

1. Read problem statement & and Read 2 integer values to perform bitwise operations &, |, <<, >>, ~, ^.

Ans:- The assignment specifies reading two integer values and performing bitwise operations: & (AND), | (OR), << (left shift), >> (right shift), ~ (NOT), ^ (XOR).

The example input values are $a=4$ and $b=2$.

To solve this, a program would need to:

1. Read two integer values, in this case, 4 and 2.
2. Perform each of the specified bitwise operations on these values.
3. Print the results of each operation.

Here is a breakdown of the bitwise operations and their results using the provided input values, $a=4$ and $b=2$.

The binary representation of $a=4$ is 0100 and $b=2$ is 0010.

* Bitwise AND (&) :- Results in 1 if both bits are 1. For $4 \& 2$ (0100 & 0010), the result is 0000, or 0.

4 & 2 is 0

* Bitwise OR (|) :- Results in 1 if at least one bit is 1. For $4 | 2$ (0100 | 0010), the result is 0110, or 6.

4 | 2 is 6

* Bitwise left shift (<<) :- Shifts bits to the left, multiplying by a power of 2. $4 << 1$ (0100 << 1) is 1000, or 8. 4 << 2 is 16.

* Right shift ($>>$): shifts bits to the right, dividing by a power of 2. $4 >> 1$ (0100 $>> 1$) is 0010, or 2.
 $4 >> 2$ is 1.

* Bitwise NOT (\sim): Inverts all bits. For a 32-bit integer, ~ 4 results in -5.

* Bitwise XOR (\wedge): Results in 1 if the bits are different. For $4 \wedge 2$ (0100 \wedge 0010), the result is 0110, or 6.
 $4 \wedge 2$ is 6

1. Read problem statement
2. Read 2 integer values to perform relational operators. $<$, $>$, $<=$, $>=$, $!=$, $=$

Ans: Step 1: Evaluate the relational operators for the values.

The example integer values are
 $a=4$ and $b=2$.

The relational operators to be performed are
 $<$, $>$, $<=$, $>=$, $!=$ and $=$.

* Less than ($<$):

$$a < b$$

$4 < 2$ is False. This statement is False.

$4 < 2$ is False (0).

* Greater than ($>$):

$$a > b$$

$$4 > 2$$

This statement is True.

* Less than or equal to (\leq): 4G+ 28% 9:42 pm

$$a \leq b$$

$$4 \leq 2$$

This statement is False.

$4 \leq 2$ is False (0)

* Greater than or equal to (\geq):

$$a \geq b$$

$$4 \geq 2$$

This statement is True.

$4 \geq 2$ is True (1)

* Equal to ($=$):

$$a = b$$

$$4 = 2$$

This statement is False.

$4 = 2$ is False (0)

* Not equal to ($!=$):

$$a \neq b$$

$$4 \neq 2$$

This statement is True

$4 \neq 2$ is True (1)

3.

- (i) MCQ's on right shift & left shift operation
- (ii) MCQ's on increment & decrement.

Ans: (i)

1. what is the primary function of the right shift ($>>$) operator for positive integers in most programming languages (C, C++, Java, Python)?
- A) Multiply the number by 2 for each shift.
 - B) Divide the number by 2 for each shift (integer division/floored.)
 - C) Add 2 to the number for each shift.
 - D) Subtract 2 from the number for each shift.

2. What is the result of the expression $10 >> 1$ in C?

- A) 10
- B) 20
- C) 5
- D) 1

3. When an unsigned integer is right-shifted, what value are the vacated leftmost bit positions filled with?

- A) The sign bit (most significant bit).
- B) ones (1s)
- C) zeros (0s)
- D) It depends on the compiler implementation.

4. In C programming, what is the result of the expression $16 >> 3$?

- A) 0
- B) 2
- C) 4
- D) 8

5. If $a = 5$ then what is the value of $a++$?

- A) 25
- B) 15
- C) 0
- D) 24

6. If $a = 3$, then what is the value of $a++$?

- A) 3
- B) 2
- C) 4
- D) 6

7.

1. What is the value of a ?

OP

a) 1

b)

c)

d)

e)

f)

 5. If an unsigned char variable x holds the value
Naga ❤️ 9 minutes ago (binary 11111111), what is the value of the expression $x > 74$? 

- most
recent?
- A) 255
B) 15
C) 0
D) 240

In c, what is the result of the expression $18 \ll 2$

- A) 3
B) 4
C) 48
D) 6

(ii)

1. what is the primary function of increment ($++$) operator in c?

- a) Multiplies the value of the variable by 1.
b) Increments the value of the variable by 1.
c) Decrements the value of the variable by 1.
d) Divides the value of the variable by 1.

2. what will be the value of j after the following code snippet executes?

c

```
int i = 5, j;
j = i++;
```

- a) 5
b) 6
c) 4
d) undefined



Reply

3. Which of the following is an invalid operand for the increment and decrement operators?

- (a) A variable ($i++$)
- (b) A pointer ($*P++$)
- (c) A constant ($+5$)
- (d) A floating-point number ($f++$)

4. What is the output of the following C code?

```
c  
int x=5, y;  
y=x++/2;  
printf("y.%d", y);
```

- (a) 3
- (b) 2
- (c) 2.5
- (d) Compile-time error

5. What will be the final value of a and b after the following code snippet executes?

```
c  
int a=4, b, c;  
b = --a;  
c = a--;
```

- (a) a=3, b=3, c=3
- (b) a=2, b=3, c=3
- (c) a=2, b=3, c=2
- (d) a=3, b=2, c=3