Computer science log

Agust 14,2023-Monday

Touch pad info:

* My touch pad it’s a TOUCH pad not a pash or tab pad
* To right click – I can use 2 fingers.
* You can zoom in and out with out with pinch motions – just like your phone

Monitor set – up

A screenshot of a computer

Description automatically generated

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<https://www.sciencebuddies.org/science-fair-projects/references/ascii-table>

8 bits are called byte

1. [ASCII Library](https://www.google.com/url?q=https://www.sciencebuddies.org/science-fair-projects/references/ascii-table&sa=D&source=editors&ust=1692969403414624&usg=AOvVaw19T4mJZzHFDmUBqjLdrfR7)
2. What is ASCII Library?

A binary table

1. What is a “library” or “database” for computers?

The unified set of information, resulting from our computer project and, which will be shared by the different users of the organization.

1. How does Binary work?

a numbering system consisting of two digits 1 and 0

1. What is the binary for:
2. 2= 0000 0010
3. 5= 0000 0101
4. 9= 0000 1001
5. 34= 0010 0100
6. 87= 0101 0111
7. 127=0111 1111
8. 129= 1000 0001
9. How is this number odd or even?
10. 00000100

even

1. 00000001

odd

1. What is is this ASCII Character
2. 01110110
3. 01011111
4. In your log make sure you have this information.
5. What is an Algorithm?

An algorithm is a procedure used for solving a problem or performing a computation. Algorithms act as an exact list of instructions that conduct specified actions step by step in either hardware- or software-based routines. Algorithms are widely used throughout all areas of IT.

1. How is an Algorithm Effective?

A good algorithm is correct, but a great algorithm is both correct and efficient. The most efficient algorithm is one that takes the least amount of execution time and memory usage possible while still yielding a correct answer.

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1. What is Cryptology?

The study of codes

Code writhing breaking

The birth of comuter coding or porgram

* 1. What is Binary

A 2 base number system when each place or bit only has 2 posibles outcomes

Signified by a 0 or a 1 in CS

1. What is Decimal

A 10 base number system when each place or bit has 10 posible outcomes

Our primary number system 0-9 for each place

1. What is the difference between Binary and Decimal

Binary has 2 outcomes per place/bit

Decimal has 10 outcome per place/bit

1. What is a bit?

 is the smallest unit of data

a single place within binary

* 1. What is a byte?

A group of 8 binary bits = 1 byte of data

0000 0000 = 1 byte of data

* 1. What does each bit (upto 8+) represent?

1 byte of data is 8 bits

Each bit represent 2 outcomes per place

1.8 bits = 2 power 8 = 256

2x2x2x2x2x2x2x2

1111 1111

* How many outcomes are there with 4, 8, and 16 bits?

2^4 = 16 posible outcomes = 2^4

2^8 = 256

2^16 =65.536 posibles outcomes

0101 0101 0001 1111

* What is the mathematical procedure for calculating the outcomes for binary and/or decimal?

For binary each place DOUBLES the possible outcomes – however a 0 indicates you don’t use it

1. 00101000 = 20 because the places look like this: 1, 2, 4, 8, 16, 32, 64, 128 and only the 4 and 16 places are tunered (see the 1) therefore: 4 + 16 = 20
2. For decimal – each place as 10 values 0 1 2 3 4 5 6 7 8 9 the first place is worth 1 the 2 place is worth 10 the 3 place is worth hundreds the 4 place is eorth 1000 etc. we then add all the values together to get the outcome example 70.000.030 = 7 ten millions and 3 tens
3. Why do computers use Binary and not Decimal?

Because computer are really dumb

They can understand that tey are getting a getting a signal or not getting one but by reading those patterns – they can use different libraries like ascii or jpg to render the correct output

1. What does time have to do with the way computers use binary?

The computer needs to know how long for each signal input devices tell the computer how long each signal is therefore if it is 8 bit that means that every 8 bits is a neaw signal the poresessor will the ral read all the beats as fast as it can but know each signal is 8 bit and use that to decode it.

1. What is an input device?

Keyboard, microphone, remote, mouse, camera these devices receive input from the user and pass that data to the poessor and hard drive (hard drive store s data like libraries of code to decipher the data.

1. What is an output device?

Output devices receive decoded binary from the processer (as the library states the key to coding it) they are monitors speakers and basically anything that communicates to the user.

1. What is 0011 0011 converted to a decimal number?

1 = off, 2= off, 4=on, 8=on, 16=off, 32=off 64=on, 128=on

4+8+64+128=204 depending on the library could be a character or a color or basically anything

* How do we convert 1001 1011 to a decimal number?

See above

* How can we quickly tell if a binary represents an odd or even number?

If the first bit its ON then is odd

* What is 0110 1110 as a character?

Just convert to a decimal then look it up on the ASCII library like the computer would do if it was receiving the data from an 8 bit ASCII Keyboard

* Why would we need to convert the letter P to binary?

We can understand what the computer wich can only really feel electrical signal ( ON/OFF) has to do

* What is a database or library for computers?

They are the keys to he codes from imput to the processor

* What is ASCII used for?

It is the key to what each caracters feels like to the computer on off signals it is the character key to the binary encoding of each key on the keyboard.

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Boilerplate