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### Lab Practical #14:

Implementation of parity bit check Using C/Java language with example.

### Practical Assignment #14:

#### 1. C/Java Program: Implementation of parity bit check Using C/Java language.

```
#include <stdio.h>

// Function to count number of 1 bits
int countOnes(int num) {
    int count = 0;
    while (num) {
        count += num & 1; // if last bit is 1
        num >>= 1;        // right shift
    }
    return count;
}

int main() {
    int data, parityBit;
    char type;

    // Input data
    printf("Enter data (in decimal, e.g., 7 = 111): ");
    scanf("%d", &data);

    // Input parity type
    printf("Enter parity type (E for Even, O for Odd): ");
    scanf(" %c", &type);

    // Input received parity bit
    printf("Enter received parity bit (0 or 1): ");
    scanf("%d", &parityBit);

    int ones = countOnes(data);
    int totalOnes = ones + parityBit;

    if (type == 'E' || type == 'e') {
```

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```
if (totalOnes % 2 == 0)
    printf(" Data is correct (Even parity matched)\n");
else
    printf(" Error detected (Even parity mismatch)\n");
}
else if (type == 'O' || type == 'o') {
    if (totalOnes % 2 == 1)
        printf(" Data is correct (Odd parity matched)\n");
    else
        printf(" Error detected (Odd parity mismatch)\n");
}
else {
    printf("Invalid parity type entered.\n");
}

return 0;
}
```