```
                              ┌─────────────┐
                              │    START    │
                              └─────────────┘
                                     │
                    ╱─────────────────────────────╲
                   ╱  Read gray[j] (j = 1 … N),     ╲
                  ╱     bin[j] (j = 1 … N),          ╲
                   ╲      button,                    ╱
                    ╲        i                      ╱
                     ╲───────────────────────────╱
                                     │
                              ┌─────────────┐
                              │    i := 0   │
                              └─────────────┘
                                     │
              No              ◇ button := 1 ◇              Yes
```

- START
- Read gray[j] (j = 1 … N), bin[j] (j = 1 … N), button, i
- i := 0
- button := 1   — No / Yes

Left branch (No):
- i < j   — Yes / No
- Write bin[i]
- i == 0   — No / Yes
- gray[i] := bin[i] i := i + 1
- bin[i-1] == 1   — Yes / No
- gray[i] := bin[i] i := i + 1
- bin[i] == 1   — No / Yes
- gray[i] := 1 i := i + 1
- gray[i] := 0 i := i + 1

Right branch (Yes):
- i < j   — No / Yes
- i == 0   — Yes / No
- bin[i] := gray[i] i := i + 1
- bin[i-1] := 1 AND gray[i] := 1 OR bin[i-1] := 0 AND gray[i] := 0   — No / Yes
- bin[i] := 0 i := i + 1
- bin[i] := 0 i := i + 1
- Write bin[i]

- STOP

Pseudocode

Start

Read gray[j] (j = 1 … N), bin[j] (j = 1 … N), button, i

i := 0

if button == 1 **then**

    Repeat

        if i == 0 **then**

            bin[i] := gray[i]

            i := i + 1

        otherwise

            if (bin[i-1] == 1 **AND** gray[i] := 1) **OR** (bin[i-1] == 0 **AND** gray[i] := 0)

                bin[i] := 0

                i := i + 1

            otherwise

                bin[i] := 1

                i := i + 1

        Write bin[i]

    Until i < j

Otherwise

    Repeat

        if i == 0 then

            gray[i] := bin[i]

            i := i + 1

        otherwise

            if bin[i-1] == 1 **then**

                if bin[i] == 1

                    gray[i] := 0

                    i := i + 1

                otherwise

                    gray[i] := 1

                    i := i + 1

            otherwise

                gray[i] := bin[i]

                i := i + 1

        Write gray[i]

    Until i < j

Stop