```
const prompt= require("prompt-sync")();
```

```
// defines the rows and a new row is created after each loop.
for (let x = 1; x <= 7;x++) {
// stays empty to hold space
  let grid = " ";
// as another hashtag is added each loop, it defines number of columns
  for (let y = 1; y<=x; y++) {
    grid += "#";
  }
  console.log(hash);
}
```

Console output:

```
#
##
###
####
#####
######
#######
```

```
for ( var number = 1; number< 101; number ++)

{

  var three =  number % 3;

  var five = number % 5;

   if ( (three == 0) && (five == 0) )
```

// Will check if the number is divisible by 5 or 3, if divisible by both, will print fizzbuzz

```
     console.log("FizzBuzz")

  else if (three == 0)

    console.log("Fizz");
```

//will check if it is divisible by just three, if so print fizz.

else if (five == 0)

console.log("Buzz");

//will check if it is divisible by just three, if so print buzz.

else

console.log(number);

// if no conditions apply, print the number.

}

Console Output:

```
1
2
Fizz
4
Buzz
Fizz
7
8
Fizz
Buzz
11
Fizz
13
14
FizzBuzz
16
17
Fizz
19
Buzz
Fizz
22
23
Fizz
Buzz
26
Fizz
28
29
```

FizzBuzz
31
32
Fizz
34
Buzz
Fizz
37
38
Fizz
Buzz
41
Fizz
43
44
FizzBuzz
46
47
Fizz
49
Buzz
Fizz
52
53
Fizz
Buzz
56
Fizz
58
59
FizzBuzz
61
62
Fizz
64
Buzz
Fizz
67
68
Fizz
Buzz
71
Fizz
73
74

FizzBuzz
76
77
Fizz
79
Buzz
Fizz
82
83
Fizz
Buzz
86
Fizz
88
89
FizzBuzz
91
92
Fizz
94
Buzz
Fizz
97
98
Fizz
Buzz

```
let grid = "";

// this will add a new row during each loop

for (let x=1; x<=8; x++) {

  // this will determine the columns

  for (let y=1; y<=8; y++) {

    if ((x + y) % 2 === 0) {

      grid+=" ";
```

```
    } else {

      grid+="#";

    }

}

  grid+="\n";

}

console.log(grid);
```

Console Output:

```
# # # #
# # # #
 # # # #
# # # #
 # # # #
# # # #
 # # # #
# # # #
```

```
// all the numbers from 1-50
let x = 1;
while(x<=50) {
  console.log(x);
  x =+ 1;
}


// all non-negative numbers that are less than 25
for (let x=1; x<=25; x++) {
  console.log(x);
}



// all non-negative numbers that are divisible by 3 and less than 25
for (x=1; x<=25; x+=2)
```

```
  console.log(x);
}
for (x=1; x<=25; x++) {
  if (x % 3 == 0) {
    console.log(x);
  }
}


// the multiples of 5 from 0 - 50
for (x=0; x<=50;) {
  console.log(x);
  x = x + 5;
}


// Multiples of 2 or multiples of 3, but not multiples of both 2 and 3. For example, it will print 2, 3,
4, 8, 10, 14… (up to 50)
for (x=1; x<=50; x++) {
  // logical OR (||) operator for a set of operands is true if only one or more of its operands is
  true.
  // logical AND (&&) operator for a set of Boolean operands will be true if only ALL operands are
  true.
  // the first statement checks if the number is either a multiple of 2 or 3. After that it will check to
  see if the number is not a multiple of 6
  if ((x % 2 === 0 || x % 3 === 0) && x % 6 !== 0) {
    console.log(x);
  }
}


// Multiples of 2 and 3, but not multiples of 12(up to 100)
for (x=1; x<=100; x++) {
  if ((x % 2 === 0 && x % 3 === 0) && x % 12 !== 0) {
    console.log(x);
  }
}
```

Console Output:

1
2
3

4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48

49
50

1
2
3
4
5
6
7
8
9
10
11
12
14
15
16
17
18
19
20
21
22
23
24
25

1
3
5
7
9
11
13
15
17
19
21
23
25

3

6
9
12
15
18
21
24

0
5
10
15
20
25
30
35
40
45
50

2
3
4
8
9
10
14
15
16
20
21
22
26
27
28
32
33
34
38
39
40
44
45

46
50

2
3
4
8
9
10
14
15
16
20
21
22
26
27
28
32
33
34
38
39
40
44
45
46
50

```
// descending so 50 to 1
for (let x=50;x>=1; x--) {
  console.log(x);
}
```

```
// descending so 25 to 1
for (let x=25; x>=1; x--) {
  console.log(x);
}
```

```
// descending from 25 to 1 (odds)
```

```
for (x=25; x>=1; x-=2) {
  console.log(x);
}
```

```
// descending for all numbers divisible by 3- from 25-1
for (x=25; x>=1; x--) {
  if (x % 3 == 0) {
    console.log(x);
  }
}
```

```
// descending multiples of 5 from 50 - 0
for (x=50; x>=0;) {
  console.log(x);
  x = x - 5;
}
```

```
// descending Multiples of 2 or multiples of 3, but not multiples of both 2 and 3, 50 - 0
for (x=50; x>=1; x--) {
  if ((x % 2 === 0 || x % 3 === 0) && x % 6 !== 0) {
    console.log(x);
  }
}
```

```
// descending multiples of 2 and 3, but not multiples of 12(100 - 0)
for (x=100; x>=1; x--) {
  if ((x % 2 === 0 && x % 3 === 0) && x % 12 !== 0) {
    console.log(x);
  }
}
```

Console Output:

Same as above, but in descending order.

```javascript
// multiplies 3 times each number, 1-10. The loop will start at one and increase each loop

let n = 3;

for (let i = 1; i <= 10; ++i)

    console.log(n + " * " + i +

      " = " + n * i);

let p = 17;

for (let i = 1; i <= 10; ++i)

    console.log(p + " * " + i +

      " = " + p * i);
```

Console Output:

```
3*1=3
3*2=6
3*3=9
3*4=12
3*5=15
3*6=18
3*7=21
3*8=24
3*9=27
3*10=30
17*1=17
17*2=34
17*3=51
17*4=68
17*5=85
17*6=102
17*7=119
17*8=136
17*9=153
17*10=170
```

```
const prompt= require("prompt-sync")();

let num;

let operation;

let number1;

let number2;

while (true) {

  num = Number(prompt("Please select an option - Press 1 to add, Press 2 to subtract,
Press 3 to multiply, Press 4 to divide, Press 5 to quit "));

  if (num === 5) {

   console.log("quit");

   break;

 }

 if (num < 1 || num > 5 || isNaN(num)) {

   console.log("Please select a valid option");

   continue;

 }

 number1 = Number(prompt("Enter a number: "));

 number2 = Number(prompt("Enter another number:"));

 if (isNaN(number1) || isNaN(number2)) {
```

```javascript
    console.log("Please try again with valid numbers.");

    continue;

}


switch (num) {

 case 1:

  operation = "+";

  console.log(`${number1} ${operation} ${number2} = ${number1 + number2}`);

  break;

 case 2:

  operation = "-";

  console.log(`${number1} ${operation} ${number2} = ${number1 - number2}`);

  break;

 case 3:

  operation = "*";

  console.log(`${number1} ${operation} ${number2} = ${number1 * number2}`);

  break;

 case 4:

  if (number2 === 0) {

   console.log("You cannot divide by 0, try a valid number.");

  } else {

   operation = "/";

   console.log(`${number1} ${operation} ${number2} = ${number1 / number2}`);

  }

  break;

}
```

}

```
const prompt = require("prompt-sync")();

// check if its NaN without using isNaN() function

let input = prompt("Enter a number:");

let num = Number(input);

//use the != operator to see that whatever is inputted is a number. If it is not, an error message will occur.

if (num != num){

  console.log("This is not a number.")

} else {

  console.log("thank you, this is a number!");

}
```
Console Output

Enter a number: 4
Thank you, this is a number!

Enter a number: yes
This is not a number.