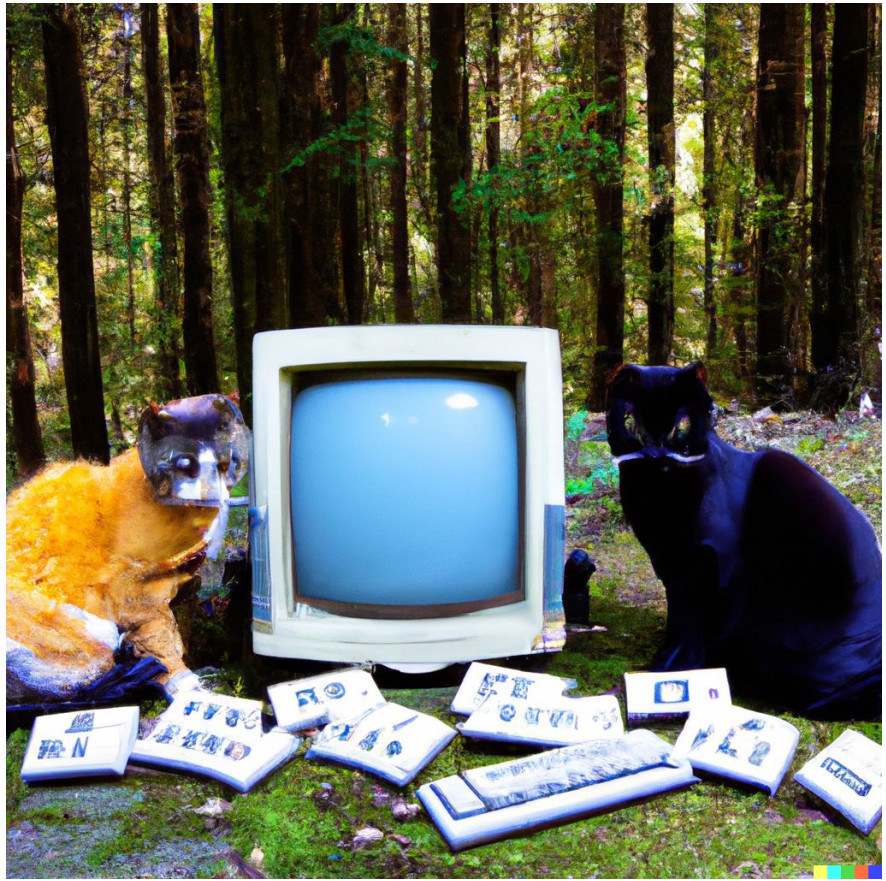
CS 103000
Prof. Madeline Blount

Week 5:
LOOPS (part 2)
🪺 NESTED LOOPS

Attendance:
NONE TODAY



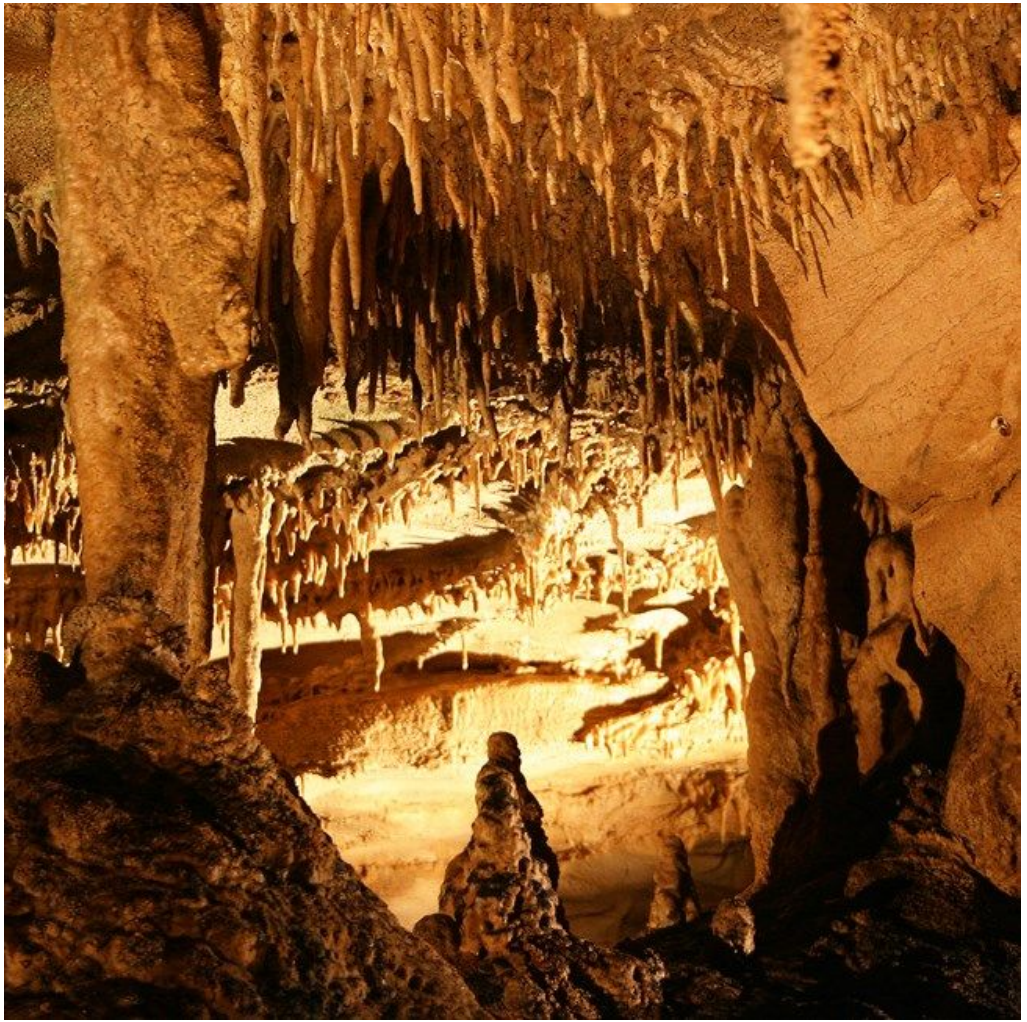
Dall-E 2: cats learning C++ in the forest on '90's technology

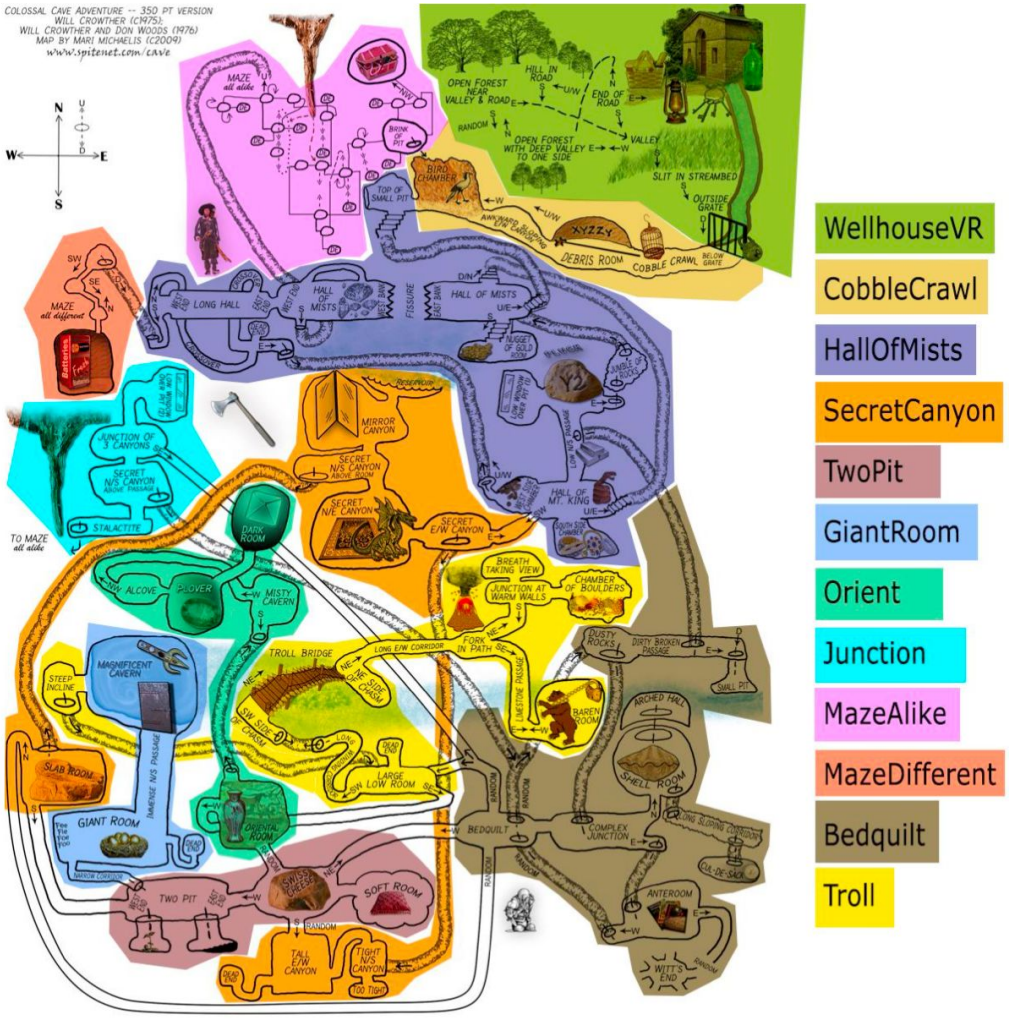
COLOSSAL CAVE ADVENTURE

Will Crowther (1976)
Patricia Crowther
Don Woods (1977)

Mammoth Cave, Kentucky
Longest cave in the world

FORTRAN, 700 lines of code

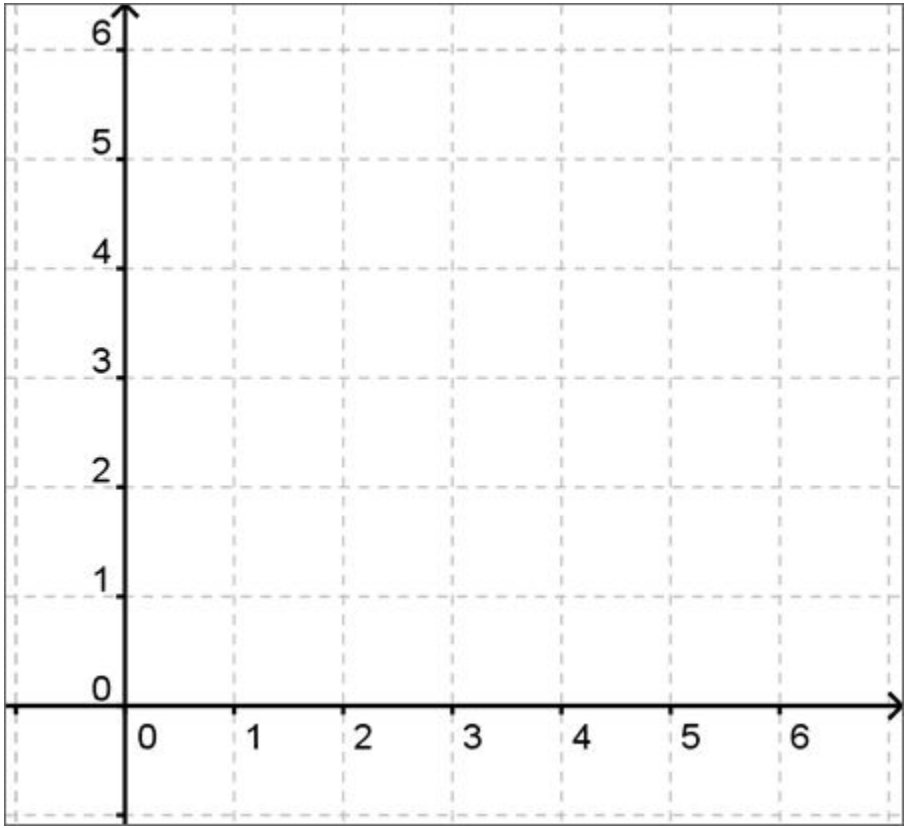



COLOSSAL CAVE ADVENTURE -- 350 PT VERSION
WILL CROWTHER (C1975),
WILL CROWTHER AND DON WOODS (1976)
MAP BY MARI MICHAELIS (C2009)
www.spitenet.com/cave
N
W
E
S
U
D
MAZE all alike
BIRD CHAMBER
TOP OF SMALL PIT
OPEN FOREST NEAR VALLEY & ROAD
HILL IN ROAD
END OF ROAD
OPEN FOREST WITH DEEP VALLEY TO ONE SIDE
VALLEY
SLIT IN STREAMBED
OUTSIDE GRATE
XYZZY
DEBRIS ROOM
COBBLE CRAWL
BELOW GRATE
MAZE all different
LONG HALL
HALL OF MISTS
NUGGET OF GOLD
JUNCTION OF 3 CANYONS
SECRET N/S CANYON
STALACTITE
TO MAZE all alike
RESERVOIR
MIRROR CANYON
SECRET N/S CANYON
SECRET N/E CANYON
SECRET E/W CANYON
HALL OF MT. KING
DARK ROOM
ALCOVE
PLOVER
MISTY CAVERN
BREATH TAKING VIEW
JUNCTION AT WARM WALLS
CHAMBER OF BOULDERS
FORK IN PATH
TROLL BRIDGE
MAGNIFICENT CAVERN
STEEP INCLINE
DUSTY ROCKS
DIRTY BROKEN PASSAGE
SMALL PIT
LIMESTONE PASSAGE
BARREN ROOM
ARCHED HALL
SHELL ROOM
SLAB ROOM
GIANT ROOM
ORIENTAL ROOM
LARGE LOW ROOM
BEDQUILT
COMPLEX JUNCTION
ANTEROOM
WITT'S END
TWO PIT
SWISS CHEESE
SOFT ROOM
TALL E/W CANYON
TIGHT N/S CANYON
TOO TIGHT
WellhouseVR
CobbleCrawl
HallOfMists
SecretCanyon
TwoPit
GiantRoom
Orient
Junction
MazeAlike
MazeDifferent
Bedquilt
Troll

for loops!

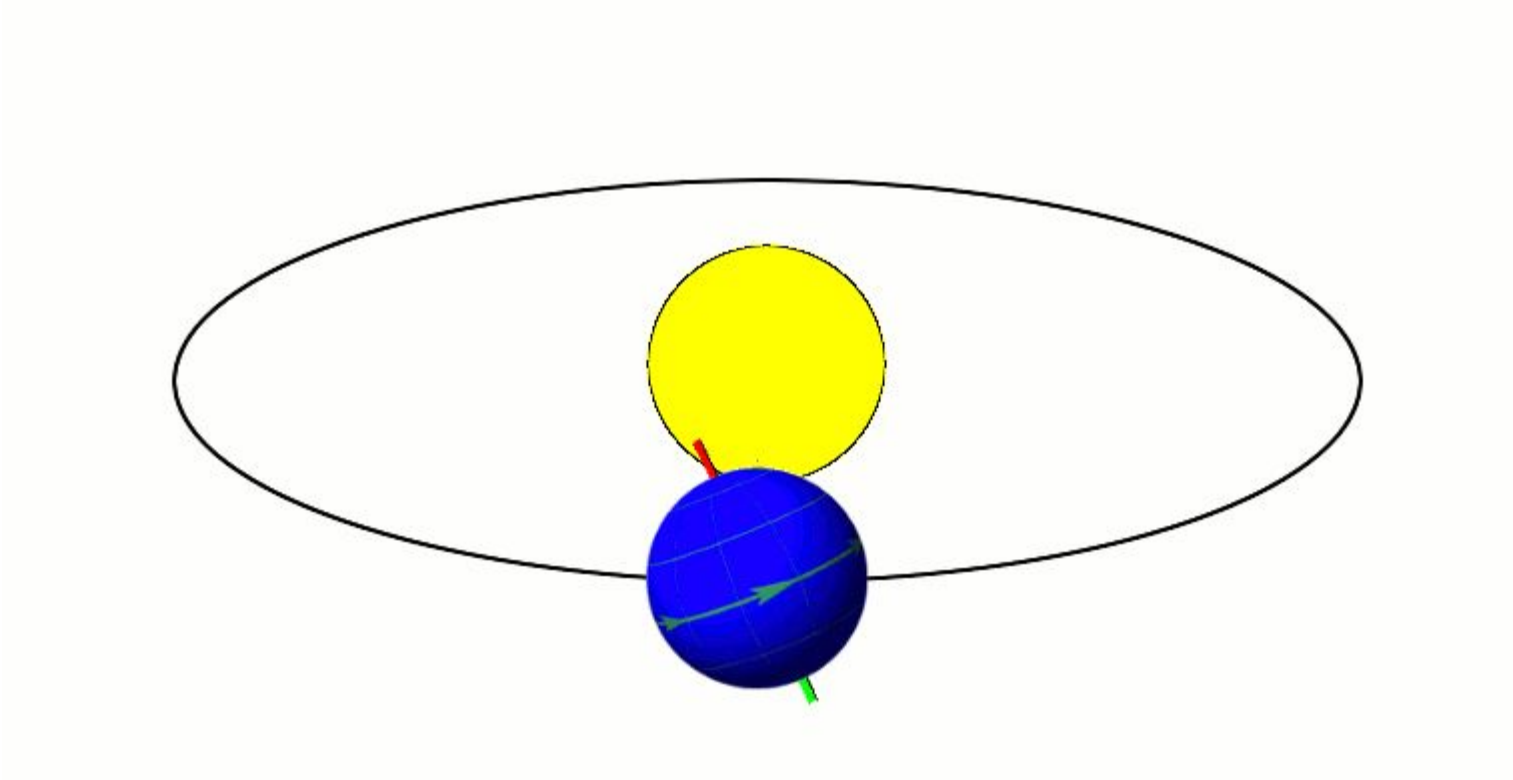
```
int i;
for (i = 0; i < max; i++) {
  // loop in here
}
```

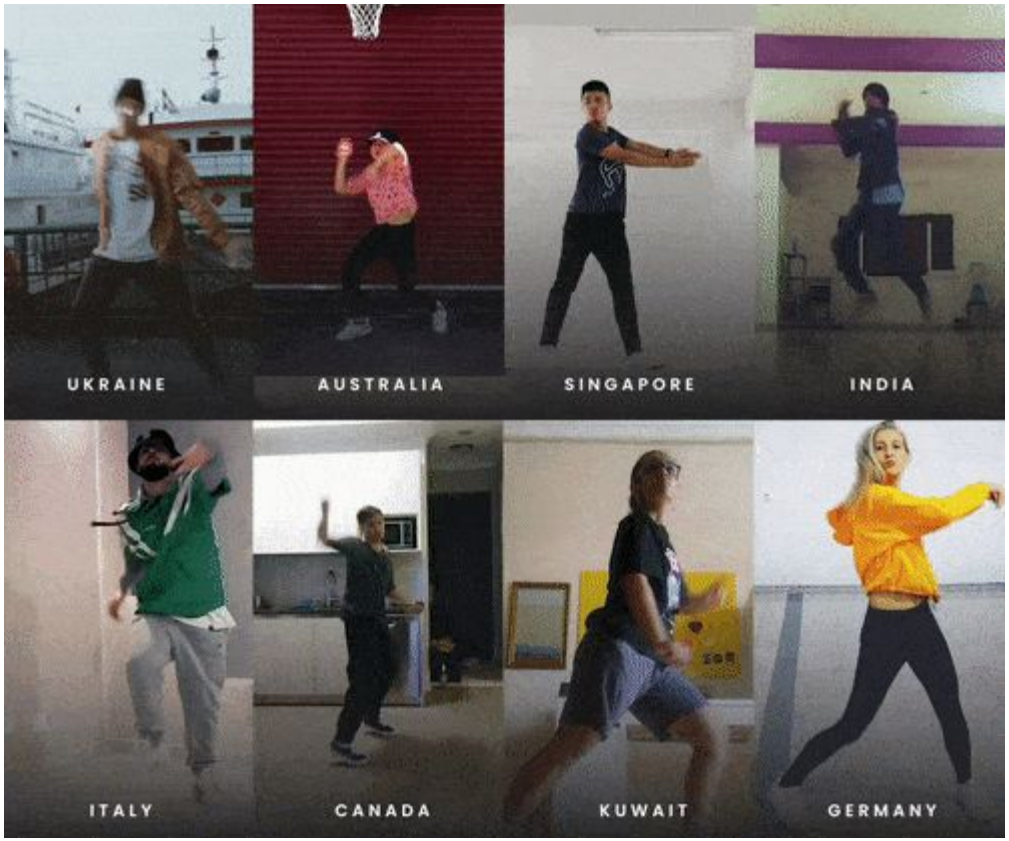
Nested for loops:
MULTI-DIMENSIONAL



12
1
2
3
4
5
6
7
8
9
10
11

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




UKRAINE
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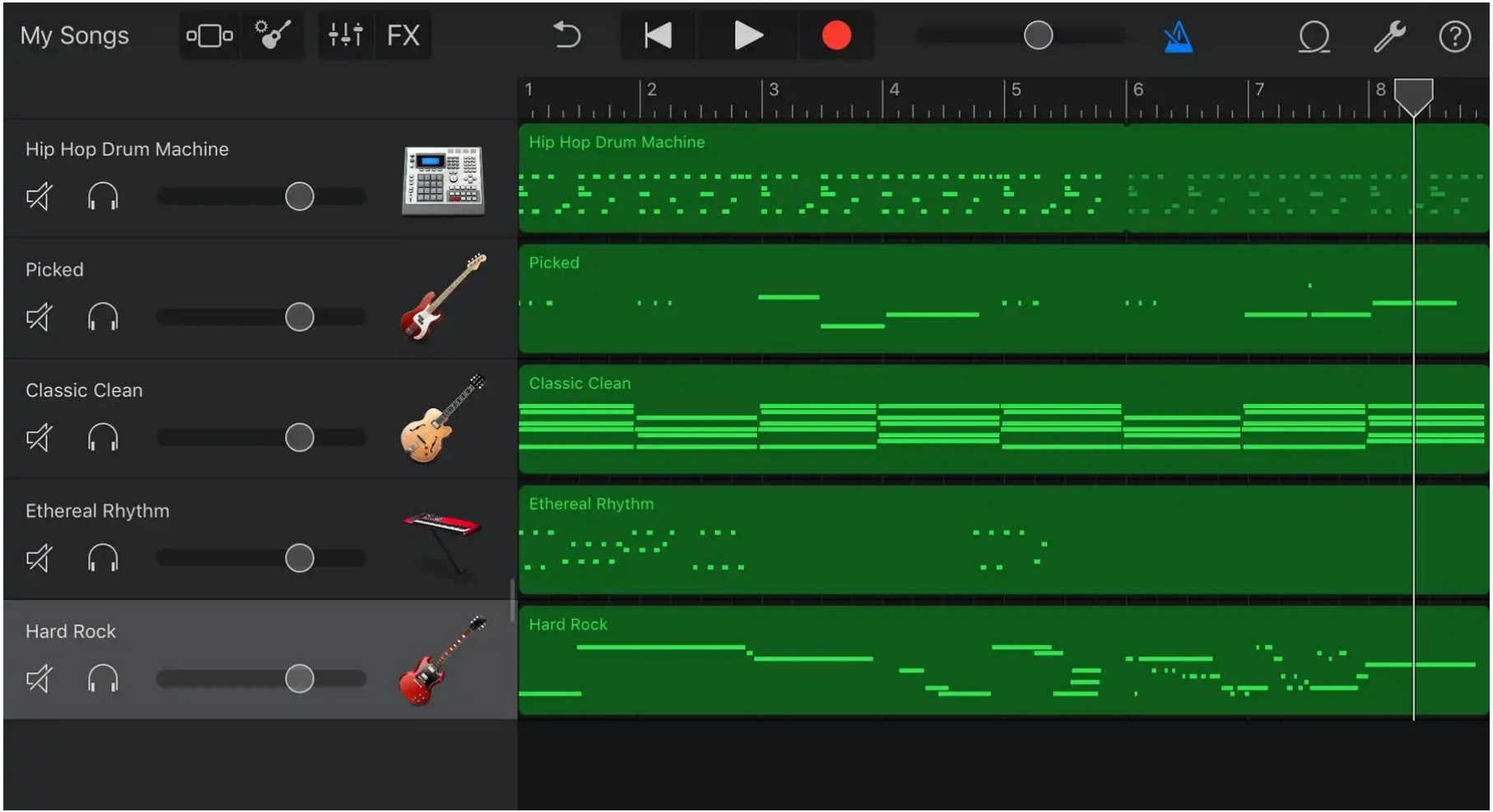
GERMANY


My Songs
FX
1
2
3
4
5
6
7
8
Hip Hop Drum Machine
Picked
Classic Clean
Ethereal Rhythm
Hard Rock

Special Pythagorean triplet

Problem 9

A Pythagorean triplet is a set of three natural numbers, $a < b < c$, for which,

$$a^2 + b^2 = c^2$$

For example, $3^2 + 4^2 = 9 + 16 = 25 = 5^2$.

There exists exactly one Pythagorean triplet for which $a + b + c = 1000$.
Find the product abc.

```
euler #9 answer: 31875000
```

“brute force”

using loops + computation power

Smallest Multiple

Problem 5

2520 is the smallest number that can be divided by each of the numbers from 1 to 10 without any remainder.

What is the smallest positive number that is **evenly divisible** by all of the numbers from 1 to 20?

Problem 6: answer 232792560