

## Need a Method for Recording Scores

**How will we track score distribution?**  
**With a histogram.**

I had some space left on this slide,  
 and I was feeling curious...

**Do you know why**

- **most currencies in the world**
- **are numbered 1, 2, 5, 10, 20, 50,**
- **and so forth?**

## Create Bins with Equal Logarithmic Spacing

Equal logarithmic spacing:

- start with powers of 10,
- then subdivide into thirds, and
- round to usable values ( $\times 2$ ,  $\times 2.5$ ,  $\times 2$ ).
- Then you have
- 1, 2, 5, 10, or
- 1, 2.5, 5, 10, or
- 1, 2, 4, 10
- (the last seems rarer for some reason).

## Use 16 Bins to Record a Player's Scores

Let's say that scores can range from 10s to  
 billions and use the following scheme:

score < 20,000                      bin 0

20,000 ≤ score < 50,000        bin 1

50,000 ≤ score < 100,000       bin 2

...

1,000,000,000 ≤ score            bin 15

**Sixteen bins total.**

## Example Player Structure

```
struct player_t {
    char name[32];
    char password[20];
    int32_t age;
    int32_t num_games;
    int32_t score_dist[16];
    struct game_t* game;
};
```

Must choose a  
 type for each  
 field...

...and a size  
 for each array.