Worksheet 11 - Pointers and Arrays

Exercise 1.
Write a function that rearranges the array elements, where the odd integers are filled from the lowest index and the even integers from the highest index. For example, if the array is [1, 9, 4, 3, 8, 7, 1, 2], then it is updated as [1, 9, 3, 7, 1, 2, 8, 4] after the function call.

```
void oddeven(int *arr, unsigned int count){
    /* Your code here */

}

int main(){
    int arr[50];
    int i, N;
    for(i=0; i<50; i++){
        scanf("%d", arr+i);
        if(arr[i] == -1)
            break;
    }
    N = i;
    oddeven(arr, N);
    for(i=0; i<N; i++){
        printf("%d ", arr[i]);
    }
    printf("\n");
    return 0;
}
```

Exercise 2.

1. Write a function that takes a decimal number (you may assume the number is positive) and returns the number of digits in binary. For example, if the decimal input is 6, it returns 3.
2. Write a function that converts the decimal input to the binary format in array. If the decimal input is 6, then array[0] = 0, array[1] = 1, array[2] = 1. The least significant bit stores at the lowest index.

```
unsigned int bindigit(unsigned int dec){
    /* Your code here */

}
void dec2bin(unsigned int *arr, int count, unsigned int dec){
    /* Your code here */

}

int main(){
    unsigned int dec;
    printf("Input a decimal number: ");
    scanf("%d", &dec);

    unsigned int N, arr[32];
    int i;
    N = bindigit(dec);
    printf("Number of digit in binary: %d\n", N);

    dec2bin(arr, N, dec);
    for(i=N-1; i>=0; i--)
        printf("%d", arr[i]);
    printf("\n");
    return 0;
}
```

Output Example:

```
Input a decimal number: 18
Number of digit in binary: 5
10010
```