

Name Priyadarshi Prabhakar SAP ID 590029237

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:
 $\text{OR_result} = a \mid b$
 $\text{AND_result} = a \& b$
 $\text{NOT_result} = \sim a$
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> █
```