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//Implementation of Algorithm 2.5 by C
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#define n 10

typedef int queue[n];
int left,right;

void enqueue(queue Q, int x) {
    Q[right]=x;
    right = right + 1;
    if(right == n) right = 0;
    if (left == right) {
        printf("Error: Queue overflow. %d %d \n", left, right);
        exit(0);
    }
}

void dequeue(queue Q) {
    if(left == right) {
        printf("Error: Queue underflow.\n");
        exit(0);
    } else {
        printf("%d\n",Q[left]);
        left = left + 1;
        if (left == n) left = 0;
    }
}

void initialize_queue(void) {
    left=0;right=0;
}

void show_queue(queue Q) {
    int i;

    printf("left = %d, right = %d, ",left,right);
    printf("Q [");
    for (i=0;i<n;i++) {
        printf(" %3d",Q[i]);
        if(i<n-1) printf(",");
    }
    printf("]\n");
}

queue Q;

main() {
    int i;

    initialize_queue();

    for (i=0;i<10;i++) {
        enqueue(Q,i);
        show_queue(Q);
    }

    for (i=0;i<9;i++) {
        dequeue(Q);
    }
}
```