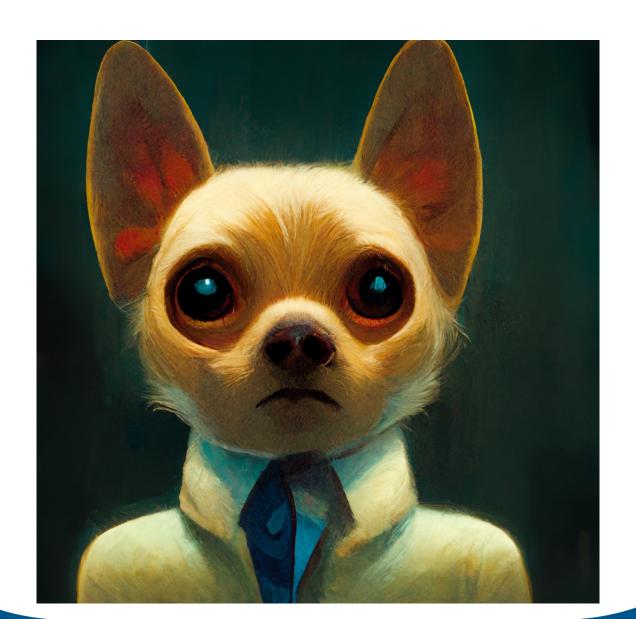# CS210 Discussion

Week 12

Attendance

Today

- Exercise hints
- Finish through exercise 2
  - Show us passing Gradescope tests to leave early
- Programming exam next week
  - Bring a book
  - You can work on CS210 classwork after you finish also
  - No social media, email, communication, etc.
  - Phones, headphones, earbuds, etc. must be put away
  - Open book, open note, open course website

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Graphs

- How do we represent a graph in Java?

Graphs

- How do we represent a graph in Java?
  - Adjacency list
  - Etc.
- Each vertex is a number
- Undirected graphs have two entries for each edge
- Directed graphs only one
  - From → To

0	1
1	3 0
2	
3	1

Exercise 1 – Graph Properties

All together now

Exercise 2 Hints

- Do all your work in the constructor
  - Methods can simply return pre-computed values
- Three important things already imported, look at what methods they have available (either using IntelliJ or their documentation).
  - DiGraph
  - DiCycle
  - LinkedBag

```
G.
m adj (int v)                              Iterable<Integer>
m addEdge (int v, int w)                              void
m E ()                                                 int
m V ()                                                 int
m inDegree (int v)                                    int
m outDegree (int v)                                   int
```

```
DiCycle cycle = new DiCycle(G);
cycle.
    m cycle ()                          Iterable<Integer>
    m hasCycle ()                                 boolean
```

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