National Institute of Technology,
Srinagar

Department of Information Technology

Programming Assignment Report
Cyclic Redundancy Check (CRC) and 7-bit Hamming code

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Cyclic Redundancy Check(CRC) and 7-bit Hamming code

0.1 Objective

- Simulate realistic error detection and correction by implementing Cyclic Redundancy Check (CRC)
- Simulate realistic error detection and correction by implementing 7-bit Hamming code using binary symmetric channel and random error generation

0.2 Assumptions & Prerequisites

- Standard CRC-8 divisor x8+x2+x+1 is used in CRC.
- Knowledge about CRC and Hamming Code.

0.2.1 CRC

- Cyclic Redundancy Check.
- It is commonly code for error detection in raw data due to accidental changes.

0.2.2 Hamming code

- It was developed by R.W. Hamming for error correction.
- In this coding method, the source encodes the message by inserting redundant bits within the message. These redundant bits are extra bits that are generated and inserted at specific positions in the message itself to enable error detection and correction. When the destination receives this message, it performs recalculations to detect errors and find the bit position that has error.

- JAVA Knowledge is must.

0.3 Language used

- Language: JAVA (java 16.0.2)
- IDE: IntelliJ IDEA

References

- *https://www.youtube.com/playlist?list=PLxxNGL9FOIGW7Q4TqAcuGiuB9p5TQARiO*
- *https://docs.oracle.com/javase/7/docs/api/*
- *https://stackoverflow.com/*
- *https://github.com/*

Ignore Any Extra output in the code as some debug symbols might have made to release.