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To work in a challenging and dynamic environment and to keep adding value to the organization that I represent and serve, while also concurrently upgrading my skills and knowledge

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Assignment1: BITWISE OPERATORS

Bitwise operators are binary operators that perform operations on integer data at the individual bit-level.

There are six types of the bitwise operator in Java:

- Bitwise AND (&)
- Bitwise exclusive OR (^)
- Bitwise inclusive OR (|)
- Bitwise Compliment (~)
- Bit Shift Operators

Bit Shift Operators:

Shift operator is used in shifting the bits either right or left. We can use shift operators if we divide or multiply any number by 2.

The general format to shift the bit is as follows:

variable << or >> number of places to shift;

Types of shift operators:

- Signed Right Shift Operator or Bitwise Right Shift Operator
- Unsigned Right Shift Operator
- Signed Left Shift Operator or Bitwise Left Shift Operator

Signed Right Shift Operator or Bitwise Right Shift Operator

The signed right shift operator shifts a bit pattern of a number towards the right with a specified number of positions and fills 0.

The operator is denoted by the symbol >>.

If 0 is presented at the leftmost bit, it means the number is positive. If 1 is presented at the leftmost bit, it means the number is negative.

In general, if we write a>>n, it means to shift the bits of a number toward the right with a specified position (n).

We can represent the signed right shift operator as follows:

$b=a>>n \quad --> \quad b=a/2^n$

e.g.

```
class bitwiserightshiftoperator{

    public static void main (String[] args){

            int a=20;

            System.out.println(a>>2);

}

}
```

Signed Left Shift Operator or Bitwise Left Shift Operator

The signed left shift operator shifts a bit pattern to the left.

It is represented by the symbol **<<.**

It also preserves the leftmost bit (sign bit). It does not preserve the sign bit.

In general, if we write a<<n, it means to shift the bits of a number toward the left with specified position (n).

We can represent the signed right shift operator as follows:

b=a<<n --> b=a*2^n

e.g.

```
class bitwiseleftshiftoperator {
    public static void main (String[] args){
        int a=14;
        System.out.println(a<<1);
}
}
```