

2/16/2022

1. Examine data sizes.

Add to the program to printout the sizeof(datatype) for types below, fill in the blanks:

Using the default compiler flag (-m64):

long _____, int _____, short _____, char _____, float _____, double _____, int* _____ char* _____

Using the 32-bit compiler flag (-m32):

long _____, int _____, short _____, char _____, float _____, double _____, int* _____ char* _____

For the rest of the worksheet, work with the default flag (-m64)

2. Add text output to the code to label the existing outputs (to make them meaningful). We'll only care about the first output for parts 3 and 4.

3. Look up **Endianness** on the internet.

a. Explore a few values (e.g. 0, 1, -1, 2, 100) with the code, write the results as you see them.

b. Explain the byte order that you observe above.

c. Is the computer you are using Big-endian or Little-endian?

4. Write the byte-representations of the following (you will need to add code for the 2nd and 3rd columns). Write the results as we would read them (adjusting for your answer in #3).

int	short	char
0 _____	0 _____	0 _____
1 _____	1 _____	1 _____
-1 _____	-1 _____	-1 _____
-2 _____	-2 _____	-2 _____
-100 _____	-100 _____	-100 _____
4 _____	4 _____	4 _____
8 _____	8 _____	8 _____
15 _____	15 _____	15 _____
16 _____	16 _____	16 _____
31 _____	31 _____	31 _____
32 _____	32 _____	32 _____
Tmin _____ (val:)	Tmin _____ (val:)	Tmin _____ (val:)
TMax _____ (val:)	TMax _____ (val:)	TMax _____ (val:)

5. Add an experiment to display bytes of a string in both uppercase and lowercase, use your name.

Eg. `const char *s = "john";` and `const char *s2 = "JOHN";`.

- a. Write the bytes values for both.
- b. Look up "ASCII Table" to explain the output given the input.
- c. Explain the differences between your uppercase string and lowercase string.