

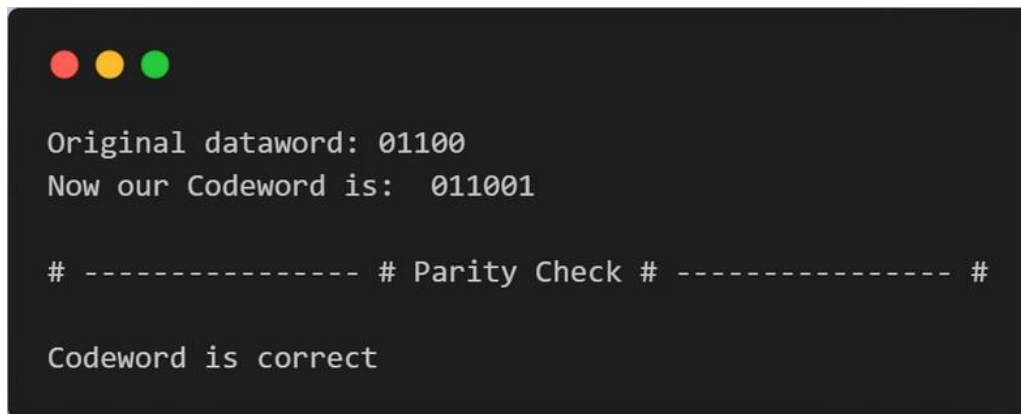
Our language code is Python.

1. Parity bits

There will be 2 methods in the main section. It starts with a random dataword generated with the Random Dataword Function (random dataword).

You must uncomment the type you want to use that we have already commented and separate the piece that explains it to you.

The output.

A terminal window with a dark background and three colored window control buttons (red, yellow, green) in the top-left corner. The text inside the terminal is as follows:

```
Original dataword: 01100
Now our Codeword is: 011001

# ----- # Parity Check # ----- #

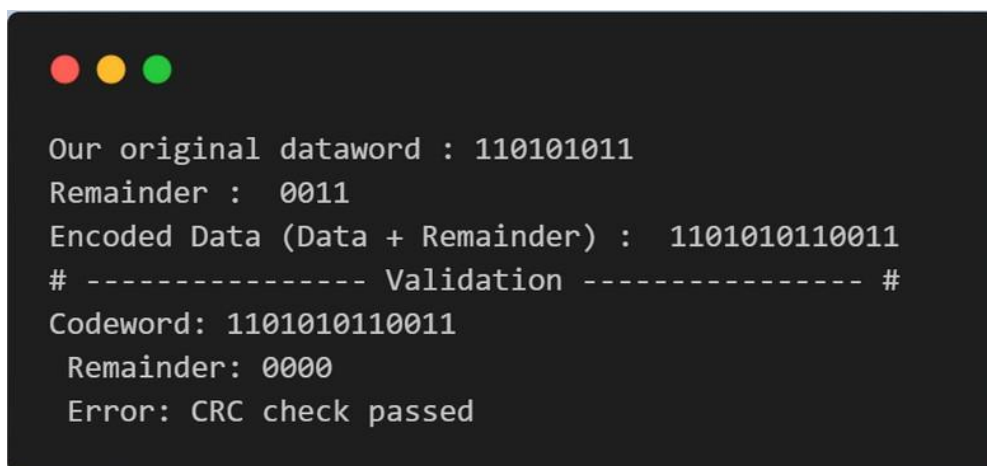
Codeword is correct
```

2. CRC

There are 2 types to run in the main function. First is the specific dataword and type of CRC.

Second is using random dataword generated with the Random Dataword Function (random dataword) then specific type of CRC. You must uncomment this part to run.

The output.

A terminal window with a dark background and three colored window control buttons (red, yellow, green) in the top-left corner. The text inside the terminal is as follows:

```
Our original dataword : 110101011
Remainder : 0011
Encoded Data (Data + Remainder) : 1101010110011
# ----- Validation ----- #
Codeword: 1101010110011
Remainder: 0000
Error: CRC check passed
```

3. Checksum:

In code, it is separated into 2 parts which are the function section and main section. Main section for giving random dataword generated with the Random Dataword Function (random dataword) examples to run functions.

You can directly run the whole program.

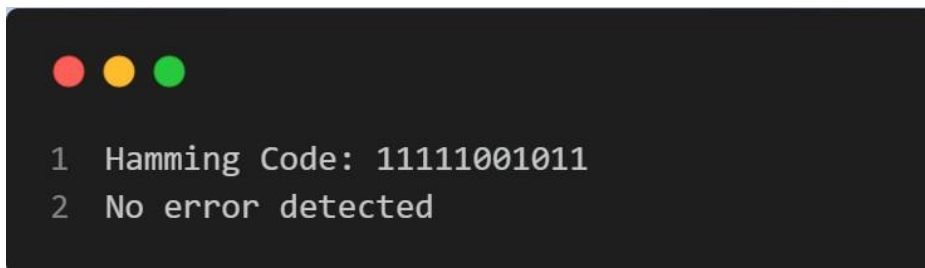
Here is the output. First part is binary input. Second part is the result from checker, 1 for pass, 0 for fail.



```
1 00011000011000000000 1
2 10011010101111010010 1
3 10000100111110101000 1
4 01100101011100111001 1
5 10010011001011100010 1
6 10010111100011100111 1
7 01110011000010011011 1
8 11001001111110010000 1
9 01111101110101100110 1
10 01011011010111101010 1
11 01011011010111101011 0
```

4. Hamming Code

You can directly run the code. It is used with a random dataword generated with the Random Dataword Function (random dataword). You can change bits of the dataword. The output.



```
1 Hamming Code: 11111001011
2 No error detected
```