

Quiz: Algebraic Data Types

9 minutes, no stress, no embarrassment, no consequences, but **alone and quietly**

- Write an ADT in Scala for representing binary numbers of arbitrary size.
- A binary is either zero,
- or it is one,
- or it is a digit (one, zero) followed by a shorter binary number

```
1 sealed trait Binary
2 case object One extends Binary
3 case object Zero extends Binary
4 case class O (t: Binary) extends Binary
5 case class I (t: Binary) extends Binary
```

```
1 sealed trait Binary
2 case object Empty extends Binary
3 case class O (t: Binary) extends Binary
4 case class I (t: Binary) extends Binary
```

- Try to represent 101, 0, 1: $I(O(One))$ for the left, $I(O(I(Empty)))$ for the right
- Success? → award 4 points.
- Minor problems? → subtract a point. Don't penalize for very minor issues.
- Zero points if the solution is polymorphic, or is not recursive.