

```
import java.util.*;
```

```
class Day88 {
```

```
    static int[] A = new int[100010];
```

```
    static int[] tmp = new int[100010];
```

```
    static int[] pos = new int[100010];
```

```
    static int[] ans = new int[100010];
```

```
    static int n;
```

```
    static void add(int cnt) {
```

```
        for (int i = 1; i <= n; i++) pos[tmp[i]] = i;
```

```
        for (int i = 1; i <= n; i++) {
```

```
            if (cnt == 0) break;
```

```
            if (tmp[i] == i) continue;
```

```
            int id = pos[i];
```

```
            pos[tmp[i]] = id;
```

```
            tmp[id] = tmp[i];
```

```
            tmp[i] = i;
```

```
            cnt--;
```

```
        }
```

```
    }
```

```
    static int ok() {
```

```
        for (int i = 1; i <= n; i++) {
```

```
            if (tmp[i] < ans[i]) return 1;
```

```
            else if (tmp[i] > ans[i]) return 0;
```

```
        }
```

```
        return 0;
```

```
    }
```

```
    static void change() {
```

```
    if (ok() == 0) return;
    for (int i = 1; i <= n; i++) ans[i] = tmp[i];
}
```

```
public static void main(String[] args) {
    Scanner cin = new Scanner(System.in);
    int t = cin.nextInt();
    while (t-- > 0) {
        n = cin.nextInt();
        for (int i = 1; i <= n; i++) A[i] = cin.nextInt();

        if (n <= 4) {
            for (int i = 1; i <= n; i++) System.out.print(i + " ");
            System.out.println();
            continue;
        }

        for (int i = 1; i <= n; i++) ans[i] = A[i];
        int id = 0;

        for (int i = 1; i <= n; i++) if (A[i] == 1) id = i;
        for (int i = 1; i <= n; i++) tmp[i] = A[(i + id - 2 + 5 * n) % n + 1];
        add(2);
        change();

        for (int i = 1; i <= n; i++) if (A[i] == 2) id = i;
        for (int i = 1; i <= n; i++) tmp[i] = A[(i + id - 3 + 5 * n) % n + 1];
        add(2);
        change();

        for (int i = 1; i <= n; i++) if (A[i] == 3) id = i;
```

```
for (int i = 1; i <= n; i++) tmp[i] = A[(i + id - 4 + 5 * n) % n + 1];  
add(2);  
change();
```

```
for (int i = 1; i <= n; i++) if (A[i] == 4) id = i;  
for (int i = 1; i <= n; i++) tmp[i] = A[(i + id - 5 + 5 * n) % n + 1];  
add(2);  
change();
```

```
id = 0;  
for (int i = 1; i < n; i++) {  
    if (A[i] == 2 && A[i + 1] == 1) id = i;  
}  
if (A[n] == 2 && A[1] == 1) id = n;
```

```
if (id != 0) {  
    for (int i = 1; i <= n; i++) tmp[i] = A[(i + id - 2 + 5 * n) % n + 1];  
    add(2);  
    change();  
}
```

```
id = 0;  
for (int i = 1; i < n; i++) {  
    if (A[i] == 3 && A[i + 1] == 2) id = i;  
}
```

```
if (A[n] == 3 && A[1] == 2) id = n;  
if (id != 0) {  
    for (int i = 1; i <= n; i++) tmp[i] = A[(i + id - 3 + 5 * n) % n + 1];  
    add(2);  
    change();  
}
```

```

    }

    id = 0;
    for (int i = 1; i < n - 1; i++) {
        if (A[i] == 3 && A[i + 2] == 1) id = i;
    }
    if (A[n - 1] == 3 && A[1] == 1) id = n - 1;
    if (A[n] == 3 && A[2] == 1) id = n;

    if (id != 0) {
        for (int i = 1; i <= n; i++) tmp[i] = A[(i + id - 2 + 5 * n) % n + 1];
        add(2);
        change();
    }

    for (int i = 1; i <= n; i++) System.out.print(ans[i] + " ");
    System.out.println();
}
}
}

```