```
// q3
    // 0XDE
    // = 13 14
    // = 1101 1110

// --- go function implementation ---

func hexToBinary(hex string) string {
    hexDigits := "0123456789ABCDEF"
    binaryDigits := "0000" + "0001" + "0010" + "0011" +
        "0100" + "0101" + "0110" + "0111" +
        "1000" + "1001" + "1010" + "1011" +
        "1100" + "1101" + "1110" + "1111"
    var binary string
    for i := 0; i < len(hex); i++ {
        hexDigit := hex[i]
        for j := 0; j < len(hexDigits); j++ {
            if hexDigits[j] == hexDigit {
                binary += binaryDigits[j*4 : j*4+4]
                break
            }
        }
    }
    return binary
}
```

Bits

- Bits are the smallest units of data available to the programmer
- store single BINARY values of 0 or 1
- BYTE is 8 Bits
- common Bit multiples are 8, 16, 32, 64