Gray code

- Non arithmetic code
- Important feature
  - Exhibits only a single bit change from one code word to the next in the sequence
- Application
  - Shift position encoders

Four-bit Gray code

Decimal	Binary	Gray Code
0	0000	0000
1	0001	0001
2	0010	0011
3	0011	0010
4	0100	0110
5	0101	0111
6	0110	0101
7	0111	0100

Decimal	Binary	Gray Code
8	1000	1100
9	1001	1101
10	1010	1111
11	1011	1110
12	1100	1010
13	1101	1011
14	1110	1001
15	1111	1000

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Binary to Gray code conversion

- Start from MSB and move towards LSB (Left to right)
- The MSB in Gray code is same as the MSB in binary
- Add adjacent binary digits. Put only sum and neglect carry

Ex: Convert binary number **10110** to Gray code

1 + 0 + 1 + 1 + 0

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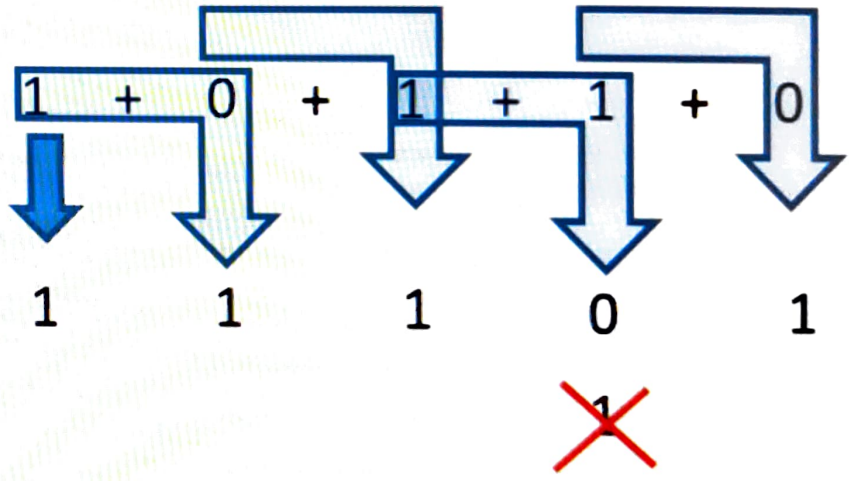

Gray to Binary code conversion

- The MSB in the binary is same as the MSB in Gray code
- Add the generated binary to the adjacent Gray code bit
- Neglect carries

Ex: Convert Gray code **11011** to Binary code