TEXT REPRESENTATION

10MIN

What is the difference between :

OVERFLOW ERROR
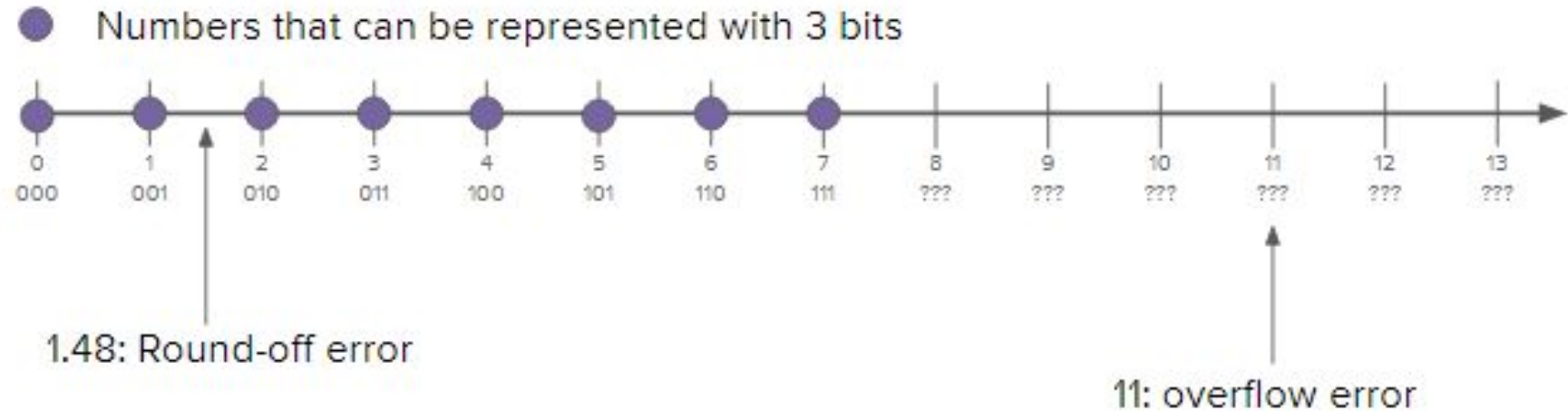
ROUNDING ERROR

?

Give examples in both cases

OVERFLOW ERROR

Error from attempting to represent a number that is too large.

ROUNDING ERROR

Error from attempting to represent a number that is too precise. The value is rounded.

Numbers that can be represented with 3 bits

| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
| 000 | 001 | 010 | 011 | 100 | 101 | 110 | 111 | ??? | ??? | ??? | ??? | ??? | ??? |

1.48: Round-off error

11: overflow error

15 MIN

TEAM 2

✔ Using **only numbers**, you will need to communicate a **message** to your partner.

✔ No letters or characters allowed!
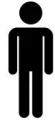
Define **together a system** that allow you to do this

*Example of **messages** you will need to communicate :*

hey

ttyl

morning

MEMBER 1

MEMBER 2

✔ Use your system to **encode** the secret message 1

✔ Write it on paper - **send** it to your partner

✔ Use your system to **translate** the message on paper

✔ **Check** the result is equal to the initial message

CHALLENGE 2

MEMBER 1

MEMBER 2

✔ Use your system to **encode** the secret message 2

✔ Write it on paper - **send** it to your partner

✔ Use your system to **translate** the message on paper

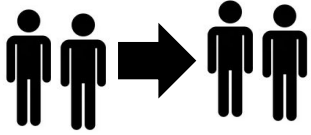✔ **Check** the result is equal to the initial message

MEMBER 1

MEMBER 2

✔ Use your system to **encode** the secret message 3

✔ Write it on paper - **send** it to your partner

✔ Use your system to **translate** the message on paper

✔ **Check** the result is equal to the initial message

5 MIN

Compare other group systems

✔ How are they the **same**? How are they **different**?

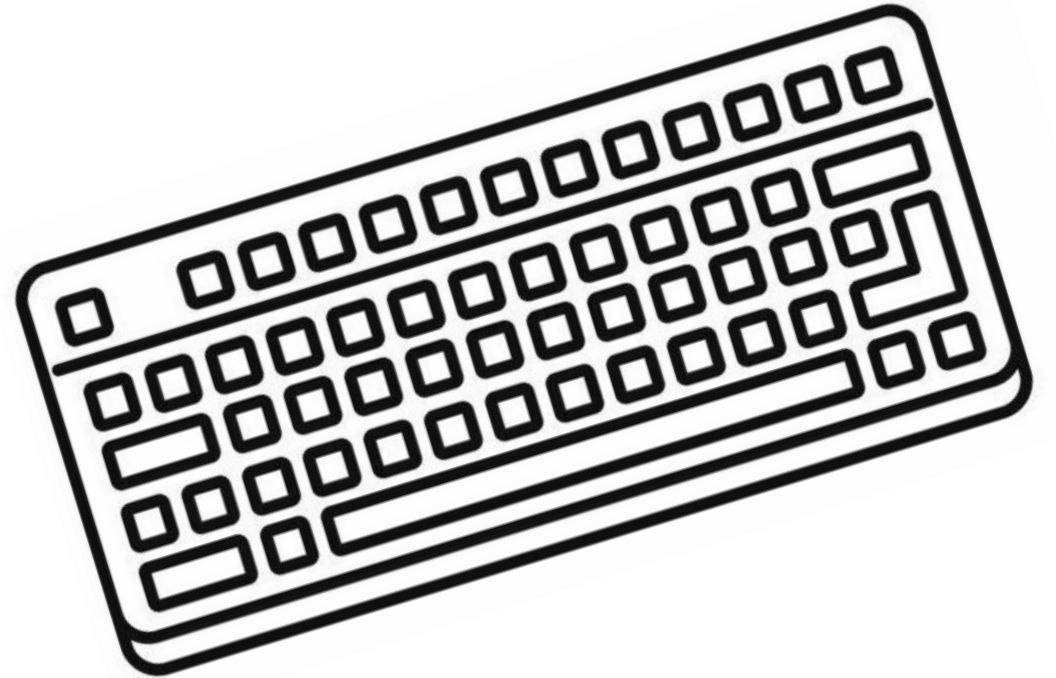✔ What's the **minimum number of bits** each of your systems would need **per character**?

05 MNI

LOOK AT YOUR KEYBOARD

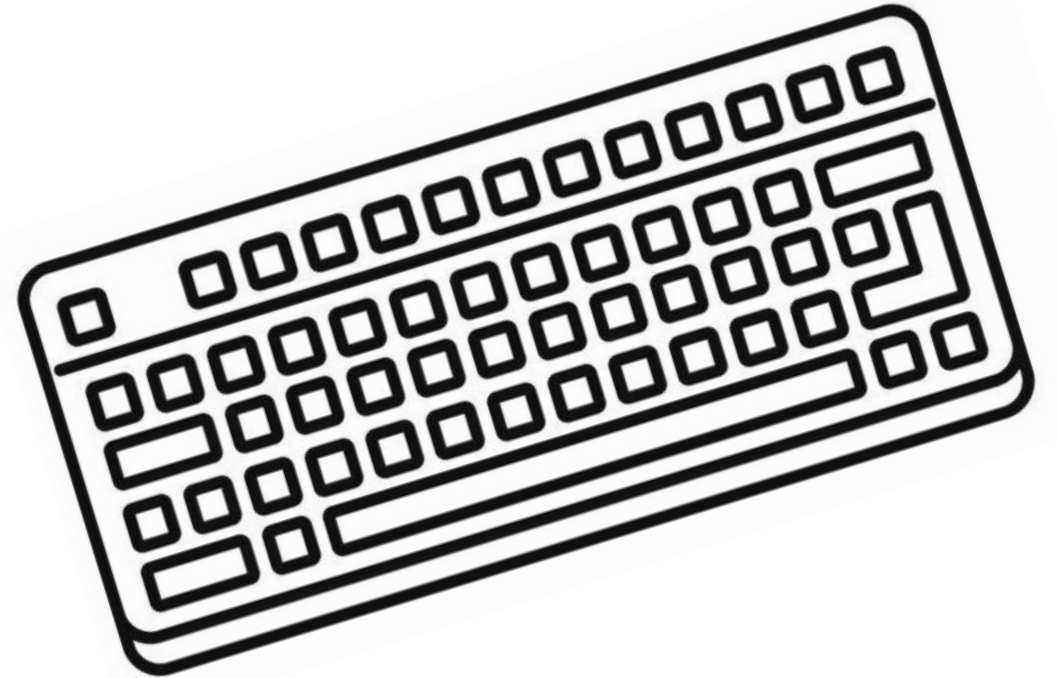## what are the possible values for a character?
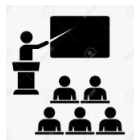
05 MNI

LOOK AT YOUR KEYBOARD
what are the possible values for a character ?

✔ - alphabet
✔ - upper / lower case
✔ - numbers
✔ - special characters
✔ - white characters
✔ - ENTER, CONTROL keys, arrow keys

THIS IS THE ASCII CODE !

INDIVIDUALY

✔ **Read** the ASCII code table
✔ Take some time to **understand** it

CLASS DISCUSSIONS

✔ What's the same as the systems you created?
✔ What's different?
✔ What is most interesting or surprising about this system?

Num.	Bits	Char.
32	00100000	Space
33	00100001	!
34	00100010	"
35	00100011	#
36	00100100	$
37	00100101	%
38	00100110	&
39	00100111	'
40	00101000	(
41	00101001	)

Num.	Bits	Char.
64	01000000	@
65	01000001	A
66	01000010	B
67	01000011	C
68	01000100	D
69	01000101	E
70	01000110	F
71	01000111	G
72	01001000	H
73	01001001	I

Num.	Bits	Char.
96	01100000	`
97	01100001	a
98	01100010	b
99	01100011	c
100	01100100	d
101	01100101	e
102	01100110	f
103	01100111	g
104	01101000	h
105	01101001	i

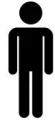# Using the ASCII conversion chart (see handout)

Q1 - What is the **hexadecimal** representation for the string "Hello"?

Q2 - What is the **binary** representation for the string "Hello"?

Q3 - Convert this binary to hexadecimal and then to ASCII stri g

01000011 01001111 01001101 01010000 00100000 00110001 00110000 00110111 00100001

MEMBER 1

MEMBER 2

✔ Think about a short sentence

✔ Encode it in binary, using your ASCII table

✔ Give the paper to your partner

✔ Decode the binary to string

✔ Reply to your partner in the same way

Try to communicate together using binary code!!!

INDIV

Find 3 bugs at least related to this system

Bug example   111 Can be 1 or !!!

Cover encode number

a = 01	r = 0001	1 = 111
b = 02	s = 0002	2 = 222
c = 03	t = 0003	3 = 333
d = 04	u = 0004	4 = 444
e = 05	v = 0005	5 = 555
f = 06	w = 0006	6 = 666
g = 07	x = 0007	7 = 777
h = 08	y = 0008	8 = 888
i = 001	z = 0009	9 = 999
j = 002	! = 1	0 = 0000
k = 003	? = 2	
l = 004	% = 3	
m = 005	@ = 4	
n = 006	$ = 5	
o = 007	. = 6	
p = 008	, = 7	
q = 009		

APPERCASE = 8
Space = 9

14

INDIV

Search activity

✔ What is UTF and especially UTF-8?
✔ **Be ready to explain to others for the next session**