CS 103000
Prof. Madeline Blount

Week 2: VARIABLES

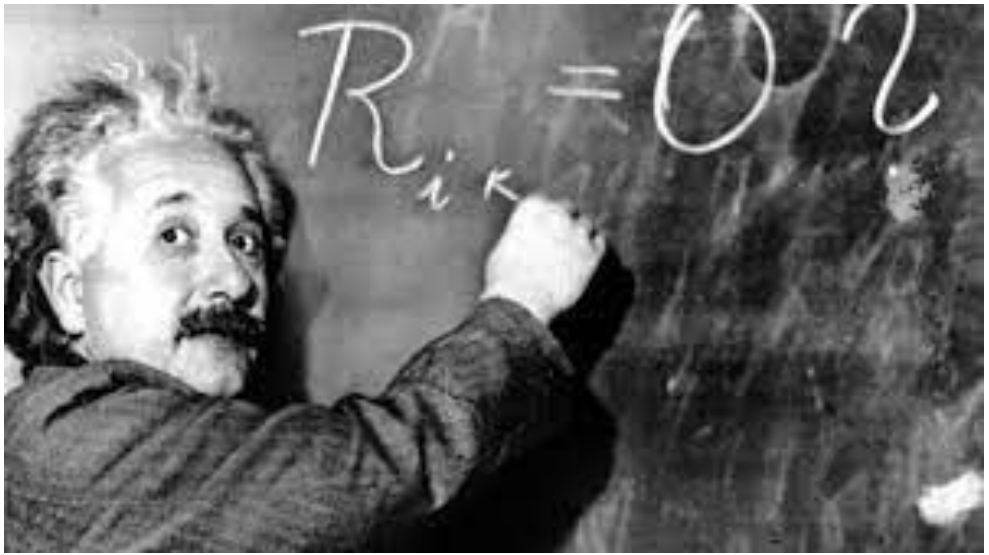
ATTENDANCE:
https://cs103-proton.glitch.me/

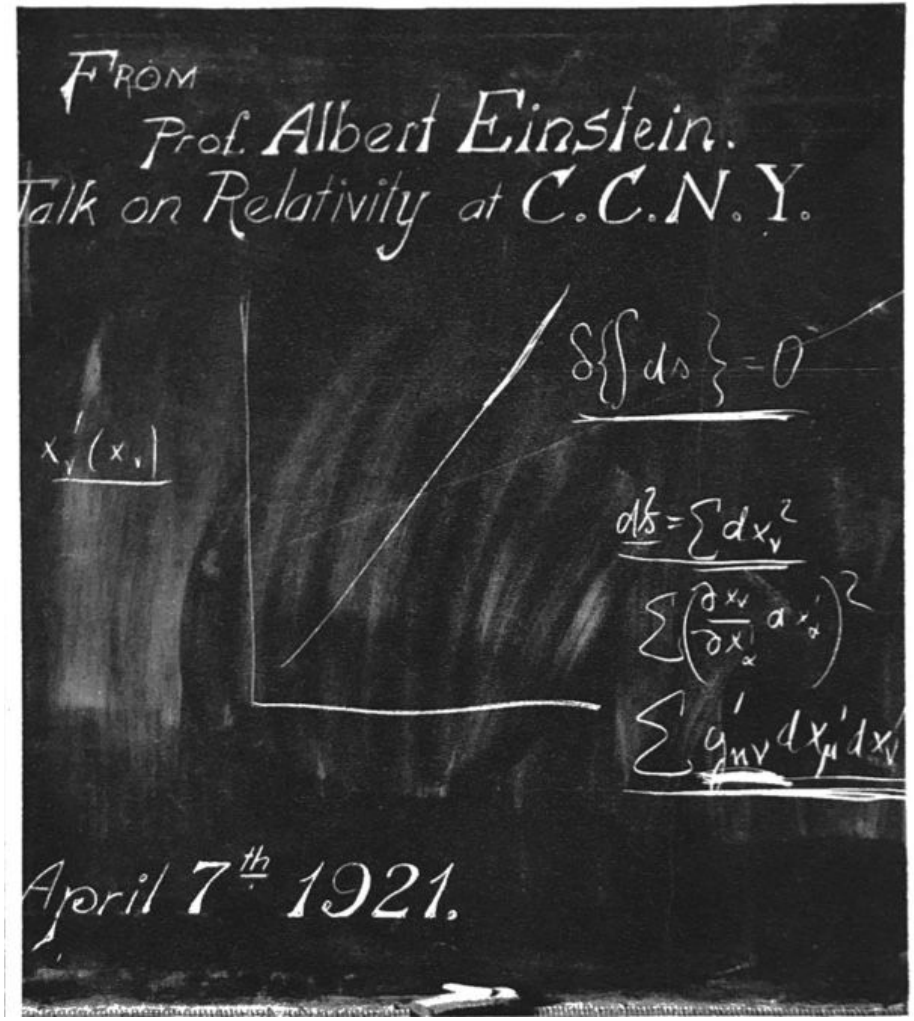
Dall-E 2: cats learning C++ in the forest on '90's technology

mass-energy equivalence

How much energy is locked up in a mass of given kg?

$$E = mc^2$$





https://library.ccny.cuny.edu/blog/Dr-Einstein-Visit-to-City-College

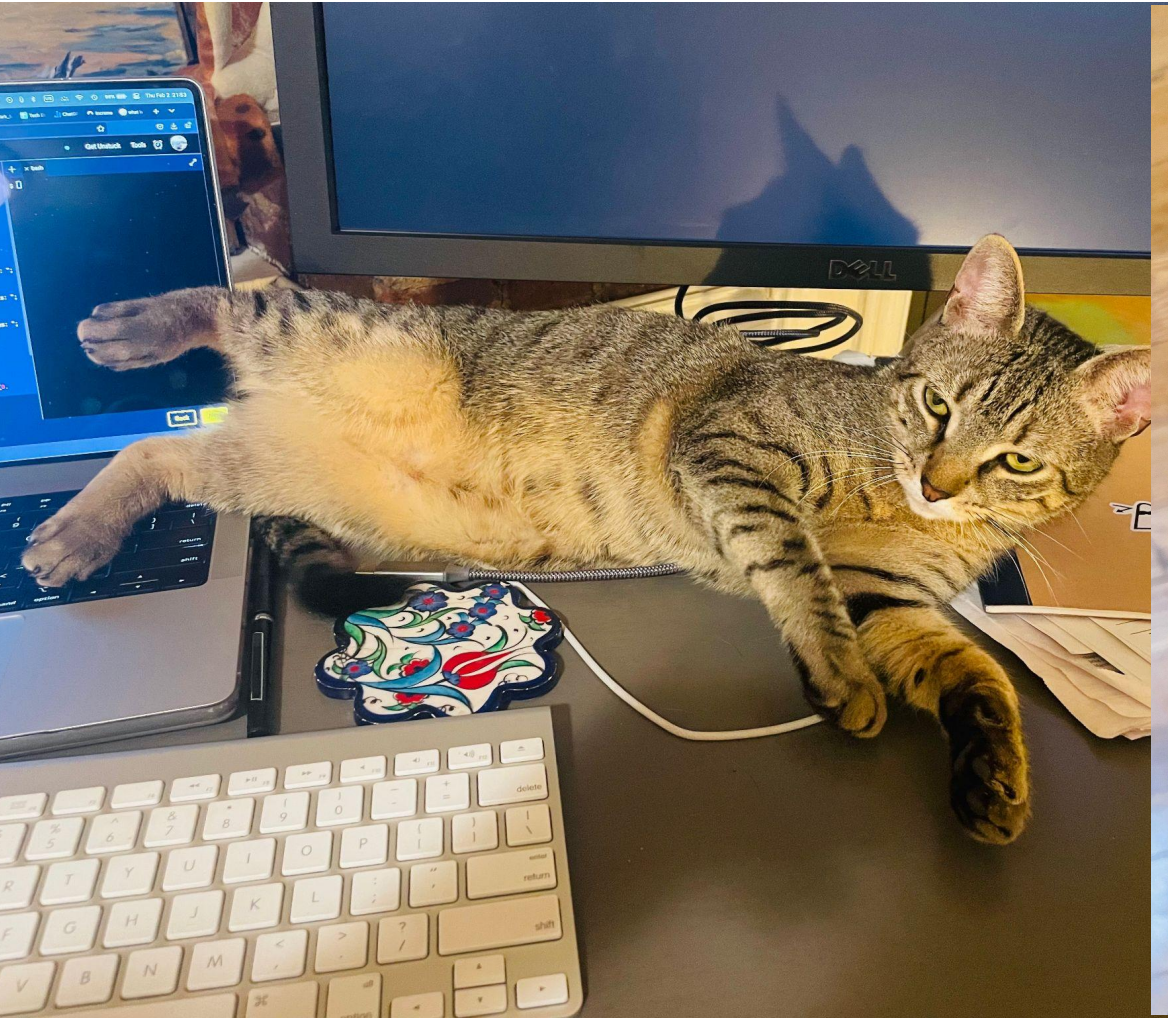
Long Island, 1939

Einstein on the Beach, BAM 2012

https://www.nytimes.com/2012/09/17/arts/music/einstein-on-the-beach-at-the-brooklyn-academy-of-music.ht

```
c = 2.99792458e8 m/s;
```

proton = $1.67262192 \times 10^{-27}$ kilograms


DELL

😱 INTEGER OVERFLOW: weirdness, limitations

🖥️ we don't have infinite memory!

int = 32 bits (4 bytes)

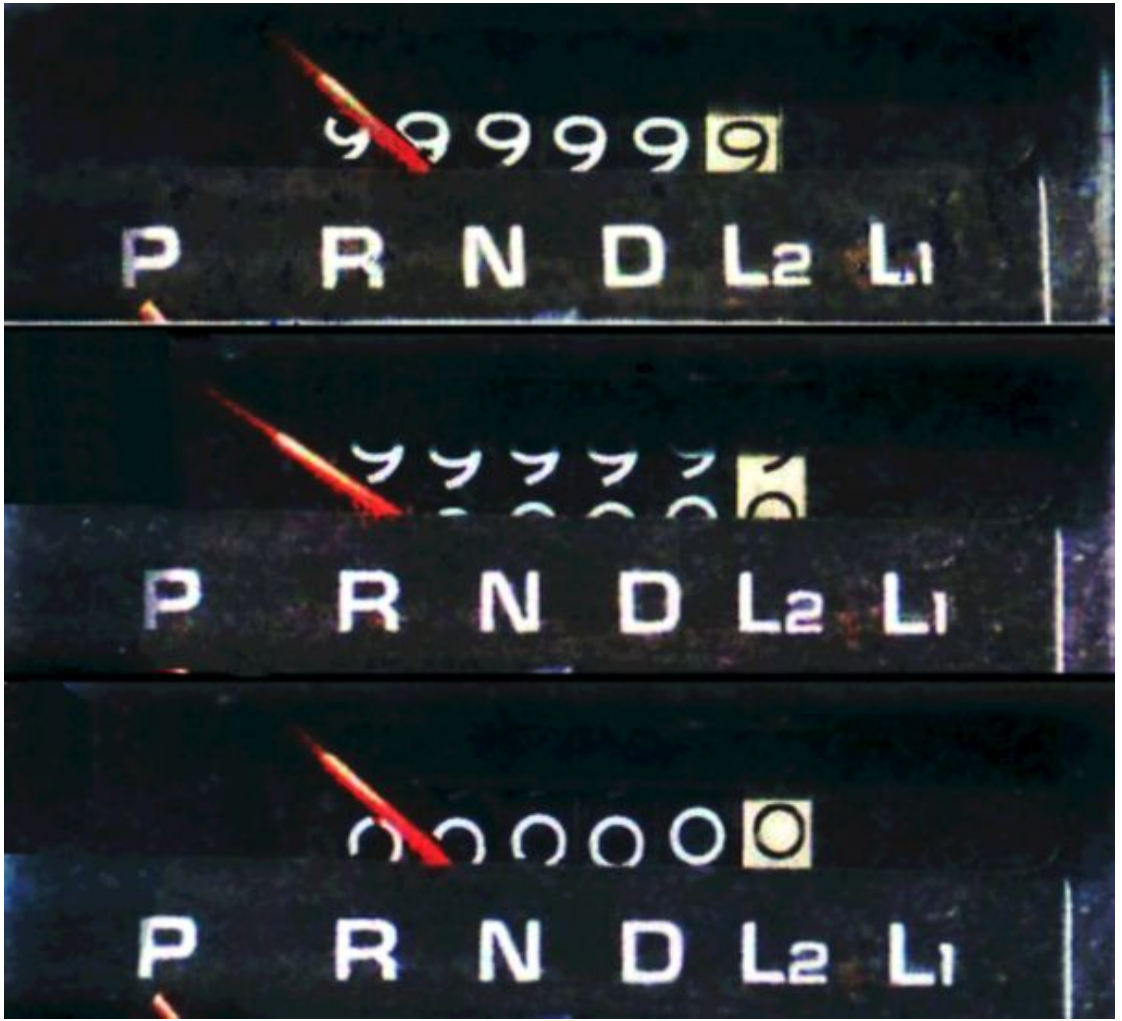
00000000000000000000000000000000

11111111111111111111111111111111

4,294,967,295

+/- 2,147,483,647

INTEGER OVERFLOW



https://www.youtube.com/shorts/gzf8hS69KAs

INTEGER OVERFLOW

RUNNING OUT OF TIME!

Jan. 19th, 2038

32-bit integer seconds ++ after Jan. 1, 1970 (UNIX TIME)

Data Type	Memory Size
bool	1 byte
char	1 byte
int	4 bytes
float	4 bytes
double	8 bytes
std::string	24 bytes

```
static_cast<type>(variable)
```