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Given an octal number as input, we need to write a program to convert the given octal number into the equivalent decimal number. i.e convert the number with base value 8 to base value 10.

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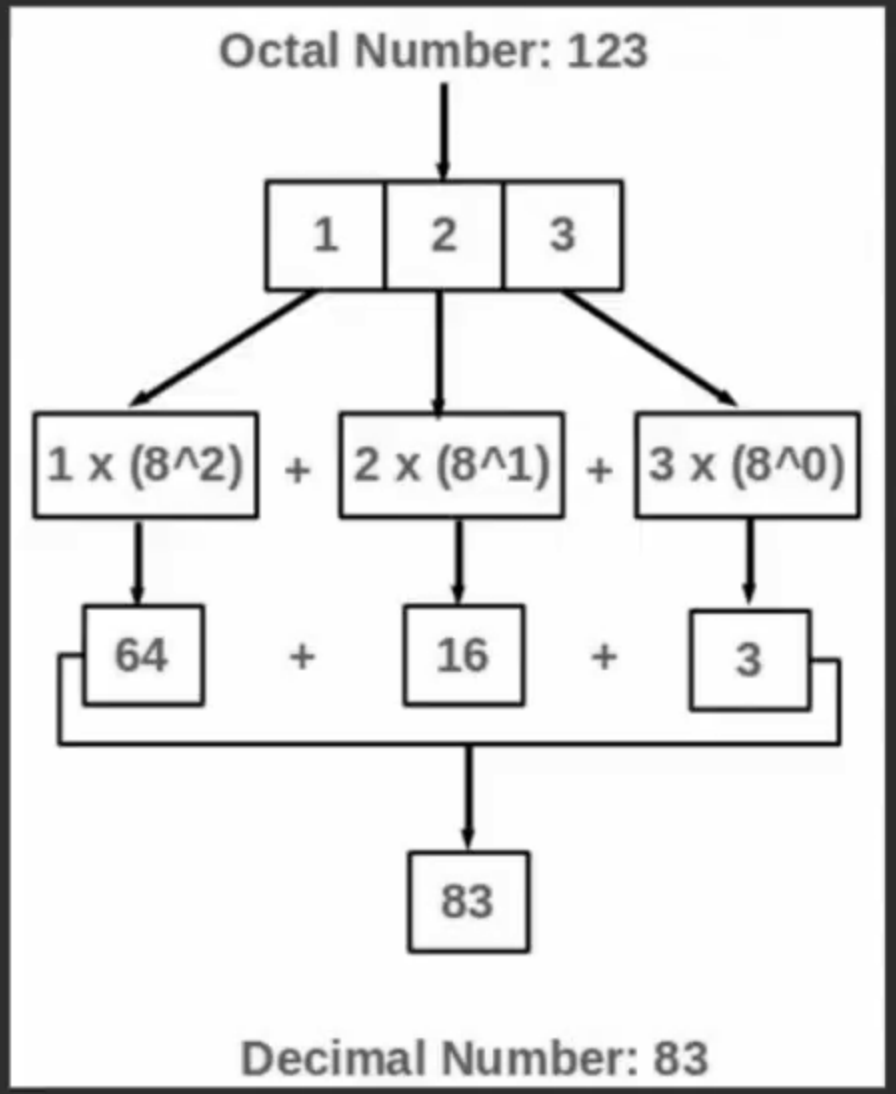
The base value of a number system determines the number of digits used to represent a numeric value.
For example, the binary number system uses two digits 0 and 1, octal number system uses 8 digits from 0-7 and decimal number system uses 10 digits 0-9 to represent any numeric value.

Algorithm

1. Multiply each digit separately from left to right by 8^0, 8^1, 8^2… respectively.
2. Add all the results coming from step 1.
3. Equivalent decimal number would be the result obtained in step 2.

Algorithm



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2. Add all the results coming from step 1.
3. Equivalent decimal number would be the result obtained in step 2.

Code

```
// Function to convert octal to decimal
int octalToDecimal(int n)
{
    int num = n;
    int dec_value = 0;

    // Initializing base value to 1, i.e 8^0
    int base = 1;

    int temp = num;
    while (temp) {

        // Extracting last digit
        int last_digit = temp % 10;
        temp = temp / 10;

        // Multiplying last digit with appropriate
        // base value and adding it to dec_value
        dec_value += last_digit * base;

        base = base * 8;
    }

    return dec_value;
}
```

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Dry Run

num = 123 dec_value = 0

base = 1 temp = 123

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    }

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}
```

Dry Run

num = 123 dec_value = 0
base = 1 temp = 123

last_dig = 3	last_dig = 2	last_dig = 1
temp = 12	temp = 1	temp = 0
dec_val = 3	dec_val = 19	dec_val=19+64=83
base = 8	base = 64	base = 512

Thank you for watching!

Please leave us your comments.