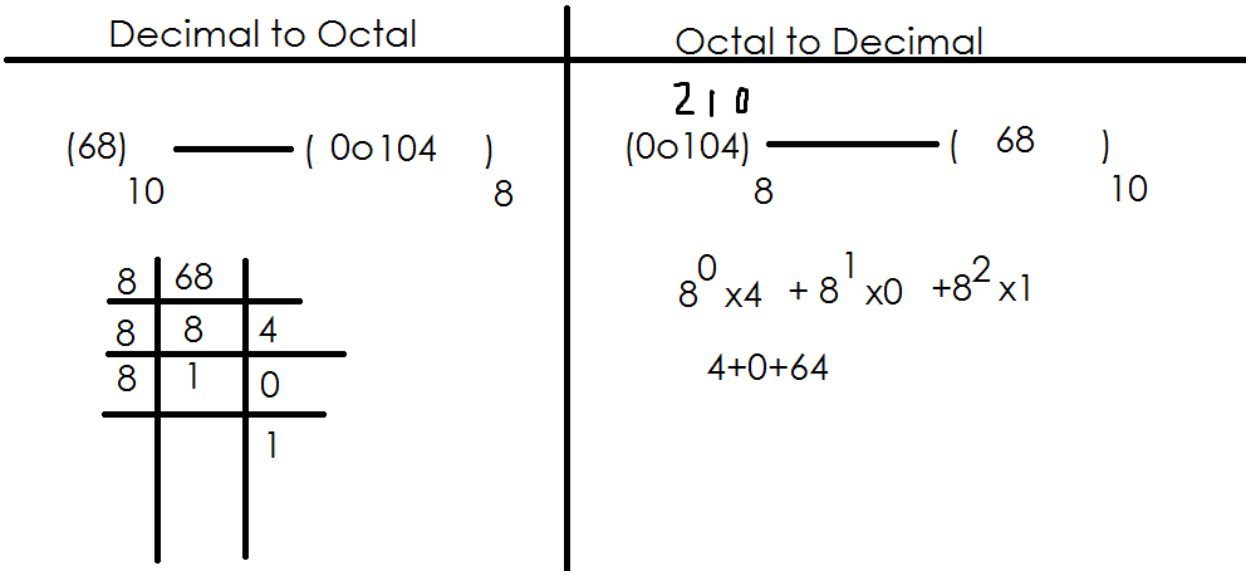
**Octal integer literal**
An integer value with base 8 is called octal integer. This octal integer is created using all the digits from 0-7. This integer is prefix with 0o or 0O.

**Applications of octal integer literals**

1. Operating Systems
2. Assembly Language

```
>>> a=0o256
>>> a
174
>>> b=0o78
SyntaxError: invalid digit '8' in octal literal
>>> c=0O99
SyntaxError: invalid digit '9' in octal literal
>>> d=0o777
>>> d
511
>>> type(d)
<class 'int'>
```




**oct()** : oct() is a base conversion function, which is used to convert other types of integers to octal.

Decimal → Octal

Hexadecimal → Octal
Binary → Octal

**Example:**

```
>>> oct(68)
'0o104'
```

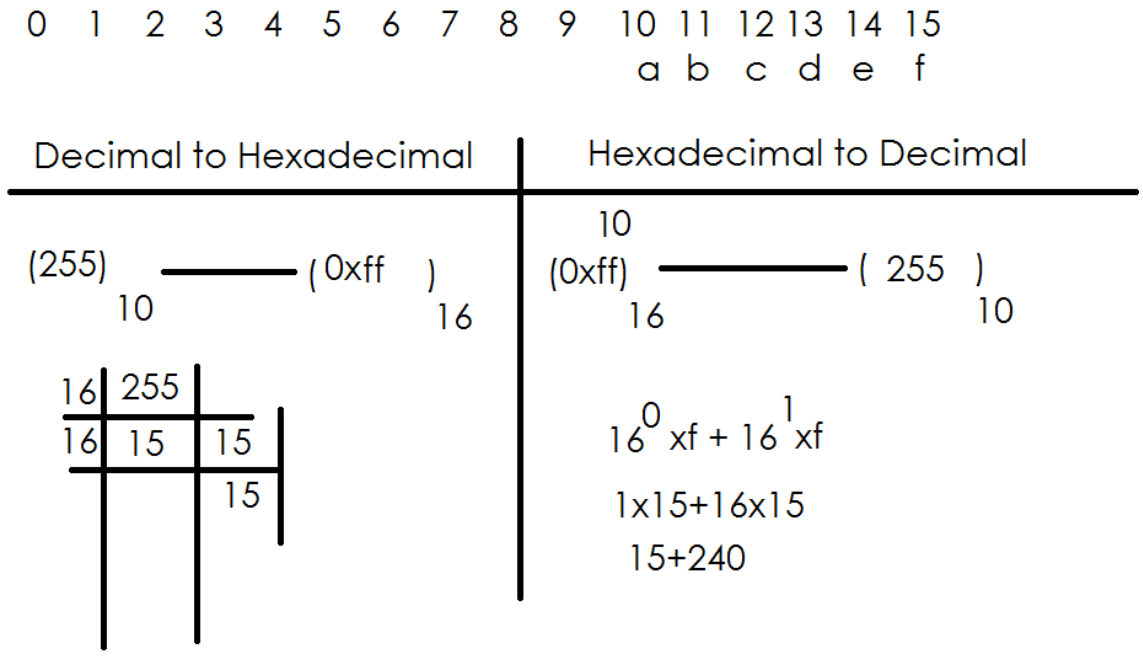
**Hexadecimal Integer Literal**

An integer value with base 16 is called hexadecimal integer. This integer consists of digits from 0-9 and a-f/A-F. This integer is prefix with 0x or 0X.

**Applications of Hexadecimal Integer**

1. Larger values are represented in hexadecimal format
2. Color Value
3. Memory Address
4. Unicode Values

```
>>> n1=0xa
>>> n1
10
>>> n2=0xb
>>> n2
11
>>> n3=0x5
>>> n3
5
>>> n4=0xab
>>> n4
171
>>> n5=0xff
>>> n5
255
>>> n6=0xgg
SyntaxError: invalid hexadecimal literal
>>> n7=0x1ab2
```




hex() : It is a base conversion function, this convert other integers into hexadecimal integer

decimal → hexadecimal
octal → hexadecimal
binary → hexadecimal

```
>>> a=10
>>> a
10
>>> oct(a)
'0o12'
>>> hex(a)
'0xa'
>>> b=255
>>> b
255
>>> oct(b)
'0o377'
>>> hex(b)
```

**Binary Integer**

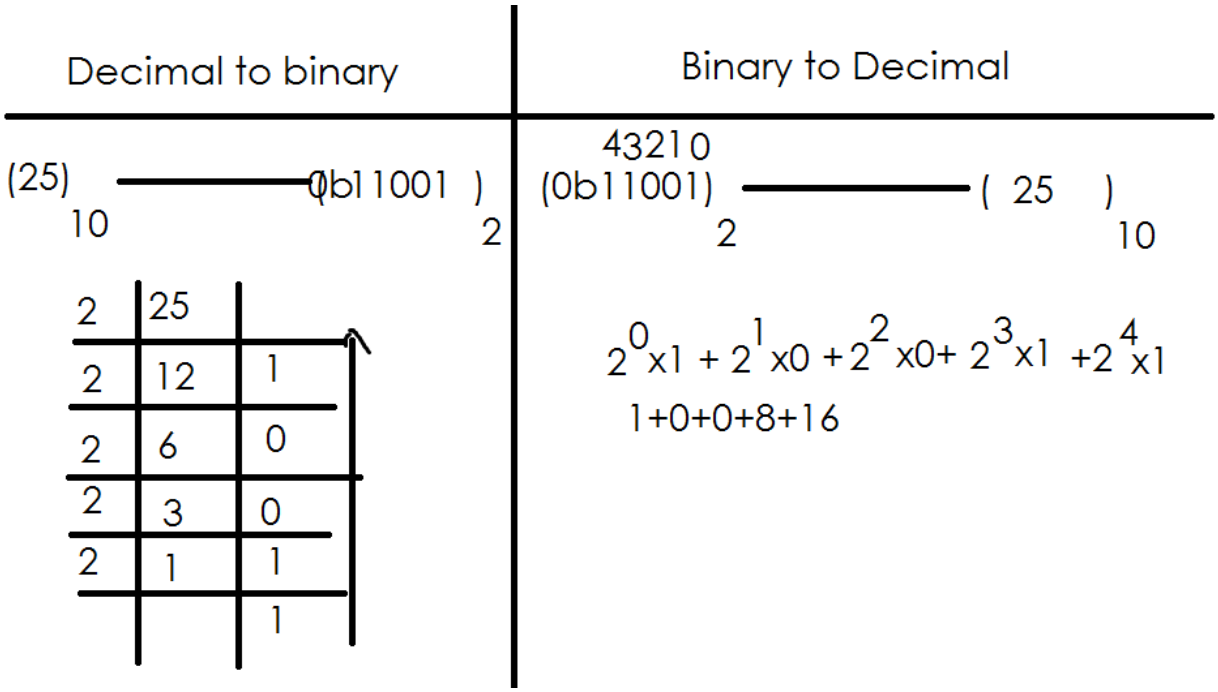
An integer value with base 2 is called binary integer. This integer is created using two digits 0 and 1. This integer is prefix with 0b or 0B.

**Applications of binary integer**

1. Embedded Applications
   Logic Gates

```
>>> b1=0b1
>>> b1
1
>>> b2=0b0
>>> b2
0
b3=0b10
>>> b3
2
>>> b4=0b101
>>> b4
5
>>> b5=0b1010
>>> b5
10
>>> b7=0b102
SyntaxError: invalid digit '2' in binary literal
```

bin(): base conversion function,
decimal → binary
hexadecimal → binary
octal → binary




**Example:**

```
>>> a=15
>>> bin(a)
'0b1111'
>>> b=0o12
>>> bin(b)
'0b1010'
>>> c=0xa
>>> bin(c)
'0b1010'
>>> d=0b1010
>>> hex(d)
'0xa'
```

**float data type**

float data type is used to reserve memory for float literal or value.

A float value is numeric value with fractional part or decimal part.
In python float values/literals are represented in two formats

1. Fixed notations
2. Scientific notation