

SNS COLLEGE OF TECHNOLOGY COIMBATORE

AN AUTONOMOUS INSTITUTION

Accredited by NBA – AICTE and Accredited by NAAC – UGC with 'A' Grade Approved by AICTE New Delhi & affiliated to the Anna University, Chennai

DEPARTMENT OF MCA

Course Name : 19CAT603 - DATA COMMUNICATION AND NETWORK

Class : I Year / I Semester

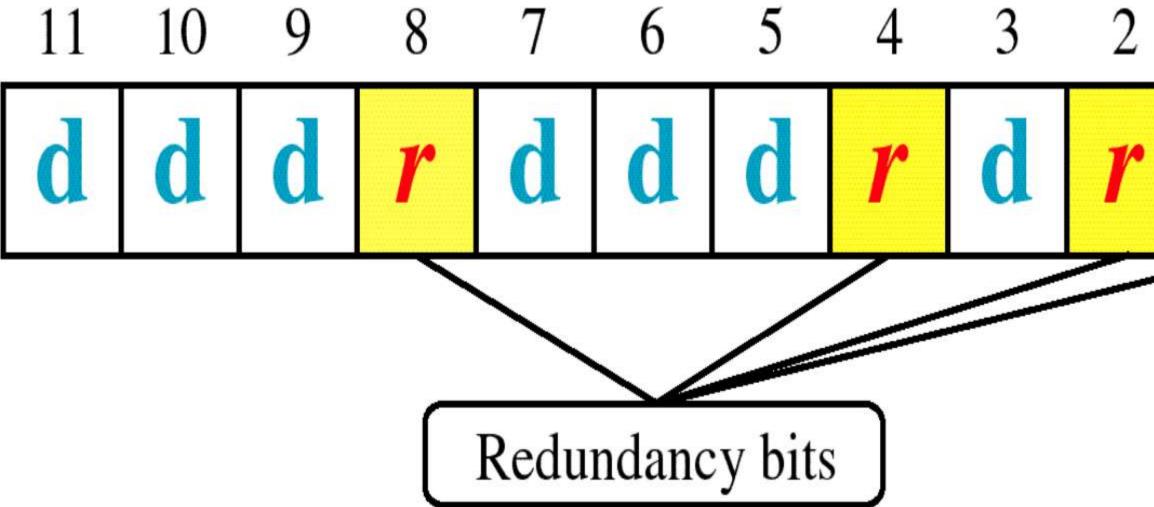
Unit II - ERROR CONTROL AND DATA LINK PROTOCOLS

Topic 6 – Hamming code





Hamming Code



Error Detection and Correction/Haripriya.R/MCA/SNSCT







Slide 2 of 47

1



Error Correction

each r bit is the VRC bit for one combination of data bits r1 = bits 1, 3, 5, 7, 9, 11r2 = bits 2, 3, 6, 7, 10, 11r4 = bits 4, 5, 6, 7r8 = bits 8, 9, 10, 11



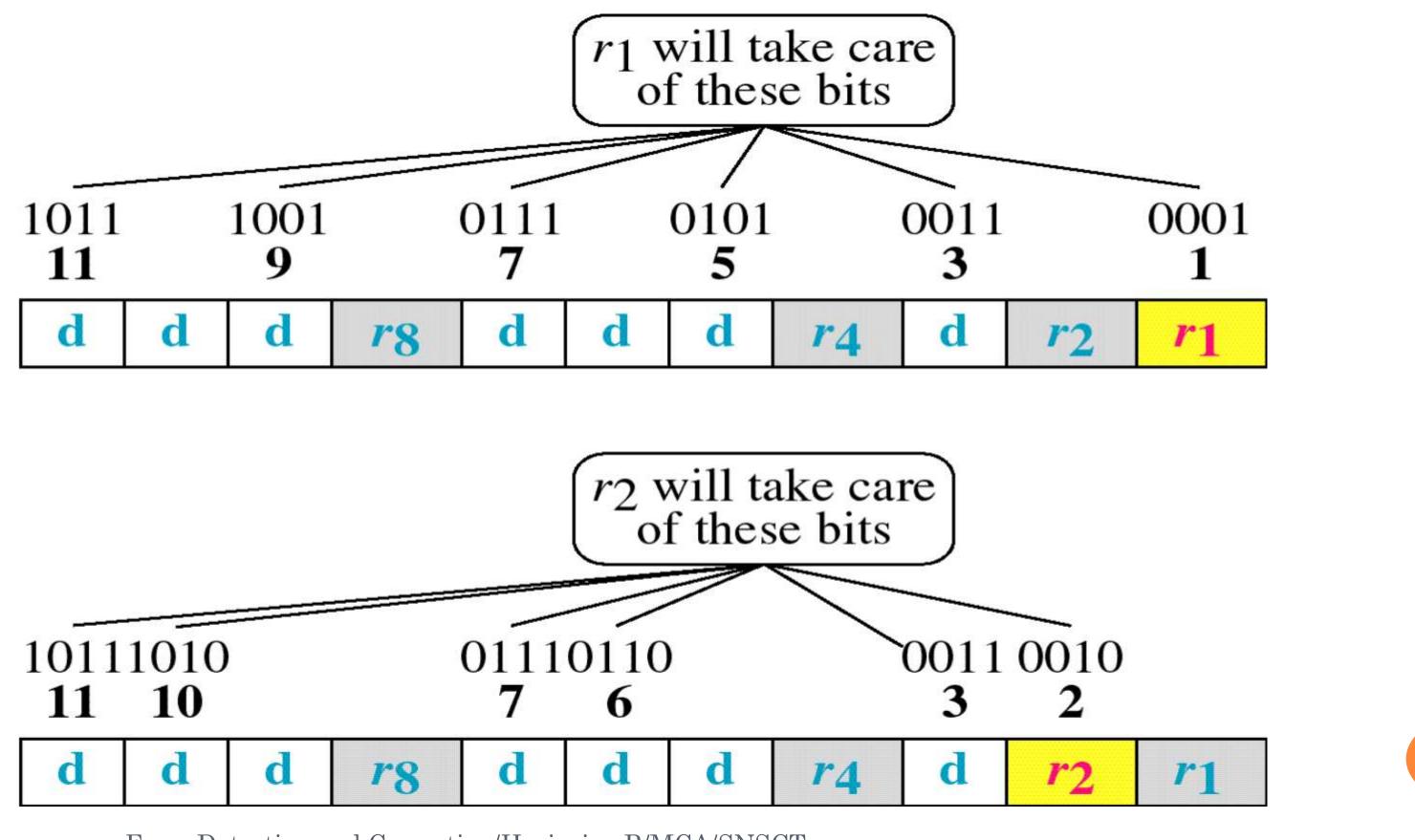






Hamming Code





Error Detection and Correction/Haripriya.R/MCA/SNSCT



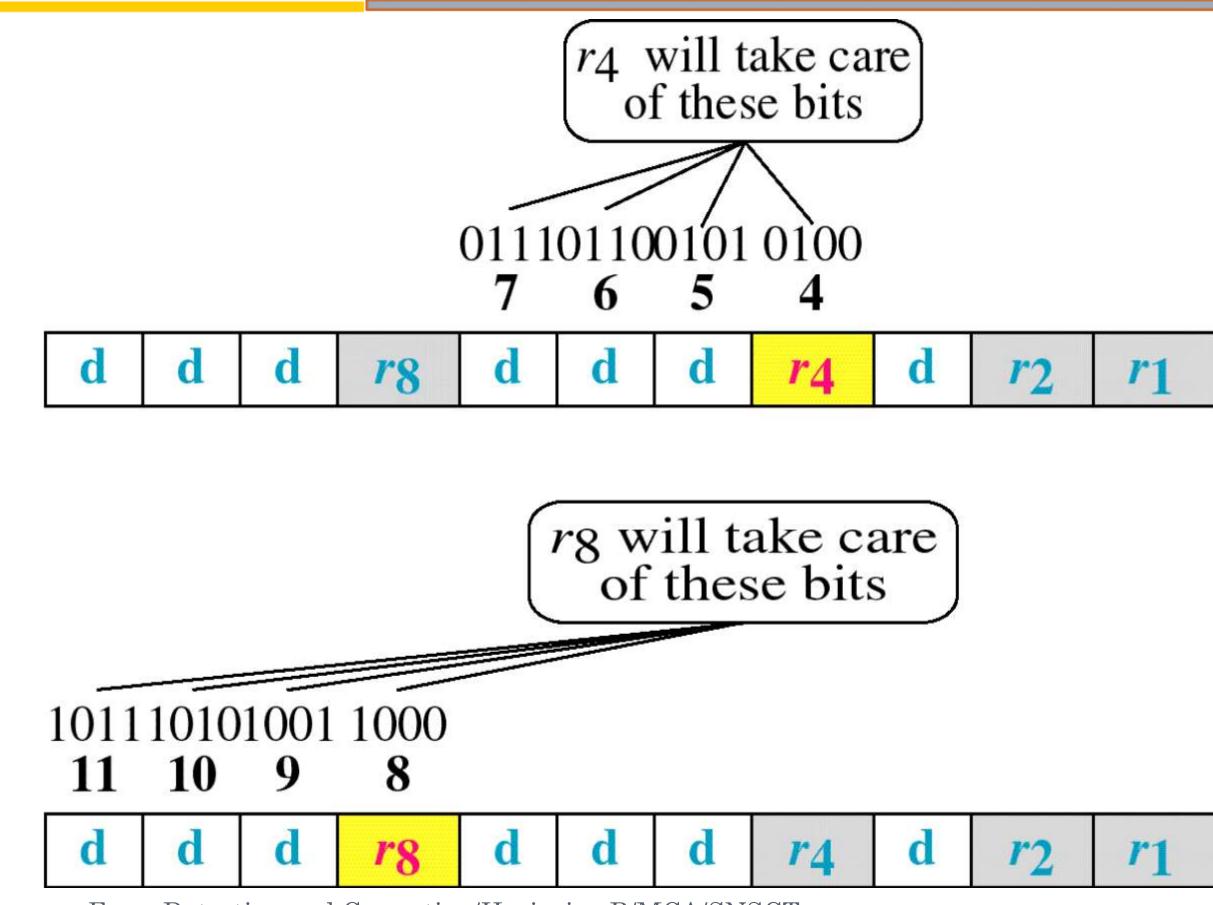




Slide 4 of 47







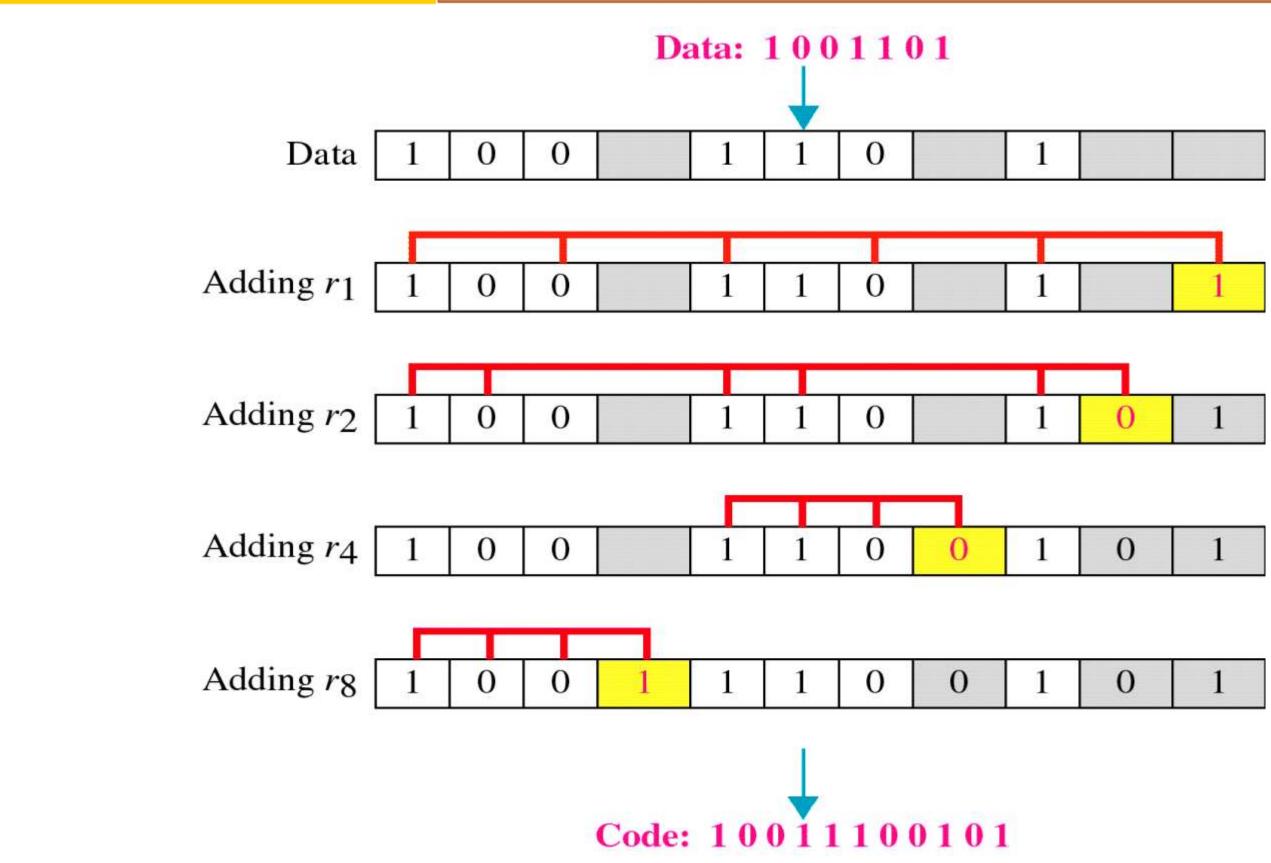








Example of Hamming Code









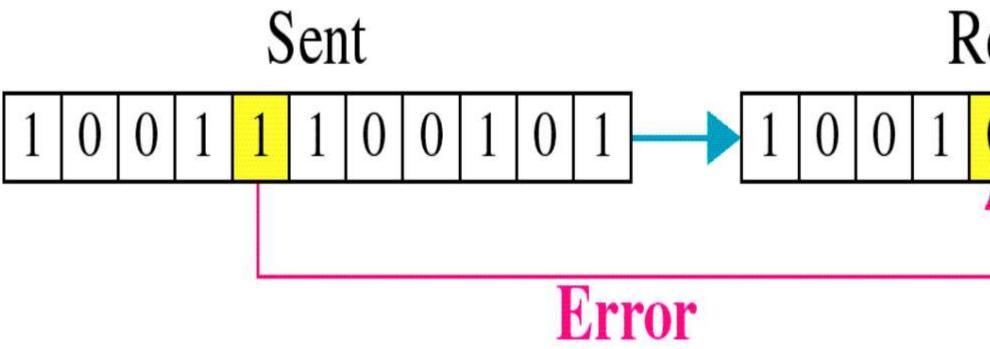


1	0	1





Single-bit error



Error Detection and Correction/Haripriya.R/MCA/SNSCT



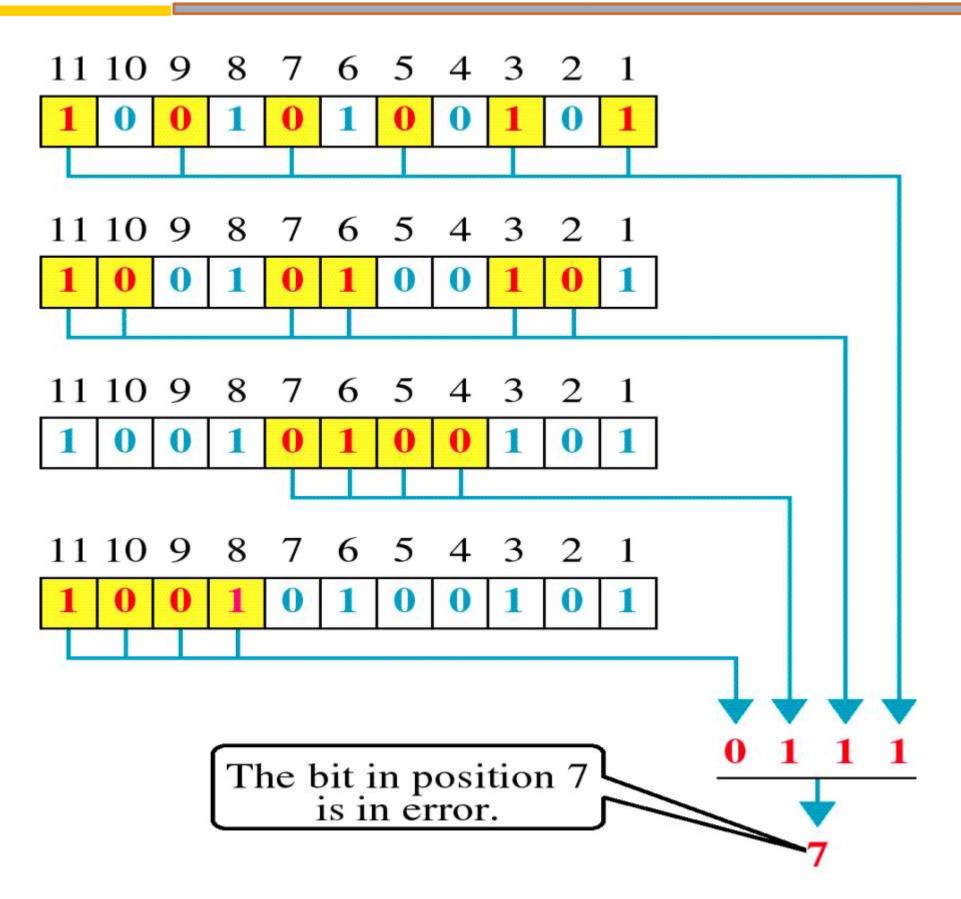




Received ()

Slide 7 of 47











Slide 8 of 47



Error Correction

	E	rror position	Position nu c3 c2 c1
	4 3 2 1 r ₄ d ₁ r ₂ r ₁	(no error)	000
$r_{i} \rightarrow r_{2} \rightarrow$	1, 3, 5, 7 2, 3, 6, 7	2 3	010
r₄ →	4, 5, 6, 7	4 5 6	100 101 110
7 6 5 4 d ₄ d ₂ d ₂ d	Concerned and the second second	7	111
1 0 1		ata 1010 Adding r.	
101	and an	dding r ₂	
1 0 1 0		dding r _a ata sent	
	pted		
		eceived Dat	a.
Error po	sition = 6	c, c, c,	
1 0 1 0	0 1 0 0	prrected data	ě –

Error Detection and Correction/Haripriya.R/MCA/SNSCT



Slide 9 of 47





- 1. <u>https://www.geeksforgeeks.org/types-transmission-media/</u>
- 2. <u>https://www.javatpoint.com/guided-transmission-media</u>
- 3. <u>https://www.geeksforgeeks.org/performance-of-a-network/</u>















