → N)
"1" + 1
type coercion
"1"
"1" + "1"
"11"
"11" - 1
type coercion
11 - 1
10
string
string
"23" * "2+2"
text which contains + character
Number("2+2")
23 * NaN
NaN

★ if-else :

```
267  const day = "monday";
268  if (day == "monday") {
269    console.log("I have to go to movie");
270  } else {
271    console.log("I do not know what to do");
272  }
273  if (day == "monday") {
274    console.log("I have to go for shopping");
275  }
276  if (day == "tuesday") {
277    console.log("I have an exam");
278    console.log("I have to attend a wedding");
279  } else {
280    console.log("I do not know what to do");
281  }
282
283  console.log("outside if-else");
```

day == "monday" (True)

day == "monday" (True)

day == "Tuesday" (False)

"I have to go to movie"

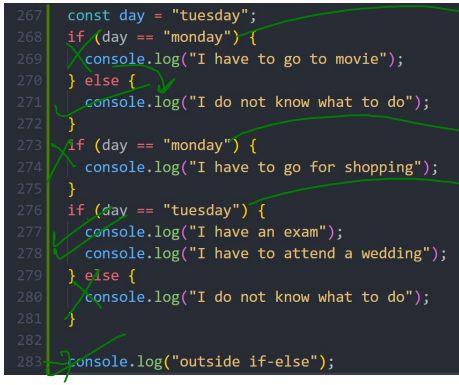
"I have to go for shopping"

"I do not know what to do"

"outside if-else"

(immediate/nearest)

★ else is only executed if its previous if condition is false.


const day = "tuesday";
if (day == "monday") {
console.log("I have to go to movie");
} else {
console.log("I do not know what to do");
}
if (day == "monday") {
console.log("I have to go for shopping");
}
if (day == "tuesday") {
console.log("I have an exam");
console.log("I have to attend a wedding");
} else {
console.log("I do not know what to do");
}
console.log("outside if-else");
day == "monday" (False)
day == "monday" (False)
day == "Tuesday" (True)
"I do not know what to do"

★ Scope of a variable :

```
const birthYear = 2001;
if (birthYear <= 2000) {
  let century = 20;
} else {
  let century = 21;
}
console.log(century);
```

2001 <= 2000 (F)

century → 21

{ // code block }

21

→ variables have a region, the variables created inside a block of code are not accessible outside the block

```
const birthYear = 2001;
let century;
if (birthYear <= 2000) {
  century = 20;
} else {
  century = 21;
}
console.log(century);
```

(F)

21

century → 21

block

else { ... fence / jail ... }

☆ else-if statement :

```
295  const day = "monday";
296
297  if (day == "monday") {
298    console.log("Plan course structure");
299  } else if (day == "tuesday") {
300    console.log("Prepare for exams");
301  } else if (day == "wednesday") {
302    console.log("Write examples for coding lectures");
303  } else if (day == "thursday") {
304    console.log("Watch recordings");
305  } else if (day == "friday") {
306    console.log("solve assignments");
307  } else if (day == "saturday") {
308    console.log("Revise all notes");
309  } else if (day == "sunday") {
310    console.log("attempt contest");
311  } else {
312    console.log("Please enter a valid day");
313  }
```

→ else if works same as else that means you will go to else if only when its immediate previous if is false.

✱ logical operators :

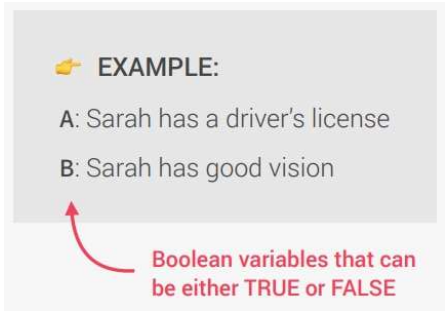
A and B ⇒ both statements should satisfy
→ should be true

A and B

A \ B	TRUE	FALSE
TRUE	True	False
FALSE	False	False

true when all are true

canSaraDrive = driverslicense AND goodVision



Can sarah drive

driverslicense goodvision

① Anurag and rohan are going to a movie → T

② Anurag or Rohan are going to a movie → T

A or B → either one of the statement should satisfy

⇒ atleast one statement should be true

Akram → theatre

① (Both Anurag, Rohan not there)

② (Anurag, Rohan, Anurag, Rohan)

A OR B

*"Sarah has a driver's license **OR** good vision"*

B \ A	TRUE	FALSE
TRUE	TRUE	TRUE
FALSE	TRUE	FALSE

`true` when **ONE** is `true`

👉 **EXAMPLE:**

A: Sarah has a driver's license

B: Sarah has good vision

Boolean variables that can be either TRUE or FALSE

⇒ A or B or C or D

⇒ F or F or F or T → T

⇒ F or F or F and T → F

⇒ T and T and T and T → T

A OR B

*"Sarah has a driver's license **OR** good vision"*

B \ A	TRUE	FALSE
TRUE	TRUE	TRUE
FALSE	TRUE	FALSE

`true` when **ONE** is `true`

NOT A, NOT B

Inverts `true`/`false` value

EXAMPLE:

A: Sarah has a driver's license

B: Sarah has good vision

Boolean variables that can be either TRUE or FALSE

NOT (True) → false

NOT (false) → True

BOOLEAN VARIABLES

`age = 16`

- A: Age is greater or equal 20 → `false`
- B: Age is less than 30 → `true`

LET'S USE OPERATORS!

- `!A` (`false`) → `true`
- `A AND B` (`false` `true`) → `false`
- `A OR B` (`false` `true`) → `true`
- `!A AND B` (`true` `true`) → `true`
- `A OR !B` (`false` `false`) → `false`