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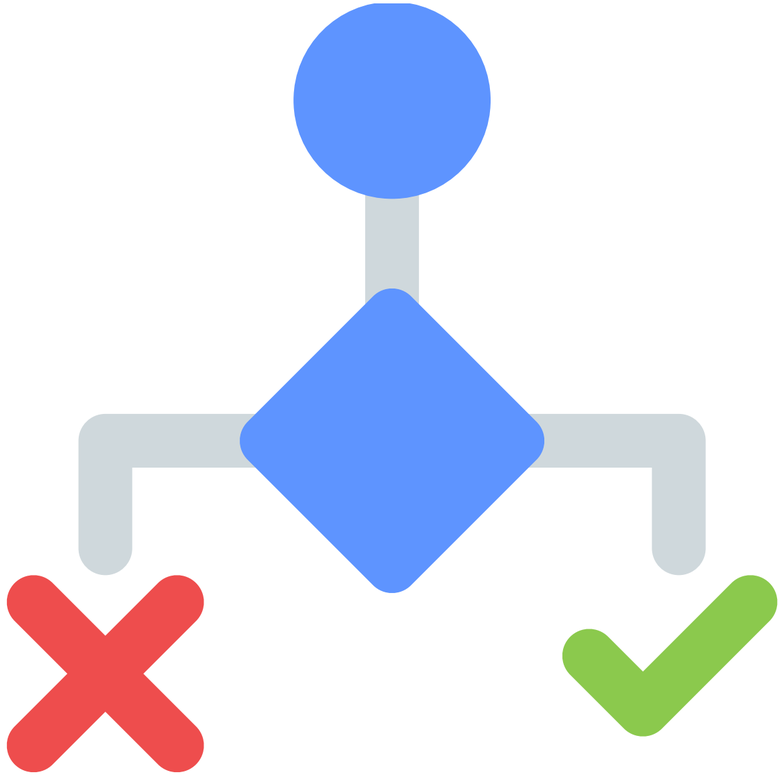
JavaScript essentials for Node-RED

Section 3

Logic statements



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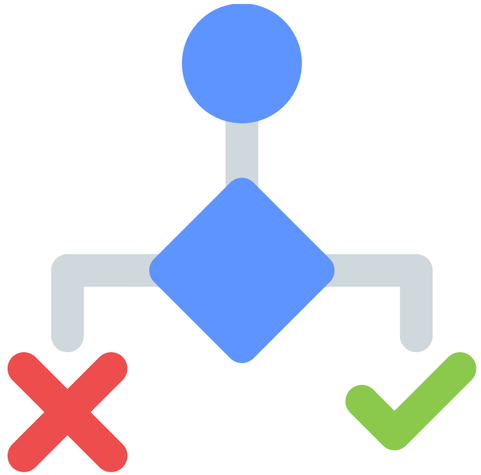
JS

What you will learn in this section?

In this section, we will learn about logic statements that allow us to make multiple paths in our code. The following statements will help us to make logics:

- If statement
- If-else statement
- Else if statement
- Conditional ternary operator
- Switch statement



Applications

Conditional execution

Validation

Branching

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If statement

You can decide the action of your code based on a condition using if statement like shown below:

condition

```
1   var tankLevel = 15;
2   if (tankLevel < 30)
3       {
4           console.log('The Tank level is LOW')
5           msg.payload = 'The Tank level is LOW';
6           return msg;
7       }
```

action

```
The Tank level is LOW
```

msg : Object

```
▾object
   _msgid: "24073c81581f8aa1"
   payload: "The Tank level is LOW"
   topic: ""
```

```
1   var tankLevel = 45;
```

No output

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If and else statement

if condition is **TRUE** certain action will execute **otherwise** another action will execute

```
1   var tankLevel = 45;
2   if (tankLevel < 30)
3       {
4           console.log('The Tank level is LOW')
5           msg.payload = 'The Tank level is LOW';
6           return msg;
7       }
8   else
9   {
10      console.log('The Tank level is OK')
11      msg.payload = 'The Tank level is OK';
12      return msg;
13  }
```

```
The Tank level is OK
```

```
1   var tankLevel = 15;
2   if (tankLevel < 30)
3       {
4           console.log('The Tank level is LOW')
5           msg.payload = 'The Tank level is LOW';
6           return msg;
7       }
8   else
9   {
10      console.log('The Tank level is OK')
11      msg.payload = 'The Tank level is OK';
12      return msg;
13  }
```

```
The Tank level is LOW
```

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JS

Node-RED

double equal sign ⚠️

Kindly note the **double equal sign** for the condition.

```
1   var hobby = 'coding';
2   if (hobby = 'travelling')
3       {
4       console.log('Great! I love travellin too!')
5       }
6   else
7       {
8           console.log('Can you teach me that?')
9       }
```

```
Great! I love travellin too!
```

```
1   var hobby = 'coding';
2   if (hobby == 'travelling')
3       {
4       console.log('Great! I love travellin too!')
5       }
6   else
7       {
8           console.log('Can you teach me that?')
9       }
```

```
Can you teach me that?
```

This happens because in the condition instead of comparing the value, **it is assigning the value 'travelling' to the variable hobby**

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else if statement

Sometime we have to compare multiple conditions. In that case, we can use else if statement like shown below:

```
1   var tankLevel = 85;
2   if (tankLevel < 15)
3       { console.log('The Tank level is critically LOW') }
4   else if (tankLevel < 30)
5       { console.log('The Tank level is LOW') }
6   else if (tankLevel > 80)
7       { console.log('The Tank level is HIGH') }
8   else
9       { console.log('The Tank level is OK') }
```

The code gets executed from top to bottom and only one of the block will be executed. Once the TRUE condition is found, the code will end

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Project 1

Create a **conditional logic for alcohol purchase.** Ask user about the **age and the ID** and make the following condition:

- If **age >= 18** and **ID is shown (TRUE)**, display on payload '**Purchase approved**'
- If **age >= 18** and **ID is not shown (FALSE)**, display on payload '**Purchase declined, ID not found**'
- If **age < 18**, display on payload '**Purchase declined! You need to grow up kid!**'
- If age is in **negative**, display on payload '**Invalid age, Try again!**'

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Conditional ternary operators

Ternary operator is like unary operator but with three operands. This is an alternate way to write if-else statement

expression ? statement for TRUE condition : statement for FALSE condition

```
1   var tankLevel = 15 < 30 ? console.log('Level LOW') : console.log('Level OK');
```

```
Level LOW
```

```
1   var tankLevel = 55 < 30 ? console.log('Level LOW') : console.log('Level OK');
```

```
Level OK
```

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Switch statement

This is an alternative statement which you can use if you have multiple conditions

```
1   var errorCode = 1001;
2   switch(errorCode)
3       {
4           case 1000:
5           console.log('Fatal error');
6           break;
7
8           case 1001:
9           console.log('Communication error');
10          break;
11
12          case 1002:
13          console.log('Timeout error');
14          break;
15
16          default:
17          console.log('Commmunication OK');
18          break;
19      }
```

```
Communication error
```

It is highly recommended to use ‘break’. If we do not use the ‘break’ it will execute other conditions as well.

Same logic using else-if

```
1   var errorCode = 999;
2   if (errorCode == 1000)
3      {console.log('Fatal error');}
4   else if (errorCode == 1001)
5      {console.log('Communication error');}
6   else if (errorCode == 1002)
7      {console.log('Timeout error');}
8   else
9      {console.log('Commmunication OK');}
```

```
Commmunication OK
```

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Switch statement with cases combined

Sometimes, we need to have **multiple conditions to evaluate.** In the if-else statement we can **use || (OR operator)** to achieve that.

In case of **Switch** statement, we can simply **combine them** as shown:

```
1   var grade = 'A';
2   switch(grade)
3       {
4           case 'A':
5           case 'B':
6           console.log('Nice!');
7           break;
8
9           case 'C':
10          case 'D':
11          console.log('You have passed!');
12          break;
13
14          case 'F':
15          console.log('You have failed!');
16          break;
17
18          default:
19          console.log('Invalid Grade!');
20          break;
21      }
```

```
Nice!
```

Same logic using else-if

```
1   var grade = 'C';
2   if(grade == 'A' || grade == 'B')
3       {console.log('Nice!');}
4   else if (grade == 'C' || grade == 'D')
5       {console.log('You have passed!'); }
6   else if (grade == 'F')
7       {console.log('You have failed!'); }
8   else
9       {console.log('Invalid Grade!');}
```

```
You have passed!
```

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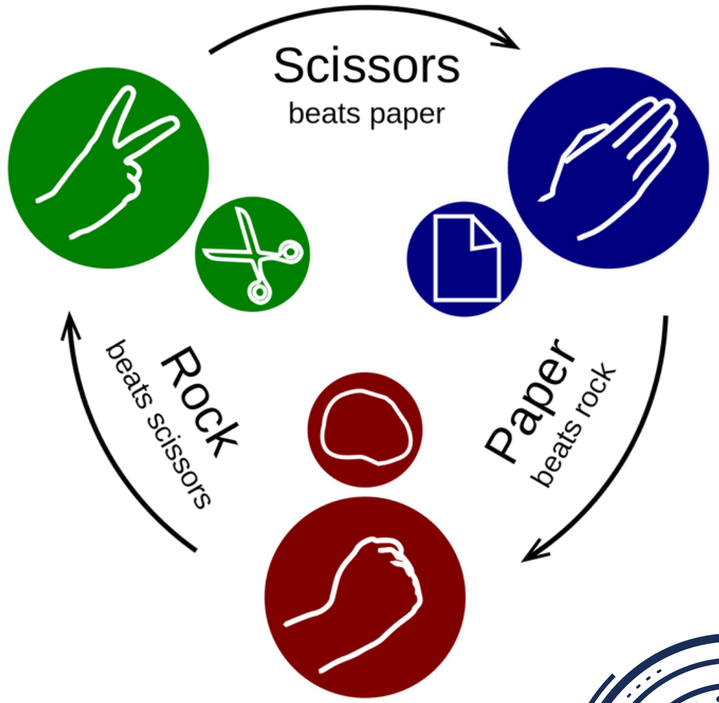
Project 2

Create Rock, paper and scissor game on Node-RED which you can play against computer:

- Assign **variable** for **user** and **computer**. You can use the functions **Math.random() and Math.floor()** to create random value between 0 and 2.
- Convert this random value to **string i.e. 0 -> Rock; 1 -> Paper and 2-> Scissors**
- Enter the **value in user variable yourself** and **use random function for the computer.**
- When you execute the game, compare the values to see who win.
- Take 5 rounds and let us know who wins 😎



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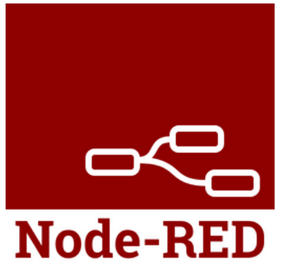

Thank you!

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