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Experiment 11: Bitwise Operators Algorithms, Pseudocode & C Programs

1. Program to apply Bitwise OR, AND, and NOT Operators

Algorithm:

1. Start
2. Read two integers a and b
3. Compute:

 OR_result = a | b

 AND_result = a & b

 NOT_result = ~a

4. Display the results

5. Stop

Pseudocode:

```
BEGIN
    READ a, b
    OR_result = a OR b
    AND_result = a AND b
    NOT_result = NOT a
    PRINT OR_result, AND_result, NOT_result
END
```

C Program:

```

#include <stdio.h>

int main() {
    int a, b;

    printf("Enter two numbers: ");
    scanf("%d %d", &a, &b);

    printf("Bitwise OR (a | b) = %d\n", a | b);
    printf("Bitwise AND (a & b) = %d\n", a & b);
    printf("Bitwise NOT (~a) = %d\n", ~a);

    return 0;
}

```

OUTPUT

```

PS E:\Cprogramming works\LAB REPORT CODE> gcc ./bitwise.c
PS E:\Cprogramming works\LAB REPORT CODE> ./a
Enter two numbers: 5 8
Bitwise OR (a | b) = 13
Bitwise AND (a & b) = 0
Bitwise NOT (~a) = -6
PS E:\Cprogramming works\LAB REPORT CODE> s

```

2. Program to apply Left Shift and Right Shift Operators

Algorithm:

1. Start
2. Read integer a

3. Compute:

```
left_shift = a << 1  
right_shift = a >> 1
```

4. Display results

5. Stop

Pseudocode:

```
BEGIN  
    READ a  
    left_shift = a << 1  
    right_shift = a >> 1  
    PRINT left_shift, right_shift  
END
```

C Program:

```
#include <stdio.h>  
  
int main() {  
    int a;  
  
    printf("Enter a number: ");  
    scanf("%d", &a);  
  
    printf("Left Shift (a << 1) = %d\n", a << 1);  
    printf("Right Shift (a >> 1) = %d\n", a >> 1);
```

```
    return 0;  
}
```

OUTPUT

```
PS E:\Cprogramming works\LAB REPORT CODE> gcc .\shift.c  
PS E:\Cprogramming works\LAB REPORT CODE> .\a.exe  
Enter a number: 32  
Left Shift (a << 1) = 64  
Right Shift (a >> 1) = 16  
PS E:\Cprogramming works\LAB REPORT CODE> █
```